



# Full wwPDB X-ray Structure Validation Report ⓘ

Mar 20, 2026 – 02:40 AM UTC

PDB ID : 7F82 / pdb\_00007f82  
Title : Structure of the bacterial cellulose synthase subunit Z in complex with cellobiosaccharides from *Enterobacter* sp. CJF-002  
Authors : Fujiwara, T.; Fujishima, A.; Yao, M.  
Deposited on : 2021-06-30  
Resolution : 1.30 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](mailto: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>.

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

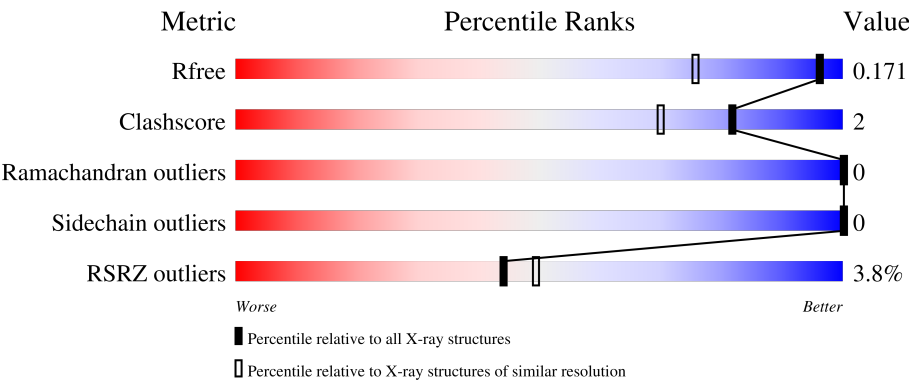
MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

# 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 1.30 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.



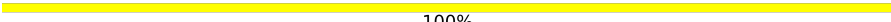
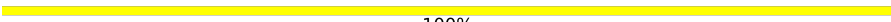

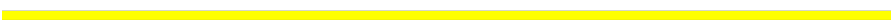




Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R <sub>free</sub>	180053	1553 (1.30-1.30)
Clashscore	190562	1595 (1.30-1.30)
Ramachandran outliers	187476	1551 (1.30-1.30)
Sidechain outliers	187428	1551 (1.30-1.30)
RSRZ outliers	180081	1549 (1.30-1.30)

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  $\geq 3$ , 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  $\leq 5\%$ . 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	351	<div><div>3%</div><div>91%</div><div>5%</div><div>.</div></div>
1	B	351	<div><div>3%</div><div>94%</div><div>.</div><div>.</div></div>
1	C	351	<div><div>4%</div><div>91%</div><div>5%</div><div>.</div><div>.</div></div>
1	D	351	<div><div>5%</div><div>92%</div><div>.</div><div>.</div><div>.</div></div>
2	E	2	<div><div>100%</div></div>

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Mol	Chain	Length	Quality of chain
2	H	2	 100%
2	J	2	 100%
2	M	2	 50% 50%
3	F	3	 100%
3	K	3	 100%
3	N	3	 67% 33%
4	G	4	 50% 50%
4	I	4	 50% 50%
4	L	4	 75% 25%

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
4	BGC	G	1	X	-	-	-
4	BGC	I	1	X	-	-	-
4	BGC	L	1	X	-	-	-
5	SRT	C	401	X	-	-	-
5	SRT	D	401	X	-	-	-

## 2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 12518 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 Glucanase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	338	Total	C	N	O	S	0	6	0
			2755	1770	483	496	6			
1	B	338	Total	C	N	O	S	0	5	0
			2742	1762	477	497	6			
1	C	338	Total	C	N	O	S	0	4	0
			2741	1761	479	495	6			
1	D	338	Total	C	N	O	S	0	6	0
			2752	1768	482	496	6			

There are 20 discrepancies between the modelled and reference sequences:

