wwPDB X-ray Structure Validation Summary Report (i)

Jun 25, 2024 – 05:27 AM EDT

PDB ID	:	6JE1
Title	:	Ligand complex structure of GH10 family xylanase XynAF1, soaking for 40 minutes
Authors	:	Li, G.; Miao, Y.; Zhang, R.
Deposited on	:	2019-02-02
Resolution	:	1.18 Å(reported)

This is a wwPDB X-ray Structure Validation Summary 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:

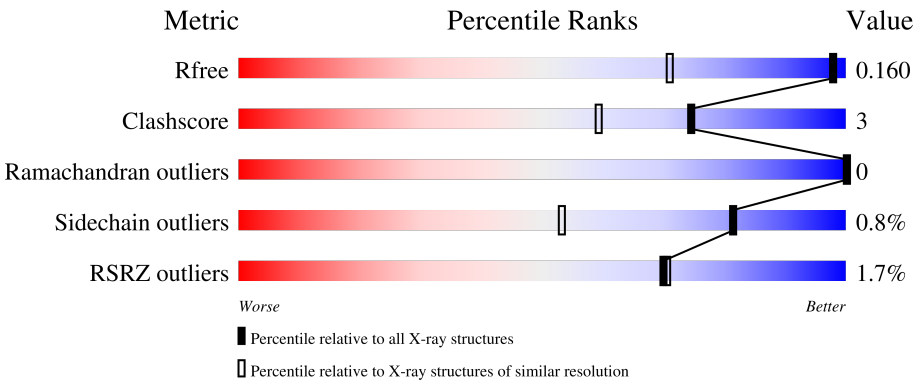
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.37.1
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.37.1

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 1.18 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	1123 (1.20-1.16)
Clashscore	141614	1182 (1.20-1.16)
Ramachandran outliers	138981	1134 (1.20-1.16)
Sidechain outliers	138945	1134 (1.20-1.16)
RSRZ outliers	127900	1102 (1.20-1.16)

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	A	319	.% 90% 9%
1	B	319	3% 92% 8%
2	C	2	50% 50%
2	D	2	100%
2	E	2	50% 50%

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Mol	Chain	Length	Quality of chain
2	F	2	50% 50%

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	XYP	C	1	X	-	-	-
2	XYP	D	1	X	-	-	-
2	XYP	D	2	-	-	X	-
2	XYP	F	2	-	-	X	-
6	PEG	A	510	-	-	X	-
6	PEG	B	508	-	-	X	-

2 Entry composition (i)

There are 7 unique types of molecules in this entry. The entry contains 5813 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.

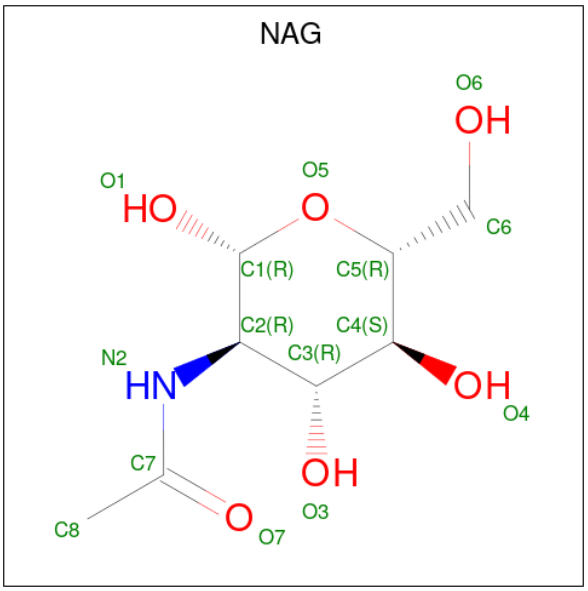
- Molecule 1 is a protein called Beta-xylanase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	319	2510	1595	414	490	11	0	12	0
1	B	319	2512	1596	415	490	11	0	12	0

- Molecule 2 is an oligosaccharide called beta-D-xylopyranose-(1-4)-beta-D-xylopyranose.

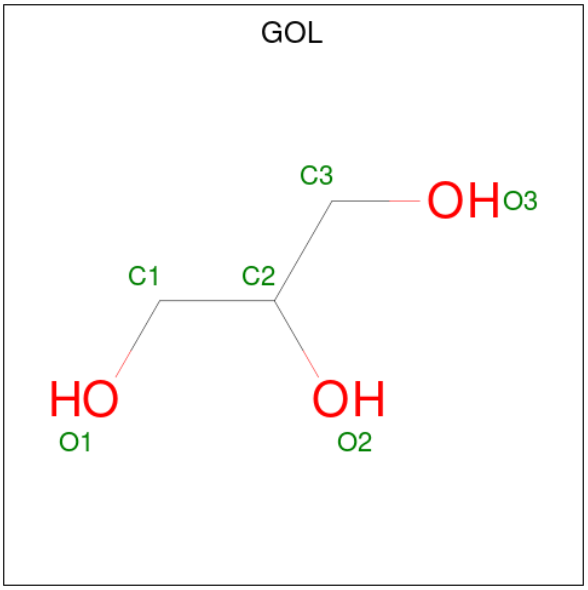
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf	Trace
			Total	C	O			
2	C	2	18	10	8	0	0	0
2	D	2	19	10	9	0	0	0
2	E	2	18	10	8	0	0	0
2	F	2	19	10	9	0	0	0

