Full wwPDB X-ray Structure Validation Report ⓘ

Jun 29, 2025 – 08:39 am BST

PDB ID	:	9FI6 / pdb_00009fi6
Title	:	Bacteroides ovatus polysaccharide lyase family 38 (BoPL38) mutant Y91F+Y298F in complex with tetramannuronic acid at pH 3.5
Authors	:	Tandrup, T.; Wilkens, C.
Deposited on	:	2024-05-28
Resolution	:	2.18 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:

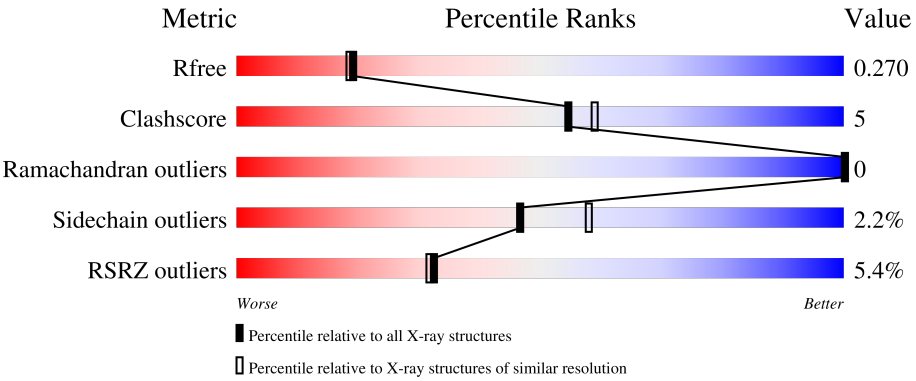
MolProbity	:	4-5-2 with Phenix2.0rc1
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	2.0rc1
EDS	:	3.0
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.003 (Gargrove)
Density-Fitness	:	1.0.11
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.44

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 2.18 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}	164625	8336 (2.20-2.16)
Clashscore	180529	9404 (2.20-2.16)
Ramachandran outliers	177936	9297 (2.20-2.16)
Sidechain outliers	177891	9297 (2.20-2.16)
RSRZ outliers	164620	8337 (2.20-2.16)

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	404	2% 81% 12% 6%
1	B	404	% 86% 8% 6%
1	C	404	3% 80% 14% 6%
1	D	404	14% 79% 14% 6%
2	E	4	75% 25%

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Mol	Chain	Length	Quality of chain
2	F	4	100%
2	G	4	75% 25%
2	H	4	75% 25%

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 12831 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 Alginate lyase family protein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	380	Total	C	N	O	S	0	0	0
			3050	1952	516	569	13			
1	B	380	Total	C	N	O	S	0	0	0
			3050	1952	516	569	13			
1	C	380	Total	C	N	O	S	0	0	0
			3050	1952	516	569	13			
1	D	380	Total	C	N	O	S	0	0	0
			3050	1952	516	569	13			

There are 100 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1	MET	-	initiating methionine	UNP A0A5M5BWR5
A	2	GLY	-	expression tag	UNP A0A5M5BWR5
A	3	SER	-	expression tag	UNP A0A5M5BWR5
A	4	SER	-	expression tag	UNP A0A5M5BWR5
A	5	HIS	-	expression tag	UNP A0A5M5BWR5
A	6	HIS	-	expression tag	UNP A0A5M5BWR5
A	7	HIS	-	expression tag	UNP A0A5M5BWR5
A	8	HIS	-	expression tag	UNP A0A5M5BWR5
A	9	HIS	-	expression tag	UNP A0A5M5BWR5
A	10	HIS	-	expression tag	UNP A0A5M5BWR5
A	11	SER	-	expression tag	UNP A0A5M5BWR5
A	12	SER	-	expression tag	UNP A0A5M5BWR5
A	13	GLY	-	expression tag	UNP A0A5M5BWR5
A	14	LEU	-	expression tag	UNP A0A5M5BWR5
A	15	VAL	-	expression tag	UNP A0A5M5BWR5
A	16	PRO	-	expression tag	UNP A0A5M5BWR5
A	17	ARG	-	expression tag	UNP A0A5M5BWR5
A	18	GLY	-	expression tag	UNP A0A5M5BWR5
A	19	SER	-	expression tag	UNP A0A5M5BWR5
A	20	HIS	-	expression tag	UNP A0A5M5BWR5
A	21	MET	-	expression tag	UNP A0A5M5BWR5

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Chain	Residue	Modelled	Actual	Comment	Reference
A	22	ALA	-	expression tag	UNP A0A5M5BWR5
A	23	SER	-	expression tag	UNP A0A5M5BWR5
A	91	PHE	TYR	engineered mutation	UNP A0A5M5BWR5
A	298	PHE	TYR	engineered mutation	UNP A0A5M5BWR5
B	1	MET	-	initiating methionine	UNP A0A5M5BWR5
B	2	GLY	-	expression tag	UNP A0A5M5BWR5
B	3	SER	-	expression tag	UNP A0A5M5BWR5
B	4	SER	-	expression tag	UNP A0A5M5BWR5
B	5	HIS	-	expression tag	UNP A0A5M5BWR5
B	6	HIS	-	expression tag	UNP A0A5M5BWR5
B	7	HIS	-	expression tag	UNP A0A5M5BWR5
B	8	HIS	-	expression tag	UNP A0A5M5BWR5
B	9	HIS	-	expression tag	UNP A0A5M5BWR5
B	10	HIS	-	expression tag	UNP A0A5M5BWR5
B	11	SER	-	expression tag	UNP A0A5M5BWR5
B	12	SER	-	expression tag	UNP A0A5M5BWR5
B	13	GLY	-	expression tag	UNP A0A5M5BWR5
B	14	LEU	-	expression tag	UNP A0A5M5BWR5
B	15	VAL	-	expression tag	UNP A0A5M5BWR5
B	16	PRO	-	expression tag	UNP A0A5M5BWR5
B	17	ARG	-	expression tag	UNP A0A5M5BWR5
B	18	GLY	-	expression tag	UNP A0A5M5BWR5
B	19	SER	-	expression tag	UNP A0A5M5BWR5
B	20	HIS	-	expression tag	UNP A0A5M5BWR5
B	21	MET	-	expression tag	UNP A0A5M5BWR5
B	22	ALA	-	expression tag	UNP A0A5M5BWR5
B	23	SER	-	expression tag	UNP A0A5M5BWR5
B	91	PHE	TYR	engineered mutation	UNP A0A5M5BWR5
B	298	PHE	TYR	engineered mutation	UNP A0A5M5BWR5
C	1	MET	-	initiating methionine	UNP A0A5M5BWR5
C	2	GLY	-	expression tag	UNP A0A5M5BWR5
C	3	SER	-	expression tag	UNP A0A5M5BWR5
C	4	SER	-	expression tag	UNP A0A5M5BWR5
C	5	HIS	-	expression tag	UNP A0A5M5BWR5
C	6	HIS	-	expression tag	UNP A0A5M5BWR5
C	7	HIS	-	expression tag	UNP A0A5M5BWR5
C	8	HIS	-	expression tag	UNP A0A5M5BWR5
C	9	HIS	-	expression tag	UNP A0A5M5BWR5
C	10	HIS	-	expression tag	UNP A0A5M5BWR5
C	11	SER	-	expression tag	UNP A0A5M5BWR5
C	12	SER	-	expression tag	UNP A0A5M5BWR5
C	13	GLY	-	expression tag	UNP A0A5M5BWR5