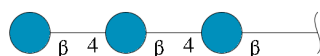
Chain	Residue	Modelled	Actual	Comment	Reference
A	17	GLY	-	expression tag	UNP K0IUUV6
A	18	SER	-	expression tag	UNP K0IUUV6
A	19	HIS	-	expression tag	UNP K0IUUV6
A	20	MET	-	expression tag	UNP K0IUUV6
A	242	ALA	ASP	engineered mutation	UNP K0IUUV6
B	17	GLY	-	expression tag	UNP K0IUUV6
B	18	SER	-	expression tag	UNP K0IUUV6
B	19	HIS	-	expression tag	UNP K0IUUV6
B	20	MET	-	expression tag	UNP K0IUUV6
B	242	ALA	ASP	engineered mutation	UNP K0IUUV6
C	17	GLY	-	expression tag	UNP K0IUUV6
C	18	SER	-	expression tag	UNP K0IUUV6
C	19	HIS	-	expression tag	UNP K0IUUV6
C	20	MET	-	expression tag	UNP K0IUUV6
C	242	ALA	ASP	engineered mutation	UNP K0IUUV6
D	17	GLY	-	expression tag	UNP K0IUUV6
D	18	SER	-	expression tag	UNP K0IUUV6
D	19	HIS	-	expression tag	UNP K0IUUV6
D	20	MET	-	expression tag	UNP K0IUUV6
D	242	ALA	ASP	engineered mutation	UNP K0IUUV6

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



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf	Trace
2	E	2	Total	C	O	0	0	0
			23	12	11			
2	H	2	Total	C	O	0	0	0
			23	12	11			
2	J	2	Total	C	O	0	0	0
			23	12	11			
2	M	2	Total	C	O	0	0	0
			23	12	11			

- Molecule 3 is an oligosaccharide called beta-D-glucopyranose-(1-4)-beta-D-glucopyranose-(1-4)-beta-D-glucopyranose.



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf	Trace
3	F	3	Total	C	O	0	0	0
			34	18	16			
3	K	3	Total	C	O	0	0	0
			34	18	16			
3	N	3	Total	C	O	0	0	0
			34	18	16			

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



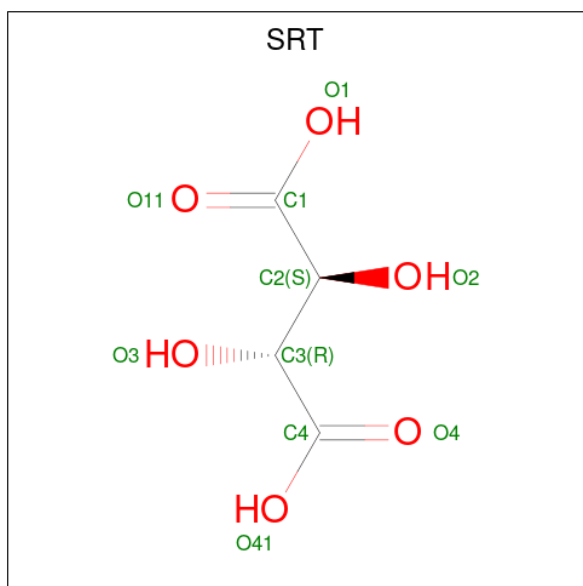
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf	Trace
4	G	4	Total	C	O	0	0	0
			45	24	21			
4	I	4	Total	C	O	0	0	0
			45	24	21			

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf	Trace
4	L	4	Total	C	O	0	0	0
			45	24	21			

- Molecule 5 is S,R MESO-TARTARIC ACID (CCD ID: SRT) (formula:  $C_4H_6O_6$ ).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	C	1	Total	C	O	0	0
			10	4	6		
5	D	1	Total	C	O	0	0
			10	4	6		

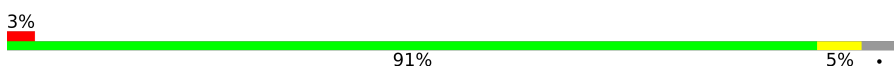
- Molecule 6 is water.

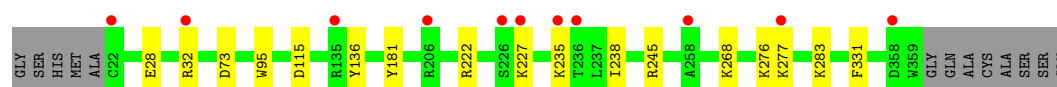
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	323	Total	O	0	0
			323	323		
6	B	313	Total	O	0	0
			313	313		
6	C	279	Total	O	0	0
			279	279		
6	D	264	Total	O	0	0
			264	264		

### 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.

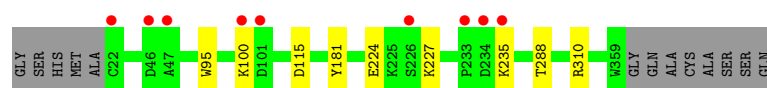
- Molecule 1: Glucanase

Chain A: 