- Molecule 3 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: $C_8H_{15}NO_6$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
3	A	1	14	8	1	5	0	0
			Total	C	N	O		
3	B	1	14	8	1	5	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
			Total	C	O			
4	A	1	6	3	3		0	0

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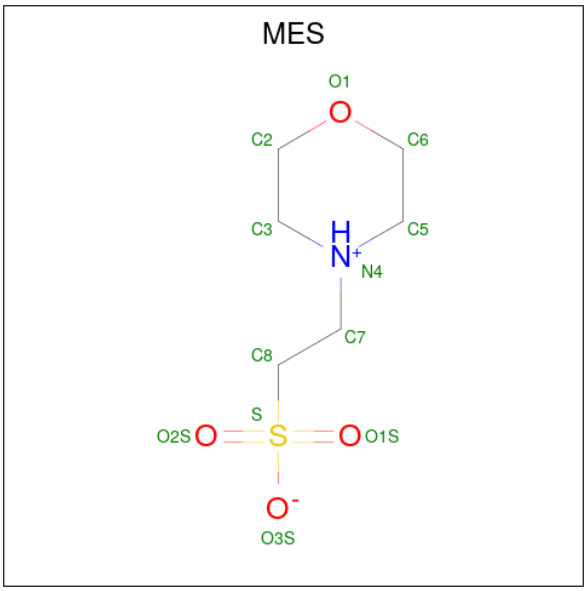
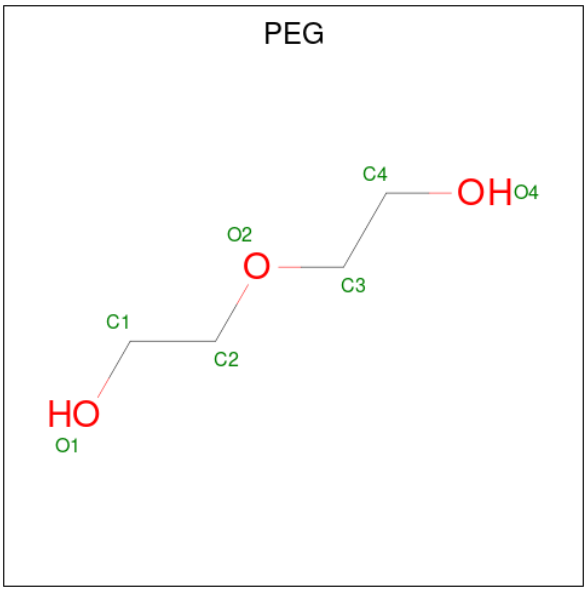
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	O			
4	A	1	6	3	3		0	0
			Total	C	O			
4	B	1	6	3	3		0	0
			Total	C	O			
4	B	1	6	3	3		0	0

- Molecule 5 is 2-(N-MORPHOLINO)-ETHANESULFONIC ACID (three-letter code: MES) (formula: $C_6H_{13}NO_4S$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	S		
5	A	1	12	6	1	4	1	0	0

- Molecule 6 is DI(HYDROXYETHYL)ETHER (three-letter code: PEG) (formula: $C_4H_{10}O_3$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
			Total	C	O		
6	A	1	7	4	3	0	0
			Total	C	O		
6	B	1	7	4	3	0	0

- Molecule 7 is water.

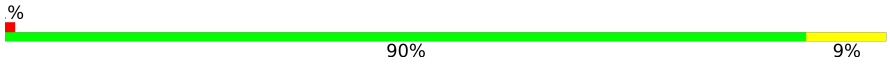
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	O		
7	A	343	343	343	0	0
			Total	O		
7	B	290	290	290	0	0

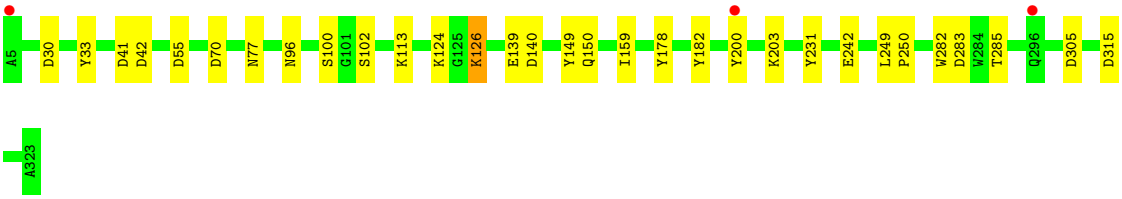
3 Residue-property plots (i)

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: Beta-xylanase

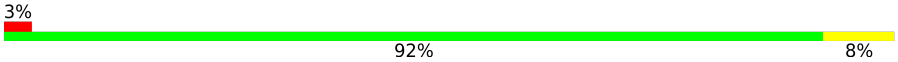
Chain A:

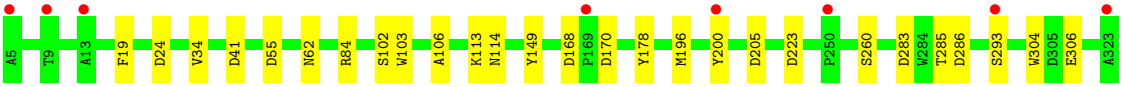




• Molecule 1: Beta-xylanase

Chain B:





• Molecule 2: beta-D-xylopyranose-(1-4)-beta-D-xylopyranose

Chain C:

• Molecule 2: beta-D-xylopyranose-(1-4)-beta-D-xylopyranose

Chain D:

• Molecule 2: beta-D-xylopyranose-(1-4)-beta-D-xylopyranose

Chain E:

• Molecule 2: beta-D-xylopyranose-(1-4)-beta-D-xylopyranose

Chain F:

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α, β, γ	44.35Å 57.40Å 64.92Å 73.88° 80.47° 68.59°	Depositor
Resolution (Å)	62.21 – 1.18 28.02 – 1.18	Depositor EDS
% Data completeness (in resolution range)	91.4 (62.21-1.18) 91.4 (28.02-1.18)	Depositor EDS
R_{merge}	0.05	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.99 (at 1.18Å)	Xtriage
Refinement program	REFMAC 5.8.0135	Depositor
R, R_{free}	0.132 , 0.151 0.144 , 0.160	Depositor DCC
R_{free} test set	8599 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å^2)	11.5	Xtriage
Anisotropy	0.025	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.40 , 46.4	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	0.98	EDS
Total number of atoms	5813	wwPDB-VP
Average B, all atoms (Å^2)	14.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 7.10% 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: XYP, GOL, MES, NAG, PEG

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	1.37	11/2573 (0.4%)	1.21	13/3510 (0.4%)
1	B	1.44	10/2575 (0.4%)	1.26	15/3513 (0.4%)
All	All	1.41	21/5148 (0.4%)	1.23	28/7023 (0.4%)

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	B	0	1

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

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	149	TYR	CE1-CZ	-9.05	1.26	1.38
1	B	149	TYR	CE1-CZ	-8.78	1.27	1.38
1	B	200[A]	TYR	CB-CG	-8.63	1.38	1.51
1	B	200[B]	TYR	CB-CG	-8.63	1.38	1.51
1	A	149	TYR	CZ-OH	6.58	1.49	1.37

The worst 5 of 28 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	41	ASP	CB-CG-OD2	-11.43	108.01	118.30
1	B	55	ASP	CB-CG-OD1	9.12	126.51	118.30
1	A	315	ASP	CB-CG-OD2	-8.57	110.58	118.30
1	A	55	ASP	CB-CG-OD1	8.56	126.00	118.30
1	A	305	ASP	CB-CG-OD2	-8.36	110.78	118.30

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	102	SER	Mainchain

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	2510	0	2405	13	0
1	B	2512	0	2406	5	0
2	C	18	0	0	2	0
2	D	19	0	0	6	0
2	E	18	0	0	4	0
2	F	19	0	0	6	0
3	A	14	0	13	0	0
3	B	14	0	13	0	0
4	A	18	0	24	1	0
4	B	12	0	16	0	0
5	A	12	0	13	1	0
6	A	7	0	10	5	0
6	B	7	0	10	4	0
7	A	343	0	0	8	3
7	B	290	0	0	2	2
All	All	5813	0	4910	31	3

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 3.

The worst 5 of 31 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:77:ASN:HB2	7:A:669:HOH:O	1.53	1.08
7:B:601:HOH:O	2:F:2:XYP:C3	2.05	1.02
2:C:1:XYP:O5	2:D:2:XYP:O4	1.78	1.00
7:B:601:HOH:O	2:F:2:XYP:O3	1.79	1.00
2:E:1:XYP:O5	2:F:2:XYP:O4	1.86	0.94

All (3) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:A:759:HOH:O	7:B:613:HOH:O[1_564]	1.61	0.59
7:A:757:HOH:O	7:A:876:HOH:O[1_545]	1.84	0.36
7:A:834:HOH:O	7:B:710:HOH:O[1_654]	2.06	0.14

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	329/319 (103%)	324 (98%)	5 (2%)	0	100	100
1	B	329/319 (103%)	323 (98%)	6 (2%)	0	100	100
All	All	658/638 (103%)	647 (98%)	11 (2%)	0	100	100

There are no Ramachandran outliers to report.

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	263/251 (105%)	261 (99%)	2 (1%)	81	53
1	B	263/251 (105%)	261 (99%)	2 (1%)	81	53
All	All	526/502 (105%)	522 (99%)	4 (1%)	81	53

All (4) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	283	ASP
1	A	285	THR
1	B	283	ASP
1	B	285	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	62	ASN
1	B	96	ASN
1	B	118	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)

8 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	XYP	C	1	2	9,9,10	2.73	4 (44%)	10,12,14	4.48	6 (60%)
2	XYP	C	2	2	9,9,10	1.14	1 (11%)	10,12,14	1.55	3 (30%)
2	XYP	D	1	2	10,10,10	3.14	2 (20%)	14,14,14	3.07	7 (50%)
2	XYP	D	2	2	9,9,10	1.63	2 (22%)	10,12,14	2.73	3 (30%)
2	XYP	E	1	2	9,9,10	2.70	3 (33%)	10,12,14	4.36	4 (40%)
2	XYP	E	2	2	9,9,10	1.35	2 (22%)	10,12,14	2.00	4 (40%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
2	XYP	F	1	2	10,10,10	1.20	0	14,14,14	1.39	2 (14%)
2	XYP	F	2	2	9,9,10	0.71	0	10,12,14	1.72	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	XYP	C	1	2	1/1/3/4	-	0/1/1/1
2	XYP	C	2	2	-	-	0/1/1/1
2	XYP	D	1	2	1/1/4/4	-	0/1/1/1
2	XYP	D	2	2	-	-	0/1/1/1
2	XYP	E	1	2	-	-	0/1/1/1
2	XYP	E	2	2	-	-	0/1/1/1
2	XYP	F	1	2	-	-	0/1/1/1
2	XYP	F	2	2	-	-	0/1/1/1