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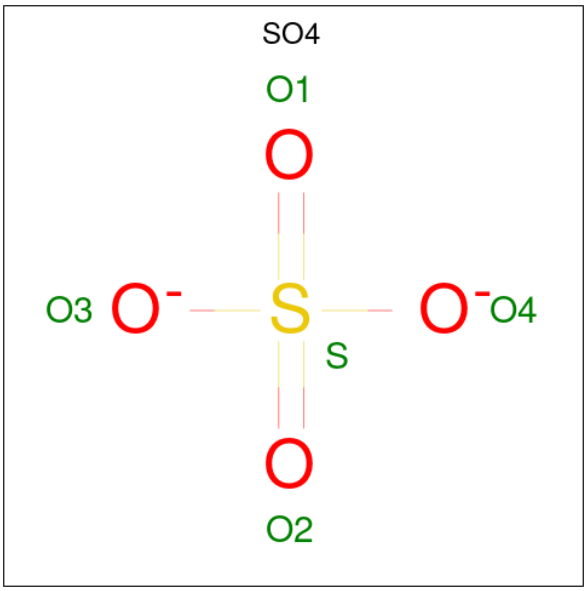
Chain	Residue	Modelled	Actual	Comment	Reference
C	14	LEU	-	expression tag	UNP A0A5M5BWR5
C	15	VAL	-	expression tag	UNP A0A5M5BWR5
C	16	PRO	-	expression tag	UNP A0A5M5BWR5
C	17	ARG	-	expression tag	UNP A0A5M5BWR5
C	18	GLY	-	expression tag	UNP A0A5M5BWR5
C	19	SER	-	expression tag	UNP A0A5M5BWR5
C	20	HIS	-	expression tag	UNP A0A5M5BWR5
C	21	MET	-	expression tag	UNP A0A5M5BWR5
C	22	ALA	-	expression tag	UNP A0A5M5BWR5
C	23	SER	-	expression tag	UNP A0A5M5BWR5
C	91	PHE	TYR	engineered mutation	UNP A0A5M5BWR5
C	298	PHE	TYR	engineered mutation	UNP A0A5M5BWR5
D	1	MET	-	initiating methionine	UNP A0A5M5BWR5
D	2	GLY	-	expression tag	UNP A0A5M5BWR5
D	3	SER	-	expression tag	UNP A0A5M5BWR5
D	4	SER	-	expression tag	UNP A0A5M5BWR5
D	5	HIS	-	expression tag	UNP A0A5M5BWR5
D	6	HIS	-	expression tag	UNP A0A5M5BWR5
D	7	HIS	-	expression tag	UNP A0A5M5BWR5
D	8	HIS	-	expression tag	UNP A0A5M5BWR5
D	9	HIS	-	expression tag	UNP A0A5M5BWR5
D	10	HIS	-	expression tag	UNP A0A5M5BWR5
D	11	SER	-	expression tag	UNP A0A5M5BWR5
D	12	SER	-	expression tag	UNP A0A5M5BWR5
D	13	GLY	-	expression tag	UNP A0A5M5BWR5
D	14	LEU	-	expression tag	UNP A0A5M5BWR5
D	15	VAL	-	expression tag	UNP A0A5M5BWR5
D	16	PRO	-	expression tag	UNP A0A5M5BWR5
D	17	ARG	-	expression tag	UNP A0A5M5BWR5
D	18	GLY	-	expression tag	UNP A0A5M5BWR5
D	19	SER	-	expression tag	UNP A0A5M5BWR5
D	20	HIS	-	expression tag	UNP A0A5M5BWR5
D	21	MET	-	expression tag	UNP A0A5M5BWR5
D	22	ALA	-	expression tag	UNP A0A5M5BWR5
D	23	SER	-	expression tag	UNP A0A5M5BWR5
D	91	PHE	TYR	engineered mutation	UNP A0A5M5BWR5
D	298	PHE	TYR	engineered mutation	UNP A0A5M5BWR5

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

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf	Trace
2	E	4	Total C O 49 24 25	0	0	0
2	F	4	Total C O 49 24 25	0	0	0
2	G	4	Total C O 49 24 25	0	0	0
2	H	4	Total C O 49 24 25	0	0	0

- Molecule 3 is SULFATE ION (CCD ID: SO4) (formula: O_4S).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total O S 5 4 1	0	0
3	B	1	Total O S 5 4 1	0	0
3	B	1	Total O S 5 4 1	0	0
3	C	1	Total O S 5 4 1	0	0
3	D	1	Total O S 5 4 1	0	0

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	D	1	Total O S 5 4 1	0	0

- Molecule 4 is water.

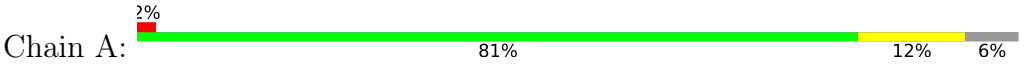
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	130	Total O 130 130	0	0
4	B	119	Total O 119 119	0	0
4	C	96	Total O 96 96	0	0
4	D	60	Total O 60 60	0	0

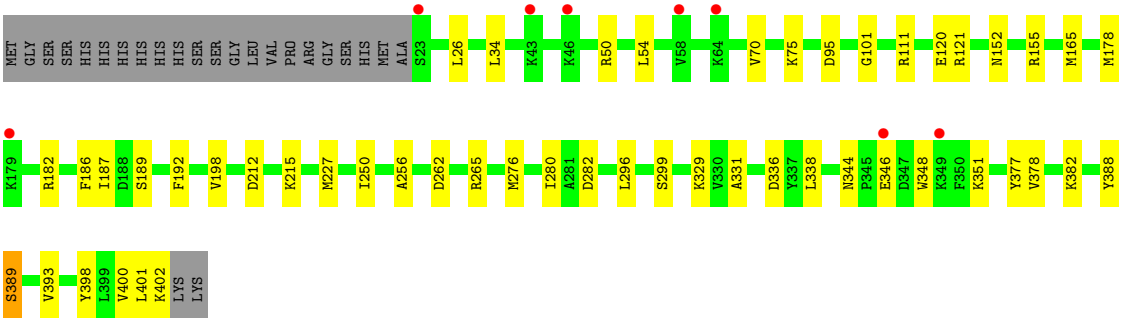
3 Residue-property plots (i)

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: Alginate lyase family protein

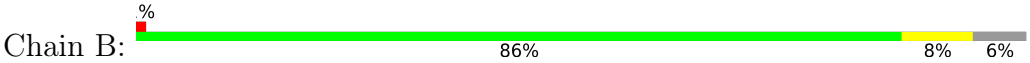
Chain A:

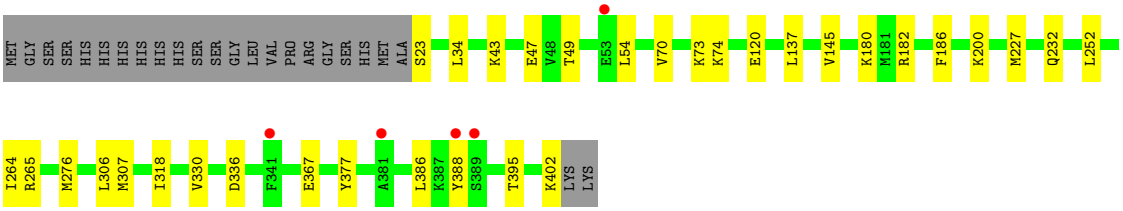




• Molecule 1: Alginate lyase family protein

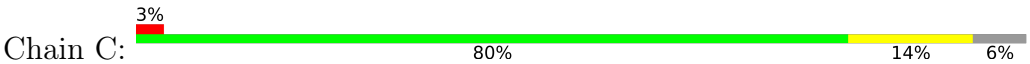
Chain B:

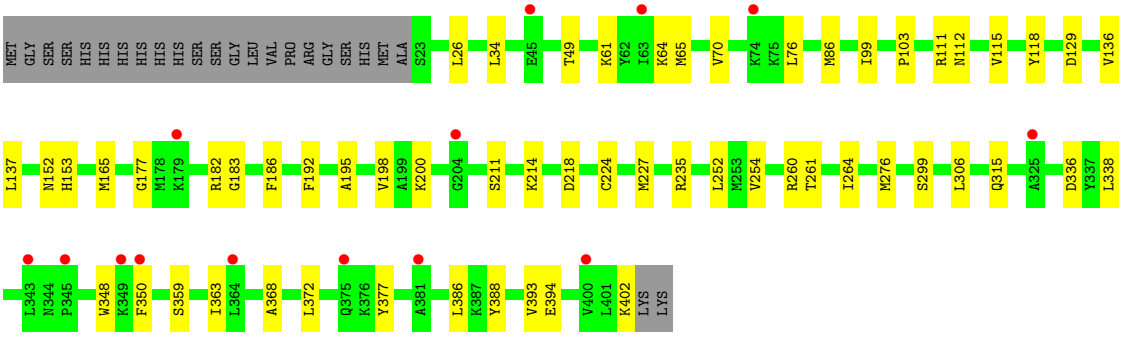




• Molecule 1: Alginate lyase family protein

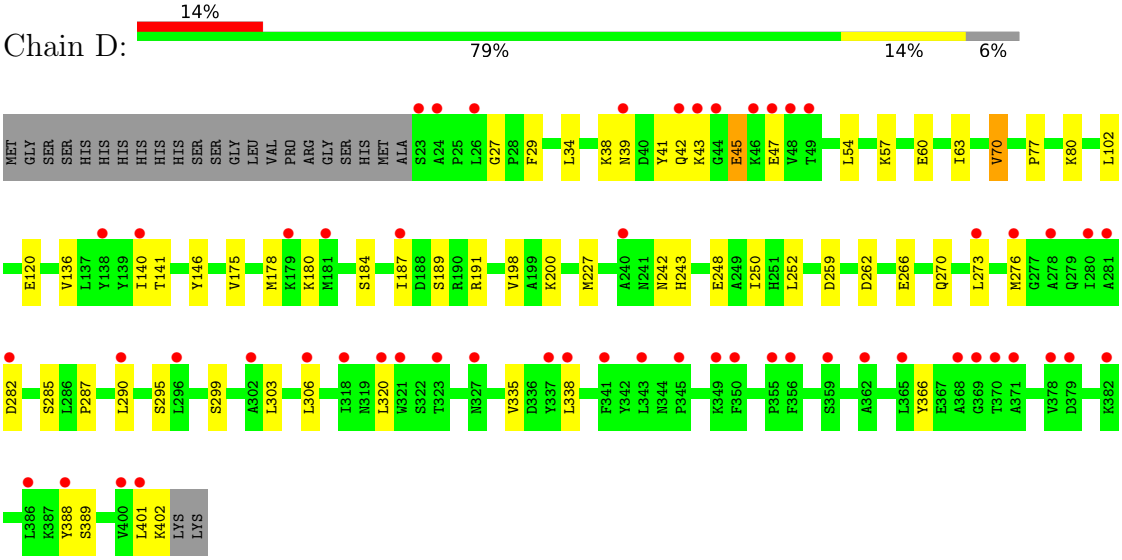
Chain C:





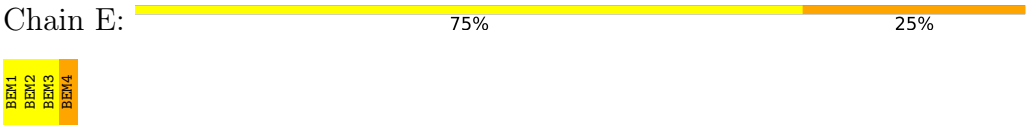
• Molecule 1: Alginate lyase family protein

Chain D:



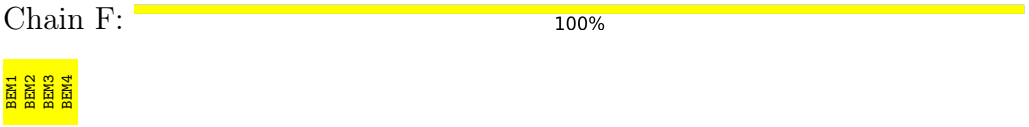
• Molecule 2: beta-D-mannopyranuronic acid-(1-4)-beta-D-mannopyranuronic acid-(1-4)-beta-D-mannopyranuronic acid-(1-4)-beta-D-mannopyranuronic acid

Chain E:



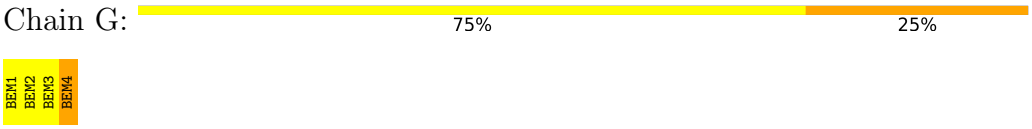
• Molecule 2: beta-D-mannopyranuronic acid-(1-4)-beta-D-mannopyranuronic acid-(1-4)-beta-D-mannopyranuronic acid-(1-4)-beta-D-mannopyranuronic acid

Chain F:



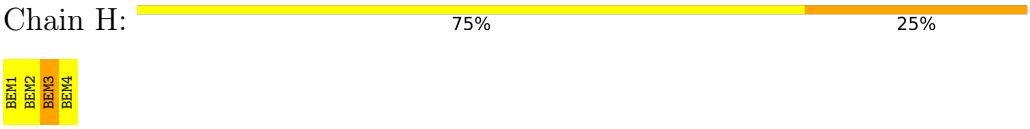
• Molecule 2: beta-D-mannopyranuronic acid-(1-4)-beta-D-mannopyranuronic acid-(1-4)-beta-D-mannopyranuronic acid-(1-4)-beta-D-mannopyranuronic acid

Chain G:



• Molecule 2: beta-D-mannopyranuronic acid-(1-4)-beta-D-mannopyranuronic acid-(1-4)-beta-D-mannopyranuronic acid-(1-4)-beta-D-mannopyranuronic acid

Chain H:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α, β, γ	197.72Å 89.58Å 146.85Å 90.00° 120.39° 90.00°	Depositor
Resolution (Å)	97.05 – 2.18 97.05 – 2.18	Depositor EDS
% Data completeness (in resolution range)	95.1 (97.05-2.18) 95.1 (97.05-2.18)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.39 (at 2.18Å)	Xtriage
Refinement program	PHENIX 1.21_5207	Depositor
R, R_{free}	0.224 , 0.270 0.224 , 0.270	Depositor DCC
R_{free} test set	5664 reflections (4.95%)	wwPDB-VP
Wilson B-factor (Å^2)	46.6	Xtriage
Anisotropy	0.026	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.33 , 30.6	EDS
L-test for twinning[2]	$< \|L\| > = 0.47$, $< L^2 > = 0.30$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.93	EDS
Total number of atoms	12831	wwPDB-VP
Average B, all atoms (Å^2)	51.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 16.56% 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: SO4, BEM

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	0.40	0/3128	0.57	0/4238
1	B	0.40	0/3128	0.57	0/4238
1	C	0.36	0/3128	0.51	0/4238
1	D	0.32	0/3128	0.49	0/4238
All	All	0.37	0/12512	0.54	0/16952

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	3050	0	3022	27	0
1	B	3050	0	3022	18	0
1	C	3050	0	3022	37	0
1	D	3050	0	3022	36	0
2	E	49	0	27	1	0
2	F	49	0	27	0	0
2	G	49	0	27	1	0
2	H	49	0	27	1	0
3	A	5	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	B	10	0	0	0	0
3	C	5	0	0	0	0
3	D	10	0	0	0	0
4	A	130	0	0	2	0
4	B	119	0	0	5	0
4	C	96	0	0	3	0
4	D	60	0	0	1	0
All	All	12831	0	12196	116	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 5.