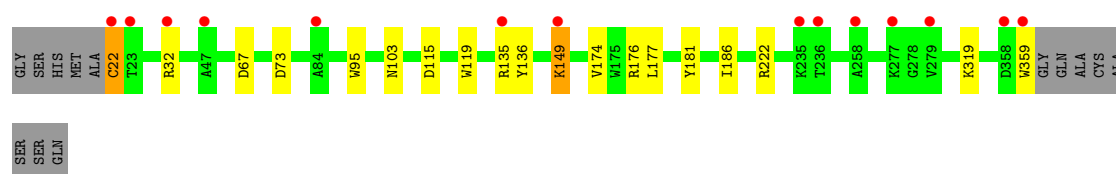
- Molecule 1: Glucanase

Chain B: 



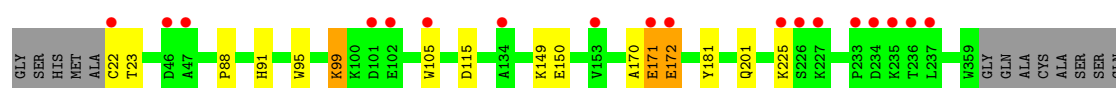
- Molecule 1: Glucanase

Chain C: 



- Molecule 1: Glucanase

Chain D: 



- Molecule 2: beta-D-glucopyranose-(1-4)-beta-D-glucopyranose

Chain E: 

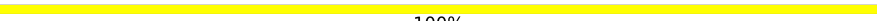


- Molecule 2: beta-D-glucopyranose-(1-4)-beta-D-glucopyranose

Chain H:  100%

BGC1  
BGC2

- Molecule 2: beta-D-glucopyranose-(1-4)-beta-D-glucopyranose

Chain J:  100%

BGC1  
BGC2

- Molecule 2: beta-D-glucopyranose-(1-4)-beta-D-glucopyranose

Chain M:  50% 50%

BGC1  
BGC2

- Molecule 3: beta-D-glucopyranose-(1-4)-beta-D-glucopyranose-(1-4)-beta-D-glucopyranose

Chain F:  100%

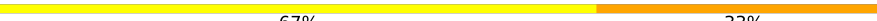
BGC1  
BGC2  
BGC3

- Molecule 3: beta-D-glucopyranose-(1-4)-beta-D-glucopyranose-(1-4)-beta-D-glucopyranose

Chain K:  100%

BGC1  
BGC2  
BGC3

- Molecule 3: beta-D-glucopyranose-(1-4)-beta-D-glucopyranose-(1-4)-beta-D-glucopyranose

Chain N:  67% 33%

BGC1  
BGC2  
BGC3

- Molecule 4: beta-D-glucopyranose-(1-4)-beta-D-glucopyranose-(1-4)-beta-D-glucopyranose-(1-4)-beta-D-glucopyranose

Chain G:  50% 50%

BGC1  
BGC2  
BGC3  
BGC4




- Molecule 4: beta-D-glucopyranose-(1-4)-beta-D-glucopyranose-(1-4)-beta-D-glucopyranose-(1-4)-beta-D-glucopyranose

Chain I:  50% 50%

BGC1  
BGC2  
BGC3  
BGC4

- Molecule 4: beta-D-glucopyranose-(1-4)-beta-D-glucopyranose-(1-4)-beta-D-glucopyranose-(1-4)-beta-D-glucopyranose

Chain L:  75% 25%

BGC1  
BGC2  
BGC3  
BGC4

## 4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	89.28Å 92.86Å 90.50Å 90.00° 98.41° 90.00°	Depositor
Resolution (Å)	42.51 – 1.30 42.51 – 1.30	Depositor EDS
% Data completeness (in resolution range)	99.5 (42.51-1.30) 99.5 (42.51-1.30)	Depositor EDS
$R_{merge}$	0.03	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.86 (at 1.30Å)	Xtriage
Refinement program	PHENIX 1.17.1_3660	Depositor
R, $R_{free}$	0.169 , 0.187 0.171 , 0.171	Depositor DCC
$R_{free}$ test set	17808 reflections (4.98%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	16.7	Xtriage
Anisotropy	0.649	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.38 , 41.7	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.50$ , $\langle L^2 \rangle = 0.33$	Xtriage
Estimated twinning fraction	0.010 for l,k,h	Xtriage
$F_o, F_c$ correlation	0.97	EDS
Total number of atoms	12518	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	25.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.95% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical values of  $\langle |L| \rangle$ ,  $\langle L^2 \rangle$  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: SRT, BGC