The worst 5 of 14 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	1	XYP	O1-C1	-9.30	1.09	1.39
2	E	1	XYP	O5-C1	6.02	1.54	1.42
2	C	1	XYP	C4-C3	-5.19	1.44	1.52
2	C	1	XYP	C5-C4	-4.58	1.41	1.52
2	E	1	XYP	C4-C3	-3.74	1.47	1.52

The worst 5 of 31 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	E	1	XYP	C5-C4-C3	10.74	122.87	109.67
2	C	1	XYP	C5-O5-C1	8.92	125.24	111.52
2	C	1	XYP	O4-C4-C5	7.41	124.31	109.15
2	D	1	XYP	C4-C3-C2	-6.08	100.38	110.89
2	E	1	XYP	O4-C4-C5	5.91	121.24	109.15

All (2) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
2	C	1	XYP	C4
2	D	1	XYP	C1

There are no torsion outliers.

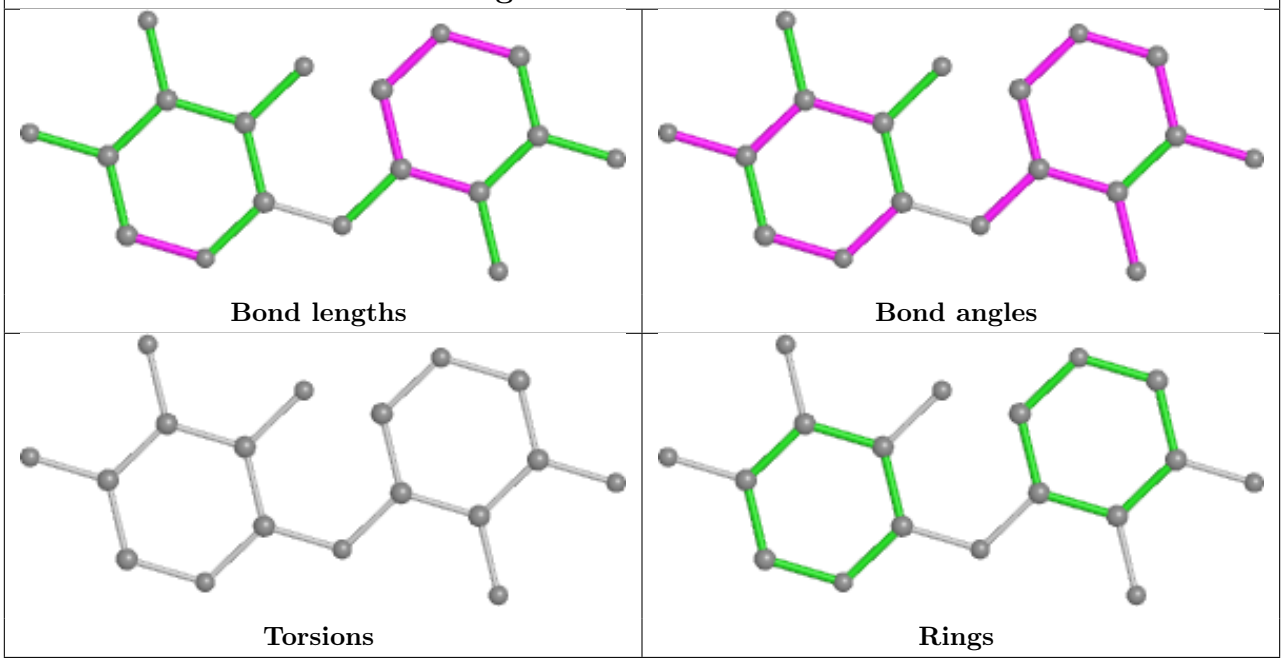
There are no ring outliers.

5 monomers are involved in 12 short contacts:

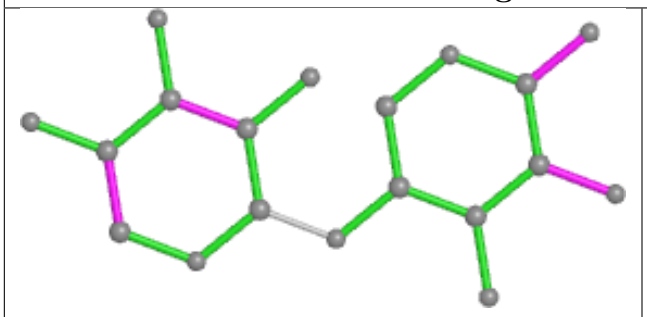
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	D	2	XYP	6	0
2	F	2	XYP	6	0
2	C	1	XYP	2	0
2	D	1	XYP	2	0
2	E	1	XYP	4	0