All (116) 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:54:LEU:HD21	1:A:389:SER:HA	1.71	0.73
1:A:70:VAL:HG23	1:A:120:GLU:HG2	1.75	0.68
1:C:61:LYS:HA	1:C:64:LYS:HE3	1.77	0.67
1:A:344:ASN:ND2	1:A:346:GLU:OE2	2.32	0.63
1:A:215:LYS:NZ	4:A:601:HOH:O	2.30	0.63
1:B:336:ASP:OD1	1:B:377:TYR:OH	2.18	0.62
1:A:262:ASP:OD1	1:A:265:ARG:NH1	2.33	0.60
1:B:388:TYR:HA	1:B:402:LYS:HB3	1.83	0.60
1:A:336:ASP:OD1	1:A:377:TYR:OH	2.20	0.59
1:C:252:LEU:HD22	1:C:264:ILE:HG23	1.85	0.58
1:A:282:ASP:HA	1:A:329:LYS:HE2	1.86	0.58
1:C:99:ILE:HD11	1:D:57:LYS:HB3	1.86	0.58
1:A:111:ARG:NH1	2:E:4:BEM:O6A	2.36	0.57
1:B:265:ARG:HG3	1:B:318:ILE:HD11	1.86	0.57
1:B:70:VAL:CG2	1:B:120:GLU:HG2	2.36	0.56
1:C:186:PHE:CZ	1:C:227:MET:HE3	2.41	0.56
1:A:276:MET:SD	1:A:331:ALA:HB2	2.45	0.56
1:C:152:ASN:ND2	4:C:604:HOH:O	2.38	0.56
1:B:23:SER:N	4:B:603:HOH:O	2.39	0.55
1:D:273:LEU:HD21	1:D:320:LEU:HD22	1.89	0.54
1:D:178:MET:HE2	1:D:180:LYS:HE3	1.89	0.54
1:B:186:PHE:CZ	1:B:227:MET:HE3	2.42	0.54
1:A:178:MET:HE1	1:A:182:ARG:HD3	1.90	0.53
1:C:86:MET:HE3	1:C:118:TYR:HE2	1.73	0.53
1:A:75:LYS:NZ	4:A:604:HOH:O	2.42	0.52
1:B:70:VAL:HG23	1:B:120:GLU:HG2	1.91	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:303:LEU:HD13	1:D:335:VAL:HG22	1.90	0.52
1:A:189:SER:HB2	1:A:250:ILE:HD13	1.92	0.52
1:C:336:ASP:OD1	1:C:377:TYR:OH	2.20	0.52
1:D:54:LEU:HD21	1:D:389:SER:HA	1.93	0.51
1:B:276:MET:SD	1:B:306:LEU:HD13	2.51	0.51
1:C:111:ARG:NH2	2:G:4:BEM:O6B	2.32	0.51
1:C:34:LEU:HD21	1:C:136:VAL:HG13	1.93	0.50
1:D:266:GLU:O	1:D:270:GLN:HB2	2.11	0.50
1:D:282:ASP:OD1	1:D:282:ASP:N	2.44	0.49
1:D:262:ASP:N	1:D:262:ASP:OD1	2.46	0.49
1:A:70:VAL:CG2	1:A:120:GLU:HG2	2.43	0.49
1:A:155:ARG:HE	1:A:212:ASP:CG	2.21	0.48
1:C:165:MET:HE1	1:C:192:PHE:CZ	2.48	0.48
1:A:186:PHE:CZ	1:A:227:MET:HE3	2.48	0.48
1:C:235:ARG:NH2	4:C:606:HOH:O	2.46	0.48
1:D:285:SER:O	1:D:287:PRO:HD3	2.14	0.48
1:D:189:SER:HB2	1:D:250:ILE:HD13	1.96	0.47
1:C:195:ALA:O	1:C:198:VAL:HG12	2.14	0.47
1:D:34:LEU:HD21	1:D:136:VAL:HG13	1.97	0.47
1:A:95:ASP:O	1:A:101:GLY:HA2	2.15	0.47
1:A:276:MET:HE3	1:A:280:ILE:HD12	1.96	0.47
1:B:186:PHE:CZ	1:B:227:MET:HG2	2.50	0.46
1:C:86:MET:HE3	1:C:118:TYR:CE2	2.50	0.46
1:C:388:TYR:HA	1:C:402:LYS:HB3	1.98	0.46
1:B:47:GLU:HG2	4:B:621:HOH:O	2.15	0.46
1:D:184:SER:O	1:D:187:ILE:HG12	2.16	0.46
1:C:112:ASN:O	1:C:115:VAL:HG22	2.15	0.46
1:B:252:LEU:HD22	1:B:264:ILE:HG23	1.98	0.46
1:D:38:LYS:HA	1:D:140:ILE:HG23	1.97	0.46
1:A:111:ARG:NH1	1:A:121:ARG:HH22	2.13	0.45
1:C:26:LEU:HA	1:C:315:GLN:OE1	2.17	0.45
1:C:224:CYS:HB2	1:C:254:VAL:HG11	1.99	0.45
1:D:242:ASN:HD21	2:H:3:BEM:C6	2.29	0.45
1:D:191:ARG:HD2	4:D:634:HOH:O	2.17	0.45
1:C:65:MET:HG2	1:C:153:HIS:HE1	1.82	0.45
1:C:299:SER:HB3	1:C:338:LEU:HD11	1.99	0.45
1:C:183:GLY:H	1:C:235:ARG:HE	1.65	0.44
1:A:388:TYR:HA	1:A:402:LYS:HB3	1.99	0.44
1:D:70:VAL:CG2	1:D:120:GLU:HG2	2.47	0.44
1:B:307:MET:SD	1:B:367:GLU:HG3	2.58	0.44
1:C:276:MET:SD	1:C:306:LEU:HD13	2.57	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:70:VAL:HG23	1:D:120:GLU:HG2	1.99	0.44
1:D:63:ILE:HD11	1:D:146:TYR:CE1	2.52	0.44
1:A:276:MET:HB3	1:A:276:MET:HE2	1.36	0.44
1:B:43:LYS:NZ	4:B:611:HOH:O	2.50	0.44
1:C:137:LEU:HD23	1:C:137:LEU:HA	1.64	0.44
1:D:299:SER:HB3	1:D:338:LEU:HD11	2.00	0.44
1:B:232:GLN:HG3	4:B:637:HOH:O	2.18	0.43
1:D:388:TYR:HA	1:D:402:LYS:HB3	2.00	0.43
1:A:398:TYR:HB3	1:A:401:LEU:HD12	2.00	0.43
1:B:180:LYS:HE3	1:B:180:LYS:HB2	1.72	0.43
1:C:34:LEU:HD23	1:C:34:LEU:HA	1.78	0.43
1:A:296:LEU:HD13	1:A:348:TRP:CE3	2.54	0.43
1:C:214:LYS:NZ	1:C:218:ASP:OD1	2.39	0.43
1:D:187:ILE:HD13	1:D:243:HIS:CE1	2.54	0.43
1:D:200:LYS:HB2	1:D:200:LYS:HE2	1.81	0.43
1:D:290:LEU:HA	1:D:295:SER:HB2	2.01	0.43
1:D:39:ASN:O	1:D:43:LYS:HG3	2.19	0.42
1:D:41:TYR:CE2	1:D:141:THR:HA	2.53	0.42
1:A:165:MET:HE1	1:A:192:PHE:CZ	2.54	0.42
1:D:248:GLU:O	1:D:252:LEU:HG	2.19	0.42
1:A:26:LEU:HG	1:A:256:ALA:HB1	2.00	0.42
1:C:260:ARG:O	1:C:264:ILE:HG13	2.19	0.42
1:C:129:ASP:HA	1:C:393:VAL:HG21	2.00	0.42
1:B:386:LEU:HD13	1:B:395:THR:HB	2.01	0.42
1:C:152:ASN:HD22	1:C:152:ASN:HA	1.62	0.42
1:D:276:MET:HE2	1:D:306:LEU:HD13	2.01	0.42
1:D:227:MET:HE2	1:D:227:MET:HB3	1.92	0.42
1:B:70:VAL:HG22	1:B:120:GLU:HG2	2.02	0.42
1:C:182:ARG:HB2	4:C:652:HOH:O	2.19	0.42
1:C:394:GLU:OE1	1:C:394:GLU:N	2.26	0.42
1:D:77:PRO:O	1:D:80:LYS:HE2	2.19	0.41
1:A:299:SER:HB3	1:A:338:LEU:HD11	2.01	0.41
1:D:34:LEU:HD23	1:D:34:LEU:HA	1.82	0.41
1:D:60:GLU:OE1	1:D:63:ILE:HD12	2.20	0.41
1:C:348:TRP:NE1	1:C:350:PHE:HB2	2.35	0.41
1:A:34:LEU:HA	1:A:34:LEU:HD12	1.78	0.41
1:B:182:ARG:HB2	4:B:615:HOH:O	2.19	0.41
1:D:45:GLU:OE1	1:D:47:GLU:N	2.48	0.41
1:C:99:ILE:CD1	1:D:57:LYS:HB3	2.51	0.41
1:C:103:PRO:HA	1:C:177:GLY:HA3	2.02	0.41
1:C:227:MET:HB3	1:C:227:MET:HE2	1.77	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:261:THR:HA	1:C:264:ILE:HD12	2.03	0.41
1:D:38:LYS:HE2	1:D:42:GLN:NE2	2.36	0.41
1:D:366:TYR:CD2	1:D:401:LEU:HD21	2.56	0.41
1:C:76:LEU:HD23	1:C:76:LEU:HA	1.83	0.40
1:C:368:ALA:O	1:C:372:LEU:HD12	2.20	0.40
1:A:378:VAL:O	1:A:382:LYS:HG3	2.21	0.40
1:C:363:ILE:HG13	1:C:386:LEU:HD11	2.04	0.40
1:D:27:GLY:HA3	1:D:29:PHE:CZ	2.56	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	378/404 (94%)	369 (98%)	9 (2%)	0	100	100
1	B	378/404 (94%)	366 (97%)	12 (3%)	0	100	100
1	C	378/404 (94%)	367 (97%)	11 (3%)	0	100	100
1	D	378/404 (94%)	369 (98%)	9 (2%)	0	100	100
All	All	1512/1616 (94%)	1471 (97%)	41 (3%)	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	324/344 (94%)	316 (98%)	8 (2%)	42	53
1	B	324/344 (94%)	315 (97%)	9 (3%)	38	48
1	C	324/344 (94%)	319 (98%)	5 (2%)	60	72
1	D	324/344 (94%)	318 (98%)	6 (2%)	52	64
All	All	1296/1376 (94%)	1268 (98%)	28 (2%)	47	58