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	0.67	1/2851 (0.0%)	0.84	7/3885 (0.2%)
1	B	0.67	0/2835	0.82	0/3865
1	C	0.64	1/2831 (0.0%)	0.86	9/3858 (0.2%)
1	D	0.60	1/2848 (0.0%)	0.86	12/3880 (0.3%)
All	All	0.64	3/11365 (0.0%)	0.85	28/15488 (0.2%)

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	C	1	1

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	277	LYS	CG-CD	6.30	1.71	1.52
1	C	149	LYS	CE-NZ	6.18	1.68	1.49
1	D	171	GLU	CB-CG	-5.54	1.35	1.52

All (28) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	225	LYS	CB-CA-C	-12.46	89.64	109.70
1	A	277	LYS	CG-CD-CE	11.45	137.63	111.30
1	C	135	ARG	CB-CA-C	10.16	130.17	110.67
1	D	171	GLU	CB-CG-CD	-9.28	96.82	112.60
1	C	22	CYS	N-CA-C	8.72	135.42	111.00
1	C	149	LYS	N-CA-CB	-8.40	97.73	110.16

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	171	GLU	CG-CD-OE2	-8.19	99.56	118.40
1	D	172	GLU	N-CA-CB	8.16	122.79	110.22
1	D	99	LYS	CG-CD-CE	8.00	129.71	111.30
1	D	225	LYS	CA-CB-CG	7.70	129.49	114.10
1	C	135	ARG	NE-CZ-NH1	-7.55	113.95	121.50
1	D	170	ALA	CA-C-N	-7.50	107.21	121.54
1	D	170	ALA	C-N-CA	-7.50	107.21	121.54
1	A	276	LYS	CA-C-N	-7.46	110.93	122.49
1	A	276	LYS	C-N-CA	-7.46	110.93	122.49
1	D	171	GLU	CA-C-N	-7.39	109.64	120.28
1	D	171	GLU	C-N-CA	-7.39	109.64	120.28
1	C	149	LYS	CD-CE-NZ	-6.92	89.75	111.90
1	C	149	LYS	CA-CB-CG	6.54	127.19	114.10
1	C	135	ARG	NE-CZ-NH2	6.52	125.07	119.20
1	A	277	LYS	N-CA-CB	6.34	120.18	110.61
1	A	277	LYS	CD-CE-NZ	-6.24	91.95	111.90
1	D	171	GLU	CA-CB-CG	6.16	126.43	114.10
1	A	227	LYS	CG-CD-CE	5.95	124.99	111.30
1	C	149	LYS	CG-CD-CE	5.73	124.47	111.30
1	D	171	GLU	N-CA-CB	5.63	120.00	110.49
1	A	277	LYS	CA-CB-CG	-5.21	103.68	114.10
1	C	174	VAL	CG1-CB-CG2	5.14	122.10	110.80

All (1) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
1	C	22	CYS	CA

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	C	22	CYS	Mainchain

## 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	2755	0	2690	15	0
1	B	2742	0	2670	7	1
1	C	2741	0	2669	18	0
1	D	2752	0	2687	11	0
2	E	23	0	20	4	1
2	H	23	0	20	0	0
2	J	23	0	20	0	0
2	M	23	0	20	1	0
3	F	34	0	29	0	0
3	K	34	0	30	0	0
3	N	34	0	30	1	0
4	G	45	0	39	3	0
4	I	45	0	39	2	0
4	L	45	0	39	4	0
5	C	10	0	3	0	0
5	D	10	0	3	0	0
6	A	323	0	0	3	0
6	B	313	0	0	1	0
6	C	279	0	0	4	2
6	D	264	0	0	4	2
All	All	12518	0	11008	55	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 2.