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

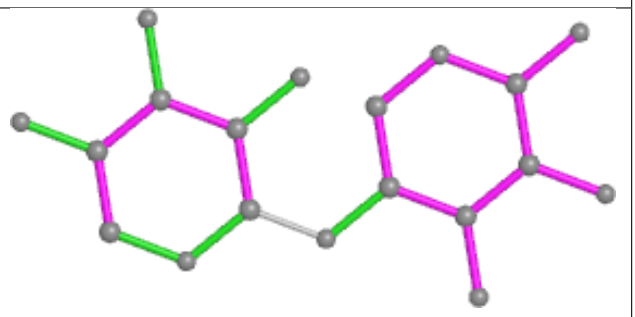
Oligosaccharide Chain C



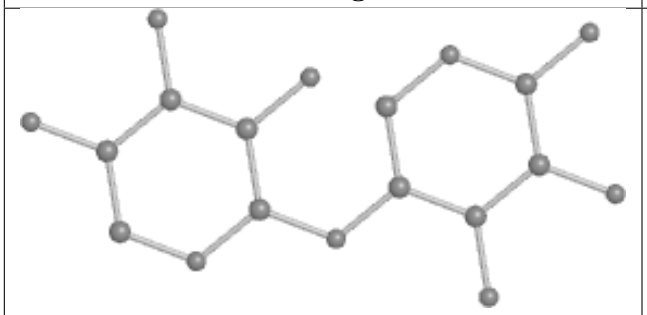
Oligosaccharide Chain D



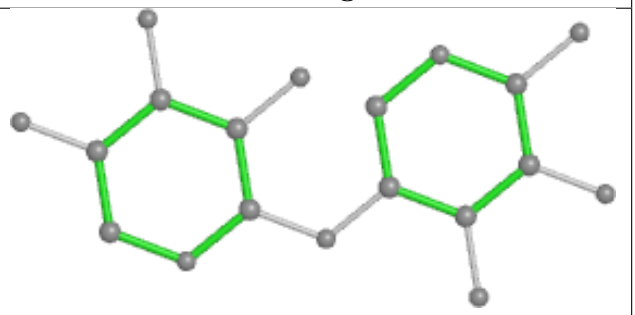
Bond lengths



Bond angles

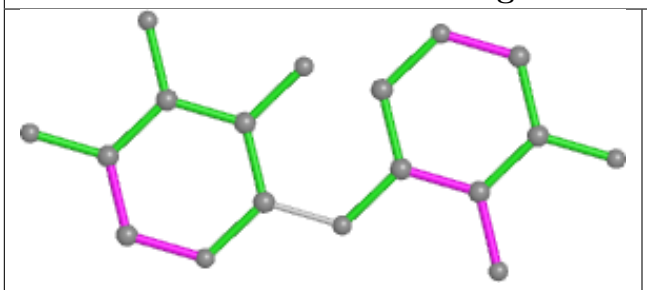


Torsions

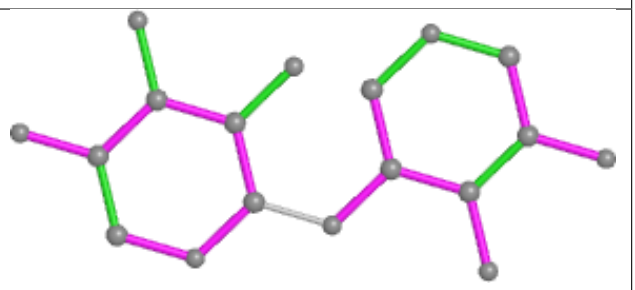


Rings

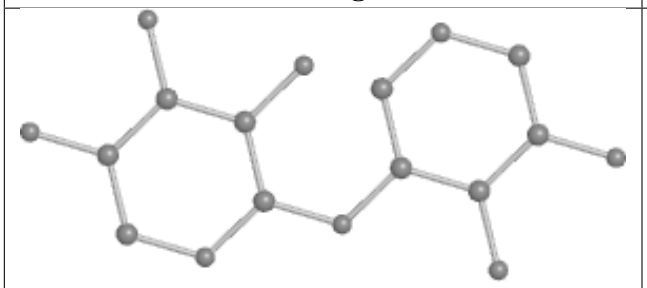
Oligosaccharide Chain E



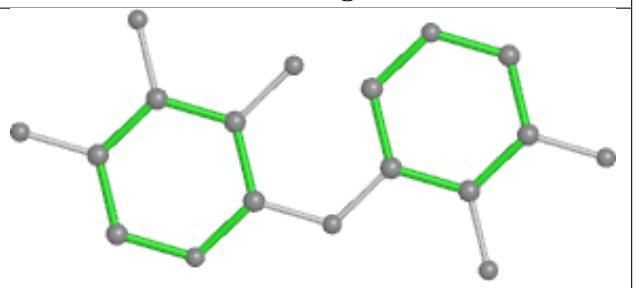
Bond lengths



Bond angles

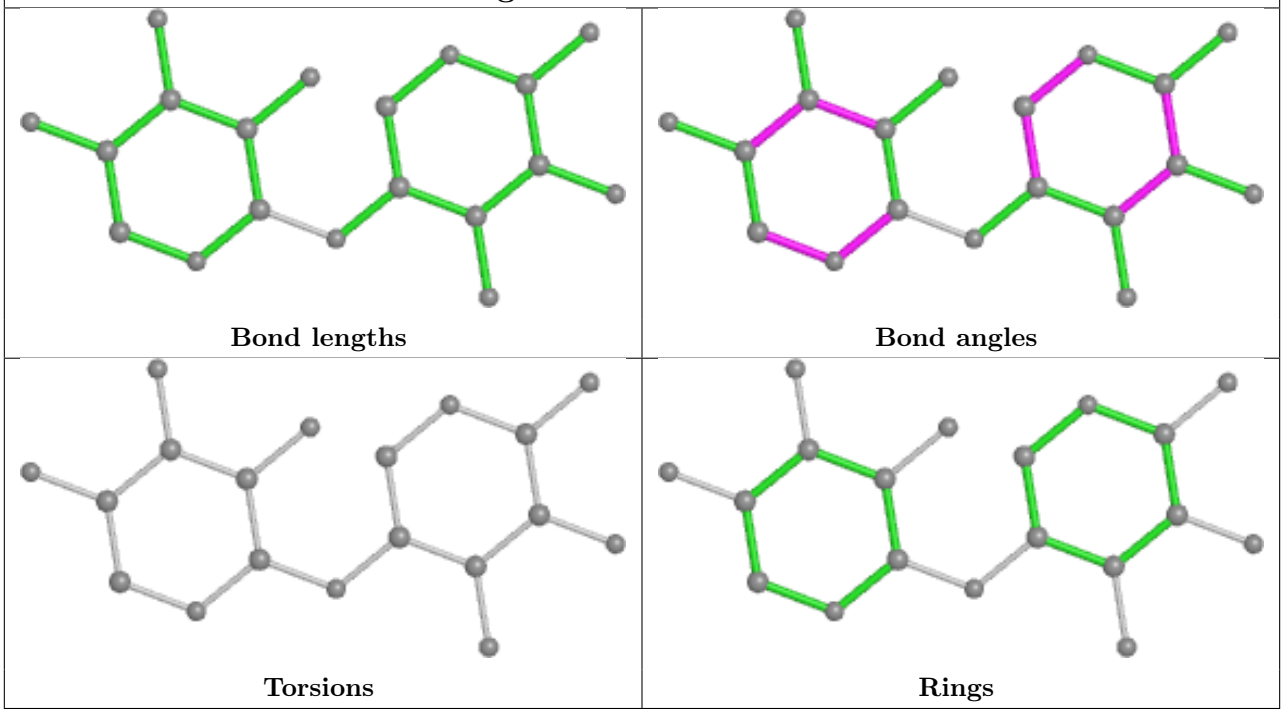


Torsions



Rings

Oligosaccharide Chain F



5.6 Ligand geometry (i)

10 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	B	506	-	5,5,5	0.77	0	5,5,5	2.27	3 (60%)
4	GOL	B	507	-	5,5,5	0.99	0	5,5,5	1.74	1 (20%)
3	NAG	B	505	1	14,14,15	1.97	3 (21%)	17,19,21	3.31	8 (47%)
5	MES	A	509	-	12,12,12	1.46	2 (16%)	14,16,16	2.71	5 (35%)
4	GOL	A	507	-	5,5,5	0.69	0	5,5,5	0.67	0
4	GOL	A	508	-	5,5,5	1.51	1 (20%)	5,5,5	1.26	1 (20%)
4	GOL	A	506	-	5,5,5	0.77	0	5,5,5	2.26	3 (60%)
6	PEG	B	508	-	6,6,6	0.59	0	5,5,5	2.57	2 (40%)
3	NAG	A	505	1	14,14,15	3.15	6 (42%)	17,19,21	4.12	14 (82%)