All (28) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	50	ARG
1	A	152	ASN
1	A	187	ILE
1	A	198	VAL
1	A	351	LYS
1	A	389	SER
1	A	393	VAL
1	A	400	VAL
1	B	34	LEU
1	B	49	THR
1	B	54	LEU
1	B	73	LYS
1	B	74	LYS
1	B	137	LEU
1	B	145	VAL
1	B	200	LYS
1	B	330	VAL
1	C	49	THR
1	C	70	VAL
1	C	200	LYS
1	C	211	SER
1	C	359	SER
1	D	45	GLU
1	D	70	VAL
1	D	102	LEU
1	D	175	VAL
1	D	198	VAL
1	D	259	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (15) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	242	ASN
1	A	279	GLN
1	A	311	GLN
1	A	358	GLN
1	B	42	GLN
1	B	229	ASN
1	B	344	ASN
1	C	152	ASN
1	C	153	HIS
1	C	242	ASN
1	D	36	GLN
1	D	232	GLN
1	D	242	ASN
1	D	311	GLN
1	D	358	GLN

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)

16 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	BEM	E	1	2	13,13,13	1.12	0	18,19,19	1.63	5 (27%)
2	BEM	E	2	2	12,12,13	1.11	1 (8%)	14,17,19	1.92	6 (42%)
2	BEM	E	3	2	12,12,13	1.11	2 (16%)	14,17,19	1.45	2 (14%)
2	BEM	E	4	2	12,12,13	1.19	0	14,17,19	1.35	2 (14%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
2	BEM	F	1	2	13,13,13	1.00	0	18,19,19	1.57	5 (27%)
2	BEM	F	2	2	12,12,13	1.06	1 (8%)	14,17,19	1.59	4 (28%)
2	BEM	F	3	2	12,12,13	1.29	2 (16%)	14,17,19	1.53	2 (14%)
2	BEM	F	4	2	12,12,13	1.05	0	14,17,19	1.20	1 (7%)
2	BEM	G	1	2	13,13,13	1.07	1 (7%)	18,19,19	1.35	1 (5%)
2	BEM	G	2	2	12,12,13	1.05	0	14,17,19	1.87	6 (42%)
2	BEM	G	3	2	12,12,13	1.17	1 (8%)	14,17,19	1.79	3 (21%)
2	BEM	G	4	2	12,12,13	1.03	0	14,17,19	1.28	2 (14%)
2	BEM	H	1	2	13,13,13	1.03	0	18,19,19	1.40	1 (5%)
2	BEM	H	2	2	12,12,13	1.06	1 (8%)	14,17,19	1.64	3 (21%)
2	BEM	H	3	2	12,12,13	1.16	1 (8%)	14,17,19	1.21	2 (14%)
2	BEM	H	4	2	12,12,13	1.06	1 (8%)	14,17,19	1.06	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
2	BEM	E	1	2	-	3/4/24/24	0/1/1/1
2	BEM	E	2	2	-	0/4/21/24	0/1/1/1
2	BEM	E	3	2	-	2/4/21/24	0/1/1/1
2	BEM	E	4	2	-	0/4/21/24	0/1/1/1
2	BEM	F	1	2	-	0/4/24/24	0/1/1/1
2	BEM	F	2	2	-	0/4/21/24	0/1/1/1
2	BEM	F	3	2	-	2/4/21/24	0/1/1/1
2	BEM	F	4	2	-	0/4/21/24	0/1/1/1
2	BEM	G	1	2	-	0/4/24/24	0/1/1/1
2	BEM	G	2	2	-	0/4/21/24	0/1/1/1
2	BEM	G	3	2	-	2/4/21/24	0/1/1/1
2	BEM	G	4	2	-	0/4/21/24	0/1/1/1
2	BEM	H	1	2	-	0/4/24/24	0/1/1/1
2	BEM	H	2	2	-	0/4/21/24	0/1/1/1
2	BEM	H	3	2	-	2/4/21/24	0/1/1/1
2	BEM	H	4	2	-	0/4/21/24	0/1/1/1

All (11) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	F	3	BEM	O5-C1	-2.87	1.39	1.43
2	H	2	BEM	O6B-C6	-2.42	1.22	1.30
2	E	2	BEM	O6B-C6	-2.26	1.23	1.30
2	G	3	BEM	O5-C1	-2.21	1.40	1.43
2	H	3	BEM	O6B-C6	-2.20	1.23	1.30
2	E	3	BEM	O5-C1	-2.11	1.40	1.43
2	F	2	BEM	O6B-C6	-2.11	1.23	1.30
2	F	3	BEM	O6B-C6	-2.04	1.23	1.30
2	H	4	BEM	O6B-C6	-2.02	1.23	1.30
2	E	3	BEM	O6B-C6	-2.02	1.24	1.30
2	G	1	BEM	O6B-C6	-2.01	1.24	1.30

All (45) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	G	3	BEM	C1-C2-C3	4.66	115.39	109.67
2	F	3	BEM	C1-C2-C3	3.55	114.02	109.67
2	E	2	BEM	O4-C4-C3	3.07	117.45	110.35
2	E	3	BEM	C1-C2-C3	3.06	113.42	109.67
2	E	2	BEM	C3-C4-C5	-3.05	104.03	109.25
2	H	1	BEM	C4-C3-C2	2.98	116.03	110.82
2	E	1	BEM	C4-C3-C2	2.92	115.92	110.82
2	G	2	BEM	C3-C4-C5	-2.92	104.26	109.25
2	G	1	BEM	C4-C3-C2	2.79	115.69	110.82
2	E	1	BEM	O4-C4-C5	-2.69	103.70	109.74
2	G	2	BEM	O4-C4-C3	2.69	116.56	110.35
2	E	1	BEM	O5-C5-C6	2.68	113.09	105.88
2	E	2	BEM	C1-C2-C3	2.66	112.93	109.67
2	G	2	BEM	O3-C3-C4	2.65	116.47	110.35
2	E	2	BEM	O6B-C6-O6A	2.62	130.04	124.09
2	H	2	BEM	O4-C4-C3	2.61	116.38	110.35
2	F	2	BEM	C1-C2-C3	2.57	112.83	109.67
2	F	1	BEM	O5-C5-C6	2.55	112.74	105.88
2	F	2	BEM	O6A-C6-C5	-2.52	111.58	120.81
2	G	2	BEM	O6A-C6-C5	-2.49	111.67	120.81
2	G	2	BEM	O6B-C6-O6A	2.47	129.71	124.09
2	G	4	BEM	O2-C2-C1	2.47	114.21	109.15
2	G	3	BEM	C3-C4-C5	2.47	113.46	109.25
2	F	2	BEM	O6B-C6-O6A	2.45	129.64	124.09
2	H	3	BEM	C1-C2-C3	2.42	112.64	109.67
2	F	1	BEM	C4-C3-C2	2.36	114.94	110.82
2	F	1	BEM	O6A-C6-C5	-2.33	112.25	120.81
2	H	2	BEM	O5-C5-C6	2.31	113.90	106.31