All (55) 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:C:149:LYS:CE	1:C:149:LYS:NZ	1.67	1.53
1:C:149:LYS:NZ	1:C:149:LYS:CD	2.22	1.01
1:C:222:ARG:NH1	6:C:501:HOH:O	2.13	0.81
1:C:149:LYS:NZ	1:C:149:LYS:HD3	1.97	0.78
1:C:32:ARG:NH2	6:C:502:HOH:O	2.19	0.76
1:B:310[B]:ARG:HD2	6:B:403:HOH:O	1.87	0.75
1:C:149:LYS:HE2	6:D:503:HOH:O	1.91	0.69
1:B:235:LYS:HE2	1:B:235:LYS:H	1.58	0.68
1:A:245[A]:ARG:NH1	2:E:2:BGC:H6C1	2.12	0.65
1:A:331:PHE:HB3	2:E:1:BGC:H6C2	1.77	0.64
4:L:1:BGC:H2	4:L:1:BGC:H6C1	1.81	0.62
1:D:149:LYS:NZ	6:D:503:HOH:O	2.32	0.60
1:A:222:ARG:NH1	6:A:401:HOH:O	2.35	0.59
1:A:238:ILE:HD13	1:A:283:LYS:HD3	1.84	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:235:LYS:H	1:B:235:LYS:CE	2.16	0.58
6:D:712:HOH:O	2:M:1:BGC:O2	2.18	0.56
4:L:1:BGC:H2	4:L:1:BGC:C6	2.35	0.56
1:C:149:LYS:CD	1:C:149:LYS:HZ3	2.18	0.55
4:G:1:BGC:H6C1	4:G:1:BGC:H2	1.89	0.54
1:B:95:TRP:CE2	4:I:2:BGC:H5	2.43	0.53
1:B:115:ASP:HB3	1:B:181:TYR:CG	2.45	0.52
4:G:1:BGC:H2	4:G:1:BGC:C6	2.39	0.52
1:A:95:TRP:CE2	4:G:2:BGC:H5	2.46	0.51
1:A:28:GLU:O	1:A:32:ARG:HG3	2.10	0.51
1:C:95:TRP:CE2	4:L:2:BGC:H5	2.46	0.51
1:D:171:GLU:HB3	6:D:505:HOH:O	2.11	0.50
1:C:119:TRP:CZ3	1:C:186:ILE:HD11	2.48	0.48
1:D:115:ASP:HB3	1:D:181:TYR:CG	2.48	0.48
1:A:235:LYS:HG3	6:A:655:HOH:O	2.15	0.47
1:A:115:ASP:HB3	1:A:181:TYR:CG	2.50	0.47
1:C:149:LYS:HE3	1:D:150:GLU:HG2	1.97	0.47
1:B:224:GLU:CD	1:B:227:LYS:HE2	2.40	0.46
1:C:115:ASP:HB3	1:C:181:TYR:CG	2.50	0.46
1:C:73:ASP:OD1	1:C:136:TYR:OH	2.20	0.45
1:A:268:LYS:NZ	6:A:406:HOH:O	2.50	0.45
1:D:22:CYS:SG	1:D:23:THR:HG23	2.56	0.45
1:D:99:LYS:HD3	1:D:105:TRP:CZ2	2.52	0.45
4:I:1:BGC:H2	4:I:1:BGC:H6C1	1.98	0.45
1:C:319:LYS:HG2	6:C:732:HOH:O	2.17	0.45
1:A:235:LYS:H	1:A:235:LYS:CE	2.30	0.45
1:C:181:TYR:OH	4:L:1:BGC:H3	2.18	0.44
1:A:73:ASP:OD1	1:A:136:TYR:OH	2.33	0.43
1:A:235:LYS:H	1:A:235:LYS:HE2	1.83	0.43
1:C:176:ARG:C	1:C:177:LEU:HG	2.43	0.43
1:A:331:PHE:CB	2:E:1:BGC:H6C2	2.46	0.43
1:C:67:ASP:HB2	1:C:359:TRP:CD1	2.54	0.42
1:A:245[A]:ARG:HH11	2:E:2:BGC:H6C1	1.82	0.42
1:C:149:LYS:HD3	1:C:149:LYS:HZ3	1.80	0.42
1:D:95:TRP:CE2	3:N:1:BGC:H5	2.54	0.42
1:A:238:ILE:CD1	1:A:283:LYS:HD3	2.50	0.41
1:D:88:PRO:HA	1:D:91:HIS:O	2.20	0.41
1:D:201:GLN:C	1:D:201:GLN:CD	2.88	0.41
1:D:171:GLU:O	1:D:172:GLU:C	2.59	0.41
1:C:103:ASN:O	6:C:503:HOH:O	2.22	0.40
1:B:100:LYS:HG3	1:D:105:TRP:CG	2.57	0.40