6	PEG	A	510	-	6,6,6	0.89	0	5,5,5	1.93	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	B	506	-	-	0/4/4/4	-
4	GOL	B	507	-	-	2/4/4/4	-
3	NAG	B	505	1	-	0/6/23/26	0/1/1/1
5	MES	A	509	-	-	2/6/14/14	0/1/1/1
4	GOL	A	507	-	-	0/4/4/4	-
4	GOL	A	508	-	-	0/4/4/4	-
4	GOL	A	506	-	-	0/4/4/4	-
6	PEG	B	508	-	-	1/4/4/4	-
3	NAG	A	505	1	-	0/6/23/26	0/1/1/1
6	PEG	A	510	-	-	1/4/4/4	-

The worst 5 of 12 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	505	NAG	O5-C1	-9.13	1.29	1.43
3	B	505	NAG	O5-C1	-4.86	1.36	1.43
3	A	505	NAG	C2-N2	-4.56	1.38	1.46
3	A	505	NAG	O7-C7	3.56	1.31	1.23
5	A	509	MES	O2S-S	3.32	1.54	1.45

The worst 5 of 38 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	B	505	NAG	C2-N2-C7	9.49	136.42	122.90
3	A	505	NAG	C2-N2-C7	7.69	133.85	122.90
3	A	505	NAG	C3-C4-C5	6.74	122.26	110.24
3	A	505	NAG	C8-C7-N2	6.51	127.13	116.10
5	A	509	MES	O3S-S-C8	6.06	115.57	105.77

There are no chirality outliers.

5 of 6 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
6	A	510	PEG	O2-C3-C4-O4
5	A	509	MES	C7-C8-S-O3S
4	B	507	GOL	O1-C1-C2-C3
5	A	509	MES	C7-C8-S-O2S
6	B	508	PEG	C4-C3-O2-C2

There are no ring outliers.