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	F	4	BEM	O6A-C6-C5	-2.28	112.44	120.81
2	H	2	BEM	O2-C2-C3	2.24	114.63	110.14
2	H	3	BEM	C3-C4-C5	2.23	113.05	109.25
2	E	4	BEM	O2-C2-C1	2.22	113.70	109.15
2	G	4	BEM	C1-C2-C3	2.18	112.35	109.67
2	F	3	BEM	C3-C4-C5	2.16	112.94	109.25
2	F	2	BEM	C3-C4-C5	-2.15	105.57	109.25
2	F	1	BEM	C1-O5-C5	-2.12	109.11	112.22
2	E	1	BEM	O1-C1-C2	2.12	114.99	109.03
2	E	2	BEM	O3-C3-C4	2.11	115.22	110.35
2	E	2	BEM	O6A-C6-C5	-2.09	113.16	120.81
2	G	2	BEM	C1-C2-C3	2.08	112.22	109.67
2	E	1	BEM	C1-O5-C5	-2.06	109.20	112.22
2	F	1	BEM	O4-C4-C5	-2.05	105.15	109.74
2	E	3	BEM	O6B-C6-O6A	2.03	128.71	124.09
2	G	3	BEM	O4-C4-C5	-2.03	105.18	109.74
2	E	4	BEM	O3-C3-C4	2.01	115.00	110.35

There are no chirality outliers.

All (11) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	E	1	BEM	C4-C5-C6-O6B
2	E	1	BEM	C4-C5-C6-O6A
2	E	3	BEM	C4-C5-C6-O6B
2	E	3	BEM	C4-C5-C6-O6A
2	F	3	BEM	C4-C5-C6-O6B
2	F	3	BEM	C4-C5-C6-O6A
2	G	3	BEM	C4-C5-C6-O6B
2	G	3	BEM	C4-C5-C6-O6A
2	H	3	BEM	C4-C5-C6-O6B
2	H	3	BEM	C4-C5-C6-O6A
2	E	1	BEM	O5-C5-C6-O6B

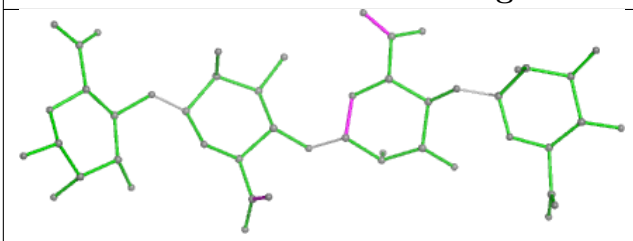
There are no ring outliers.

3 monomers are involved in 3 short contacts:

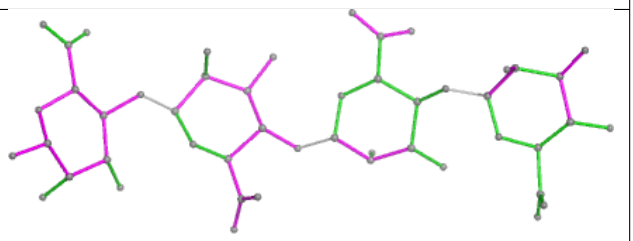
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	G	4	BEM	1	0
2	E	4	BEM	1	0
2	H	3	BEM	1	0