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)
6:C:511:HOH:O	6:D:504:HOH:O[1_556]	1.82	0.38
6:C:679:HOH:O	6:D:534:HOH:O[2_445]	2.11	0.09
1:B:288:THR:O	2:E:1:BGC:O2[2_555]	2.18	0.02

## 5.3 Torsion angles ⓘ

### 5.3.1 Protein backbone ⓘ

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	342/351 (97%)	338 (99%)	4 (1%)	0	100	100
1	B	341/351 (97%)	336 (98%)	5 (2%)	0	100	100
1	C	340/351 (97%)	336 (99%)	4 (1%)	0	100	100
1	D	342/351 (97%)	336 (98%)	6 (2%)	0	100	100
All	All	1365/1404 (97%)	1346 (99%)	19 (1%)	0	100	100

There are no Ramachandran outliers to report.

### 5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	283/285 (99%)	283 (100%)	0	100	100
1	B	282/285 (99%)	282 (100%)	0	100	100
1	C	281/285 (99%)	281 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	D	283/285 (99%)	283 (100%)	0	100	100
All	All	1129/1140 (99%)	1129 (100%)	0	100	100

There are no protein residues with a non-rotameric sidechain to report.

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (10) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	141	ASN
1	A	340	GLN
1	B	82	ASN
1	B	340	GLN
1	C	141	ASN
1	C	256	HIS
1	C	290	GLN
1	C	340	GLN
1	D	141	ASN
1	D	340	GLN

### 5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

There are no non-standard protein/DNA/RNA residues in this entry.

## 5.5 Carbohydrates ⓘ

29 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	BGC	E	1	2	12,12,12	1.37	1 (8%)	17,17,17	1.75	4 (23%)
2	BGC	E	2	2	11,11,12	1.91	3 (27%)	15,15,17	1.59	6 (40%)
3	BGC	F	1	3	12,12,12	1.38	2 (16%)	17,17,17	1.24	3 (17%)
3	BGC	F	2	3	11,11,12	1.40	1 (9%)	15,15,17	1.33	2 (13%)
3	BGC	F	3	3	11,11,12	2.14	3 (27%)	15,15,17	0.87	0
4	BGC	G	1	4	12,12,12	1.39	2 (16%)	17,17,17	3.15	8 (47%)
4	BGC	G	2	4	11,11,12	1.19	1 (9%)	15,15,17	1.02	1 (6%)
4	BGC	G	3	4	11,11,12	1.56	2 (18%)	15,15,17	0.97	1 (6%)
4	BGC	G	4	4	11,11,12	2.60	6 (54%)	15,15,17	1.19	1 (6%)
2	BGC	H	1	2	12,12,12	1.31	1 (8%)	17,17,17	0.98	1 (5%)
2	BGC	H	2	2	11,11,12	1.78	3 (27%)	15,15,17	1.46	3 (20%)
4	BGC	I	1	4	12,12,12	1.46	3 (25%)	17,17,17	1.64	3 (17%)
4	BGC	I	2	4	11,11,12	1.30	2 (18%)	15,15,17	1.48	4 (26%)
4	BGC	I	3	4	11,11,12	1.68	3 (27%)	15,15,17	1.13	1 (6%)
4	BGC	I	4	4	11,11,12	2.34	5 (45%)	15,15,17	1.00	1 (6%)
2	BGC	J	1	2	12,12,12	1.33	1 (8%)	17,17,17	0.86	0
2	BGC	J	2	2	11,11,12	1.86	3 (27%)	15,15,17	1.21	1 (6%)
3	BGC	K	1	3	12,12,12	1.19	1 (8%)	17,17,17	0.98	0
3	BGC	K	2	3	11,11,12	1.37	1 (9%)	15,15,17	1.12	0
3	BGC	K	3	3	11,11,12	1.52	2 (18%)	15,15,17	1.00	1 (6%)
4	BGC	L	1	4	12,12,12	1.49	2 (16%)	17,17,17	2.92	8 (47%)
4	BGC	L	2	4	11,11,12	1.06	0	15,15,17	0.79	0
4	BGC	L	3	4	11,11,12	1.42	3 (27%)	15,15,17	1.17	2 (13%)
4	BGC	L	4	4	11,11,12	2.77	6 (54%)	15,15,17	1.58	3 (20%)
2	BGC	M	1	2	12,12,12	1.35	1 (8%)	17,17,17	1.15	2 (11%)
2	BGC	M	2	2	11,11,12	1.76	2 (18%)	15,15,17	1.02	1 (6%)
3	BGC	N	1	3	12,12,12	1.22	1 (8%)	17,17,17	0.99	1 (5%)
3	BGC	N	2	3	11,11,12	1.53	3 (27%)	15,15,17	0.90	0
3	BGC	N	3	3	11,11,12	1.96	2 (18%)	15,15,17	1.08	1 (6%)