4 monomers are involved in 11 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	A	509	MES	1	0
4	A	506	GOL	1	0
6	B	508	PEG	4	0
6	A	510	PEG	5	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	319/319 (100%)	0.07	3 (0%)	84	85	7, 10, 18, 37	0
1	B	319/319 (100%)	0.19	8 (2%)	57	58	8, 12, 20, 33	0
All	All	638/638 (100%)	0.13	11 (1%)	70	70	7, 11, 19, 37	0

The worst 5 of 11 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	5	ALA	4.2
1	A	5	ALA	4.1
1	A	296	GLN	3.3
1	B	293[A]	SER	2.7
1	B	250	PRO	2.7

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	XYP	F	2	9/10	0.55	0.26	22,31,38,38	0
2	XYP	D	2	9/10	0.77	0.18	23,29,32,36	0
2	XYP	F	1	10/10	0.78	0.28	45,51,55,62	0
2	XYP	D	1	10/10	0.80	0.19	30,38,42,56	0
2	XYP	E	1	9/10	0.93	0.15	10,12,30,36	0

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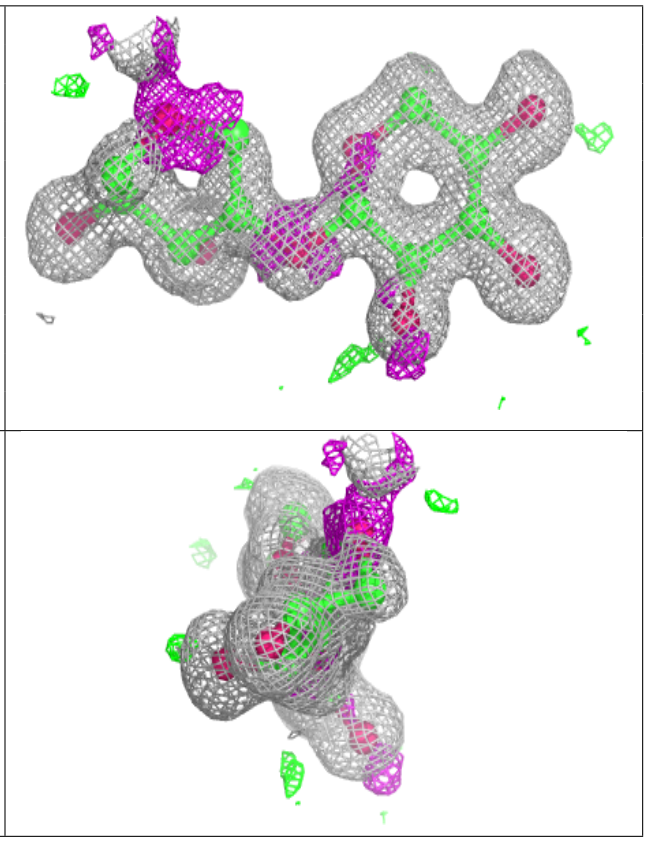
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	XYP	C	1	9/10	0.94	0.13	9,13,28,37	0
2	XYP	E	2	9/10	0.94	0.09	12,12,14,16	0
2	XYP	C	2	9/10	0.96	0.10	14,15,16,18	0

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.

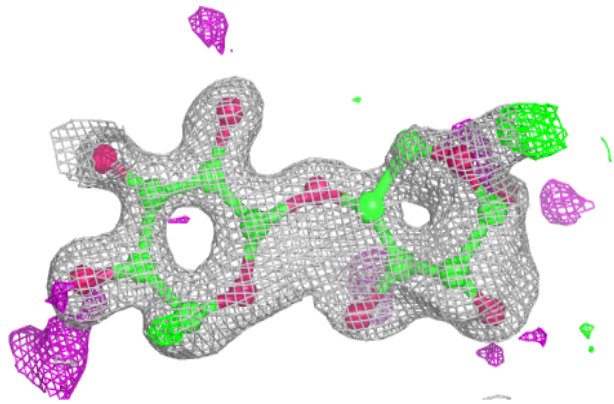
Electron density around Chain C:

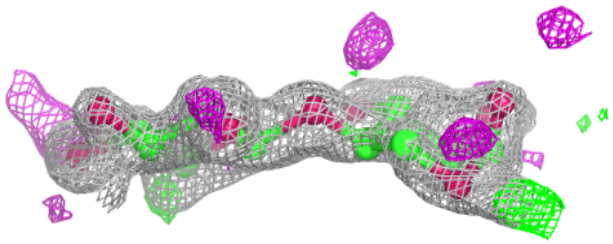
2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative) and green (positive)

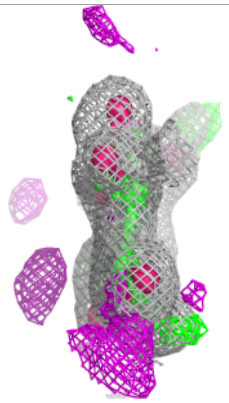


Electron density around Chain D:

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

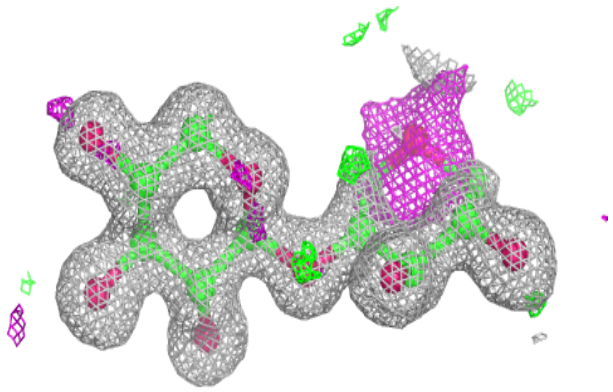


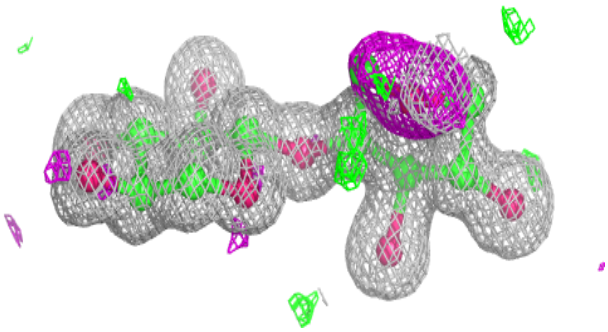


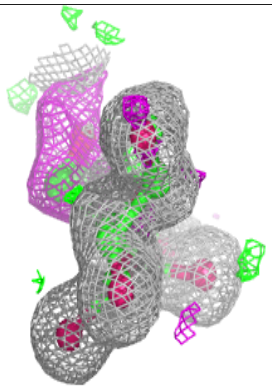


Electron density around Chain E:

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

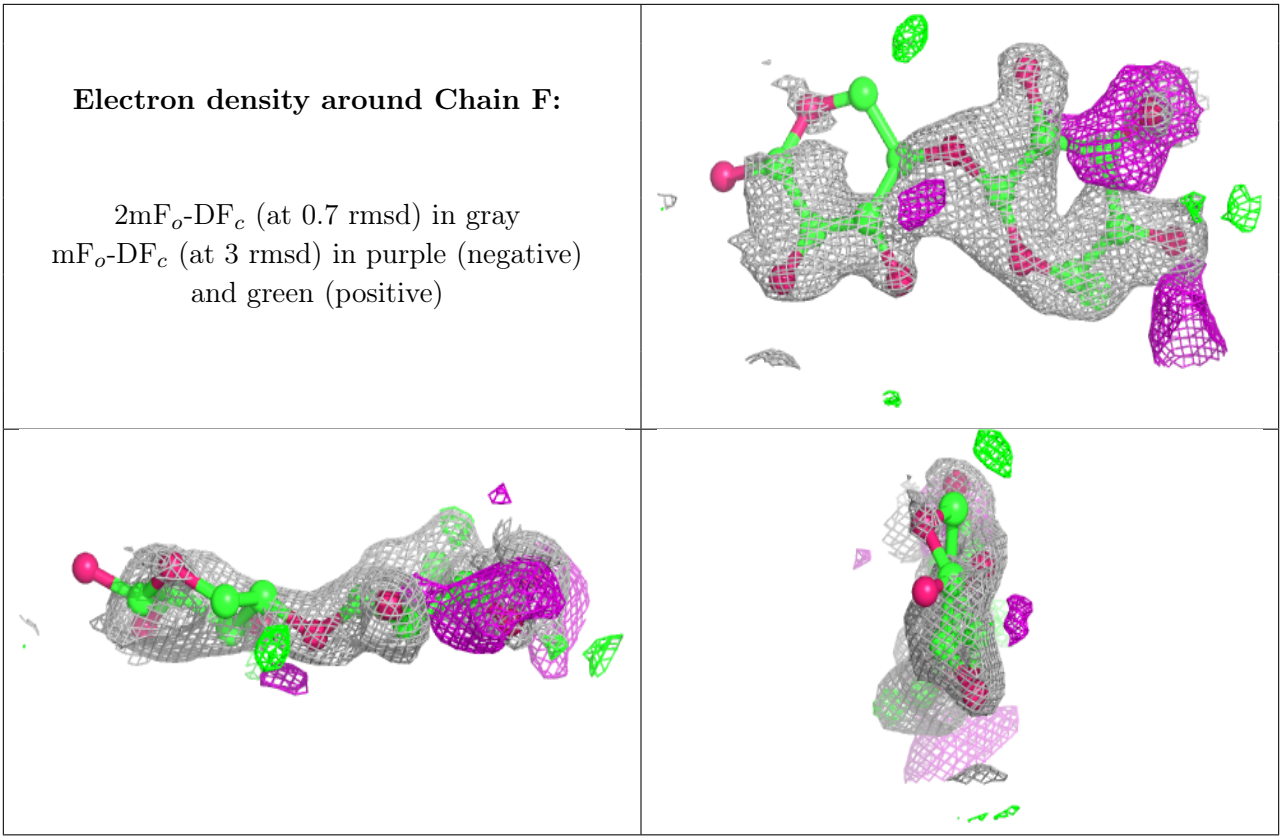






Electron density around Chain F:

$2mF_o$-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
6	PEG	A	510	7/7	0.80	0.12	19,25,33,33	0
6	PEG	B	508	7/7	0.82	0.12	24,30,36,37	0
4	GOL	A	508	6/6	0.86	0.22	23,24,26,30	0
5	MES	A	509	12/12	0.90	0.20	16,20,23,27	0
4	GOL	B	507	6/6	0.91	0.17	20,23,26,28	0
3	NAG	B	505	14/15	0.92	0.09	18,22,31,32	0
4	GOL	A	507	6/6	0.94	0.10	12,22,26,27	0
3	NAG	A	505	14/15	0.94	0.07	15,20,28,41	0
4	GOL	A	506	6/6	0.94	0.10	14,21,22,23	0
4	GOL	B	506	6/6	0.95	0.08	15,20,21,25	0

6.5 Other polymers (i)

There are no such residues in this entry.