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

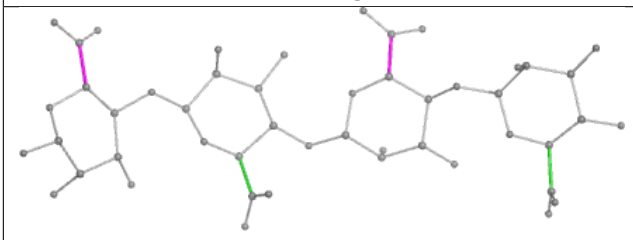
Oligosaccharide Chain E



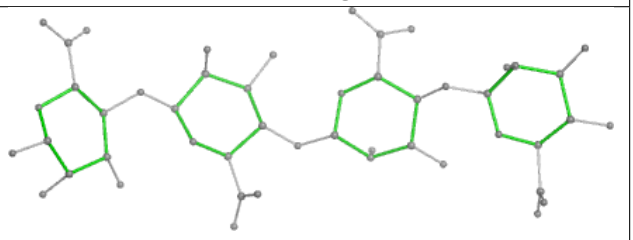
Bond lengths



Bond angles

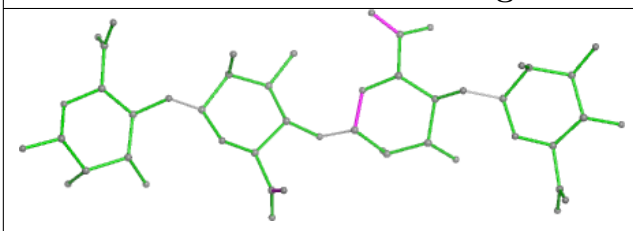


Torsions

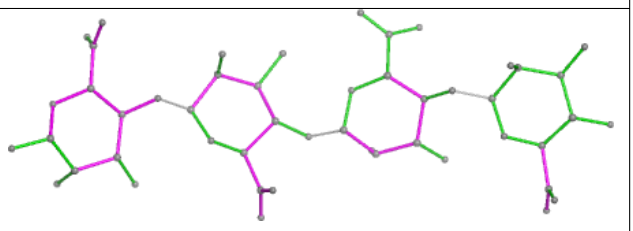


Rings

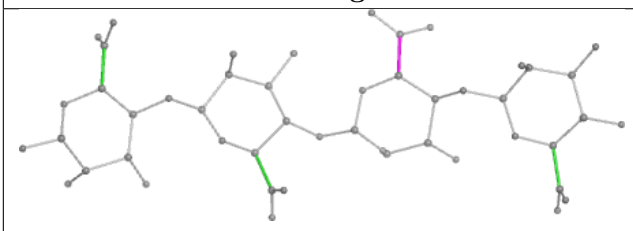
Oligosaccharide Chain F



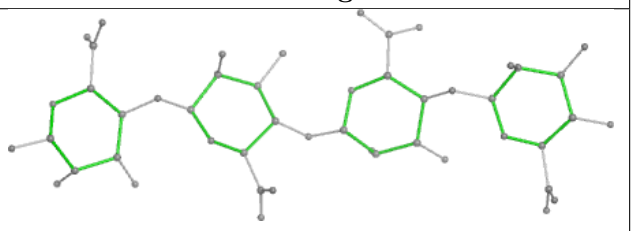
Bond lengths



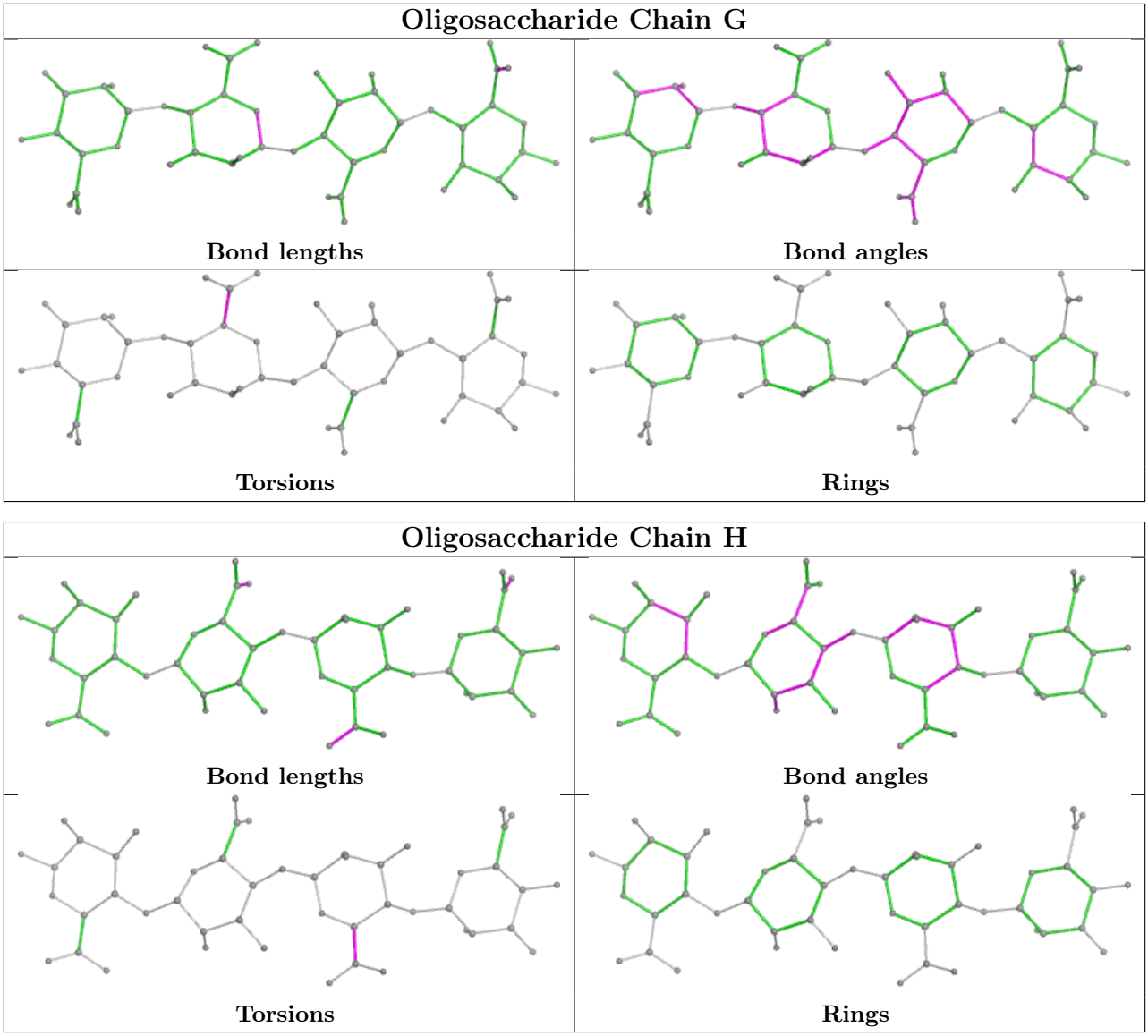
Bond angles



Torsions



Rings



5.6 Ligand geometry (i)

6 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	$\#\|Z\| > 2$
3	SO4	B	501	-	4,4,4	0.72	0	6,6,6	0.20	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
3	SO4	D	502	-	4,4,4	0.73	0	6,6,6	0.27	0
3	SO4	C	501	-	4,4,4	0.69	0	6,6,6	0.29	0
3	SO4	D	501	-	4,4,4	0.65	0	6,6,6	0.22	0
3	SO4	A	501	-	4,4,4	0.81	0	6,6,6	0.24	0
3	SO4	B	502	-	4,4,4	0.71	0	6,6,6	0.28	0

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, 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	A	380/404 (94%)	0.38	8 (2%) 63 62	32, 46, 60, 74	0
1	B	380/404 (94%)	0.33	5 (1%) 74 73	31, 45, 58, 70	0
1	C	380/404 (94%)	0.54	14 (3%) 45 45	38, 50, 64, 81	0
1	D	380/404 (94%)	0.94	55 (14%) 7 7	41, 60, 80, 90	0
All	All	1520/1616 (94%)	0.55	82 (5%) 32 32	31, 49, 71, 90	0

All (82) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	388	TYR	4.3
1	C	381	ALA	4.0
1	D	48	VAL	3.9
1	D	400	VAL	3.6
1	D	343	LEU	3.5
1	A	64	LYS	3.4
1	D	42	GLN	3.2
1	C	179	LYS	3.2
1	D	378	VAL	3.1
1	D	341	PHE	3.1
1	D	44	GLY	3.1
1	C	45	GLU	3.1
1	C	343	LEU	3.1
1	D	280	ILE	3.1
1	C	375	GLN	3.1
1	D	290	LEU	3.0
1	D	23	SER	3.0
1	D	345	PRO	2.8
1	D	296	LEU	2.8
1	D	321	TRP	2.8
1	D	46	LYS	2.7

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Mol	Chain	Res	Type	RSRZ
1	D	273	LEU	2.7
1	A	346	GLU	2.7
1	D	281	ALA	2.6
1	B	388	TYR	2.6
1	C	350	PHE	2.6
1	D	39	ASN	2.6
1	D	362	ALA	2.6
1	D	337	TYR	2.6
1	D	179	LYS	2.6
1	D	355	PRO	2.6
1	D	282	ASP	2.5
1	D	327	ASN	2.5
1	D	356	PHE	2.5
1	A	46	LYS	2.4
1	D	323	THR	2.4
1	D	349	LYS	2.4
1	C	63	ILE	2.4
1	D	140	ILE	2.4
1	D	24	ALA	2.4
1	C	204	GLY	2.4
1	D	369	GLY	2.4
1	D	47	GLU	2.3
1	C	349	LYS	2.3
1	D	338	LEU	2.3
1	D	370	THR	2.3
1	C	400	VAL	2.3
1	D	26	LEU	2.3
1	D	278	ALA	2.3
1	D	382	LYS	2.3
1	D	138	TYR	2.3
1	C	364	LEU	2.3
1	D	240	ALA	2.3
1	B	53	GLU	2.2
1	B	341	PHE	2.2
1	D	401	LEU	2.2
1	D	43	LYS	2.2
1	D	49	THR	2.2
1	B	389	SER	2.2
1	A	349	LYS	2.2
1	D	187	ILE	2.2
1	D	365	LEU	2.2
1	D	371	ALA	2.2

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Mol	Chain	Res	Type	RSRZ
1	D	379	ASP	2.2
1	D	181	MET	2.2
1	D	320	LEU	2.1
1	D	386	LEU	2.1
1	A	23	SER	2.1
1	D	302	ALA	2.1
1	D	276	MET	2.1
1	A	58	VAL	2.1
1	A	179	LYS	2.1
1	B	381	ALA	2.1
1	C	345	PRO	2.1
1	C	74	LYS	2.1
1	D	359	SER	2.1
1	D	350	PHE	2.1
1	C	325	ALA	2.0
1	D	368	ALA	2.0
1	A	43	LYS	2.0
1	D	306	LEU	2.0
1	D	318	ILE	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, 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
2	BEM	G	1	13/13	0.54	0.20	69,79,87,88	13
2	BEM	H	1	13/13	0.61	0.21	72,84,90,92	13
2	BEM	F	1	13/13	0.67	0.18	72,79,83,83	13
2	BEM	E	1	13/13	0.76	0.16	59,66,72,73	13
2	BEM	E	3	12/13	0.79	0.15	48,50,53,58	12
2	BEM	H	3	12/13	0.79	0.18	66,68,71,71	12
2	BEM	H	4	12/13	0.79	0.16	59,67,71,72	12
2	BEM	G	2	12/13	0.80	0.17	60,65,68,73	12
2	BEM	E	4	12/13	0.80	0.17	42,51,54,56	12