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	BGC	E	1	2	-	1/2/22/22	0/1/1/1
2	BGC	E	2	2	-	0/2/19/22	0/1/1/1
3	BGC	F	1	3	-	0/2/22/22	0/1/1/1
3	BGC	F	2	3	-	0/2/19/22	0/1/1/1
3	BGC	F	3	3	-	0/2/19/22	0/1/1/1
4	BGC	G	1	4	1/1/5/5	0/2/22/22	0/1/1/1
4	BGC	G	2	4	-	0/2/19/22	0/1/1/1
4	BGC	G	3	4	-	0/2/19/22	0/1/1/1
4	BGC	G	4	4	-	2/2/19/22	0/1/1/1
2	BGC	H	1	2	-	0/2/22/22	0/1/1/1
2	BGC	H	2	2	-	0/2/19/22	0/1/1/1
4	BGC	I	1	4	1/1/5/5	1/2/22/22	0/1/1/1
4	BGC	I	2	4	-	0/2/19/22	0/1/1/1
4	BGC	I	3	4	-	0/2/19/22	0/1/1/1
4	BGC	I	4	4	-	0/2/19/22	0/1/1/1
2	BGC	J	1	2	-	0/2/22/22	0/1/1/1
2	BGC	J	2	2	-	0/2/19/22	0/1/1/1
3	BGC	K	1	3	-	0/2/22/22	0/1/1/1
3	BGC	K	2	3	-	0/2/19/22	0/1/1/1
3	BGC	K	3	3	-	0/2/19/22	0/1/1/1
4	BGC	L	1	4	1/1/5/5	0/2/22/22	0/1/1/1
4	BGC	L	2	4	-	0/2/19/22	0/1/1/1
4	BGC	L	3	4	-	0/2/19/22	0/1/1/1
4	BGC	L	4	4	-	2/2/19/22	0/1/1/1
2	BGC	M	1	2	-	0/2/22/22	0/1/1/1
2	BGC	M	2	2	-	0/2/19/22	0/1/1/1
3	BGC	N	1	3	-	0/2/22/22	0/1/1/1
3	BGC	N	2	3	-	0/2/19/22	0/1/1/1
3	BGC	N	3	3	-	2/2/19/22	0/1/1/1