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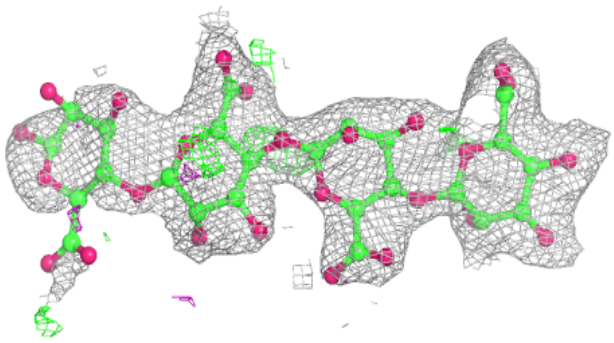
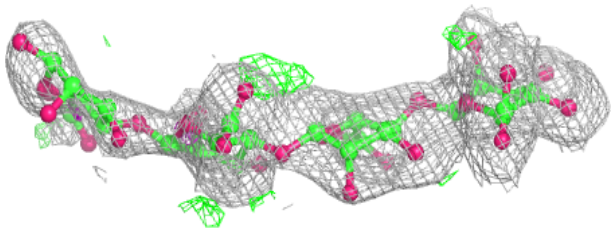
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	BEM	E	2	12/13	0.81	0.16	46,53,59,61	12
2	BEM	H	2	12/13	0.82	0.16	58,69,71,71	12
2	BEM	F	3	12/13	0.83	0.17	55,58,60,60	12
2	BEM	G	4	12/13	0.83	0.13	57,60,65,65	12
2	BEM	G	3	12/13	0.84	0.14	52,59,62,64	12
2	BEM	F	2	12/13	0.86	0.12	55,63,67,67	12
2	BEM	F	4	12/13	0.87	0.13	54,58,59,59	12

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 E:

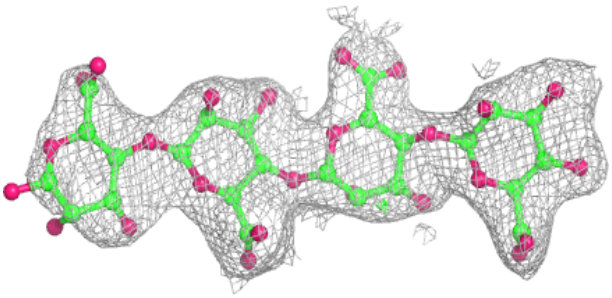
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

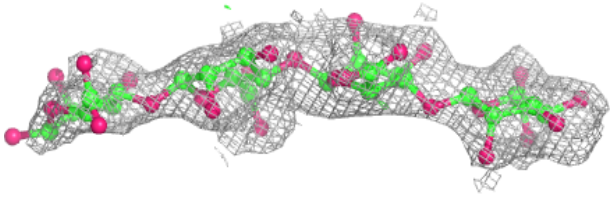


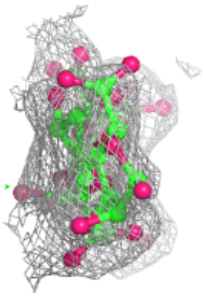


Electron density around Chain F:

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

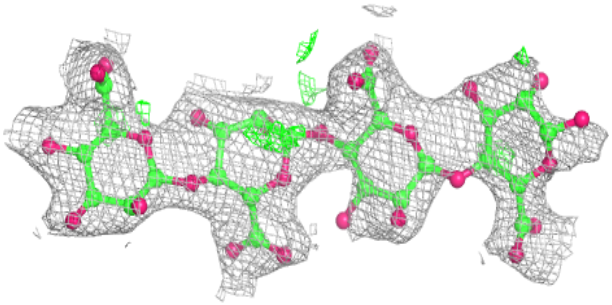


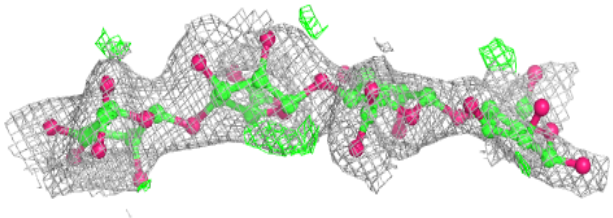


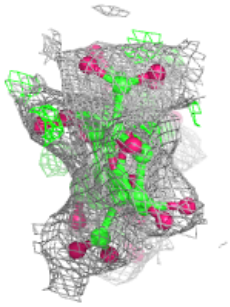


Electron density around Chain G:

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

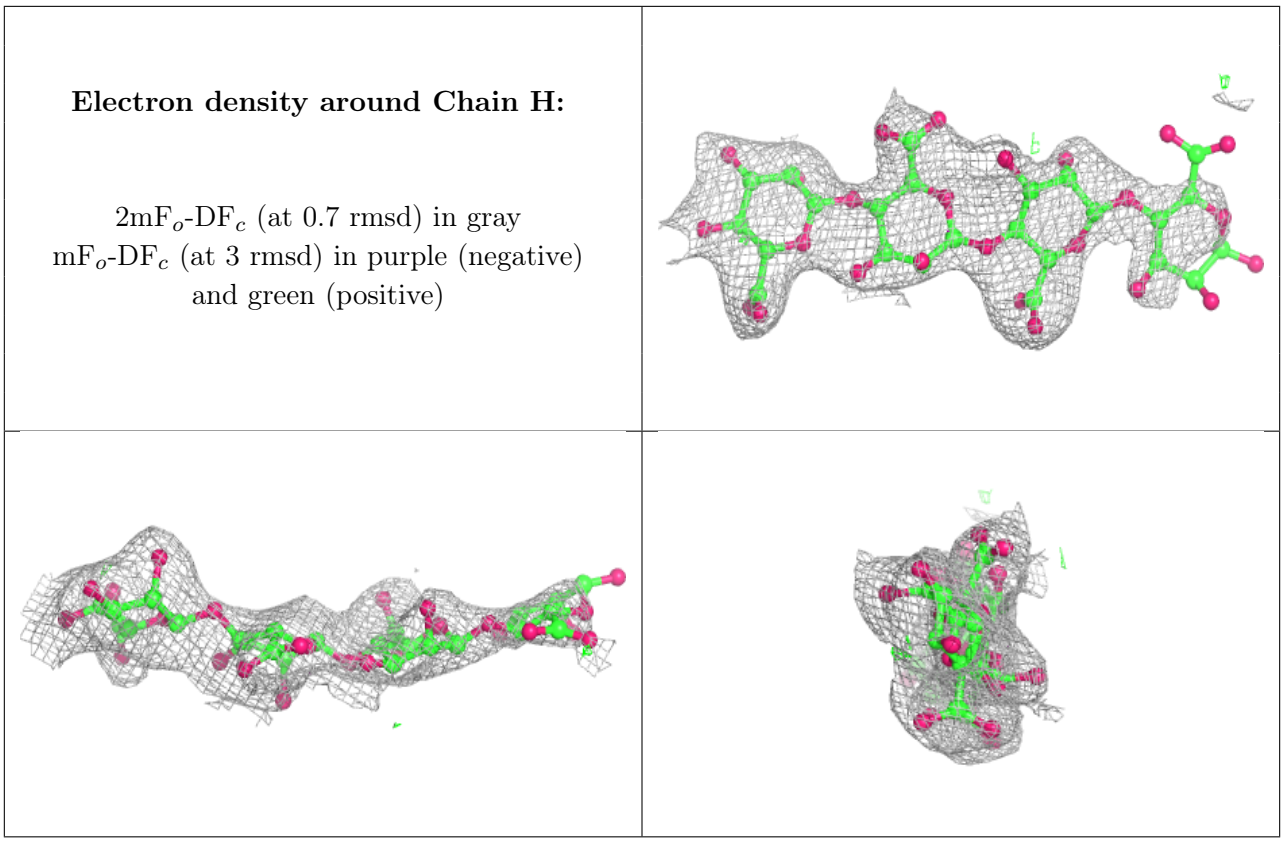






Electron density around Chain H:

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



6.4 Ligands

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
3	SO4	D	501	5/5	0.47	0.14	108,113,118,125	0
3	SO4	D	502	5/5	0.59	0.17	90,94,96,108	0
3	SO4	B	502	5/5	0.69	0.12	63,81,90,100	0
3	SO4	A	501	5/5	0.70	0.13	68,71,84,86	0
3	SO4	B	501	5/5	0.80	0.11	63,65,79,83	0
3	SO4	C	501	5/5	0.84	0.10	74,78,83,84	0

6.5 Other polymers

There are no such residues in this entry.