All (66) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	L	4	BGC	C2-C3	-6.29	1.42	1.52
3	F	3	BGC	O5-C1	6.08	1.53	1.43
3	N	3	BGC	O5-C1	5.77	1.53	1.43
4	G	4	BGC	C2-C3	-5.41	1.44	1.52
3	K	3	BGC	O5-C1	4.28	1.50	1.43
4	I	4	BGC	C2-C3	-4.21	1.46	1.52
2	J	2	BGC	O5-C1	4.17	1.50	1.43
2	E	2	BGC	O5-C1	4.06	1.50	1.43
2	M	2	BGC	C2-C3	-4.05	1.46	1.52
2	E	2	BGC	C2-C3	-3.77	1.46	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	H	2	BGC	C2-C3	-3.70	1.46	1.52
2	H	1	BGC	O5-C1	3.44	1.51	1.42
4	L	4	BGC	O2-C2	3.44	1.50	1.43
4	G	4	BGC	O5-C5	3.42	1.50	1.43
2	E	1	BGC	O5-C1	3.42	1.51	1.42
2	M	1	BGC	O5-C1	3.38	1.51	1.42
4	I	4	BGC	O5-C5	3.37	1.50	1.43
2	J	1	BGC	O5-C1	3.35	1.51	1.42
2	H	2	BGC	O5-C1	3.30	1.49	1.43
2	M	2	BGC	O5-C1	3.26	1.49	1.43
4	L	1	BGC	O5-C5	3.24	1.52	1.44
2	J	2	BGC	C2-C3	-3.23	1.47	1.52
3	K	2	BGC	O5-C1	3.21	1.49	1.43
4	I	3	BGC	C2-C3	-3.16	1.47	1.52
4	L	4	BGC	O3-C3	3.02	1.50	1.43
4	G	1	BGC	O5-C5	2.95	1.51	1.44
3	F	1	BGC	O5-C1	2.94	1.50	1.42
4	I	4	BGC	O2-C2	2.88	1.49	1.43
4	G	3	BGC	O5-C5	2.87	1.49	1.43
4	G	4	BGC	O3-C3	2.86	1.50	1.43
4	L	4	BGC	O5-C5	2.81	1.48	1.43
4	I	3	BGC	O3-C3	2.79	1.49	1.43
3	N	2	BGC	O3-C3	2.76	1.49	1.43
3	K	1	BGC	O5-C1	2.71	1.49	1.42
4	L	3	BGC	C2-C3	-2.69	1.48	1.52
4	G	4	BGC	O2-C2	2.69	1.49	1.43
4	I	4	BGC	O3-C3	2.66	1.49	1.43
4	G	4	BGC	C6-C5	-2.66	1.42	1.51
3	F	3	BGC	C2-C3	-2.57	1.48	1.52
4	I	1	BGC	O5-C5	2.56	1.50	1.44
2	H	2	BGC	O5-C5	2.54	1.48	1.43
4	I	1	BGC	O5-C1	2.45	1.48	1.42
4	L	4	BGC	C6-C5	-2.45	1.43	1.51
4	I	4	BGC	C6-C5	-2.39	1.43	1.51
3	N	1	BGC	O5-C1	2.39	1.48	1.42
4	G	3	BGC	C2-C3	-2.36	1.48	1.52
3	N	2	BGC	O5-C5	2.33	1.48	1.43
4	I	1	BGC	O4-C4	2.33	1.48	1.43
4	I	2	BGC	O5-C5	2.31	1.47	1.43
4	I	2	BGC	O5-C1	2.31	1.47	1.43
4	G	2	BGC	O5-C1	2.30	1.47	1.43
4	G	4	BGC	O5-C1	2.26	1.47	1.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	J	2	BGC	O5-C5	2.26	1.47	1.43
4	L	3	BGC	C4-C3	-2.21	1.46	1.52
3	F	2	BGC	O5-C1	2.21	1.47	1.43
3	N	2	BGC	O4-C4	2.19	1.48	1.43
4	L	1	BGC	O5-C1	2.16	1.48	1.42
4	I	3	BGC	C1-C2	2.14	1.57	1.52
2	E	2	BGC	O5-C5	2.07	1.47	1.43
4	L	4	BGC	C4-C5	2.06	1.57	1.53
3	N	3	BGC	C2-C3	-2.04	1.49	1.52
4	G	1	BGC	O5-C1	2.04	1.47	1.42
3	F	1	BGC	C3-C2	-2.03	1.47	1.52
3	F	3	BGC	O5-C5	2.02	1.47	1.43
3	K	3	BGC	C2-C3	-2.01	1.49	1.52
4	L	3	BGC	O3-C3	2.00	1.47	1.43

All (59) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	G	1	BGC	O5-C1-C2	-7.87	96.45	110.30
4	L	1	BGC	O2-C2-C1	7.29	126.08	109.25
4	G	1	BGC	O2-C2-C1	6.61	124.51	109.25
4	L	1	BGC	O5-C1-C2	-6.53	98.81	110.30
4	G	1	BGC	O3-C3-C2	-4.40	100.01	110.38
2	E	1	BGC	C3-C4-C5	4.01	117.50	110.23
4	L	1	BGC	O3-C3-C2	-3.71	101.64	110.38
4	L	4	BGC	C3-C4-C5	3.70	116.94	110.23
4	I	1	BGC	O5-C5-C6	3.20	114.36	106.44
4	I	2	BGC	C1-O5-C5	-3.10	108.03	112.19
3	K	3	BGC	C1-O5-C5	-3.08	108.06	112.19
4	I	1	BGC	O4-C4-C5	-3.07	101.77	109.32
4	G	1	BGC	O5-C5-C6	3.05	114.00	106.44
2	H	2	BGC	C1-O5-C5	-3.00	108.16	112.19
4	G	1	BGC	C1-O5-C5	3.00	119.45	113.65
2	E	1	BGC	O4-C4-C3	-2.96	103.39	110.38
2	M	1	BGC	C6-C5-C4	-2.91	105.88	113.02
4	I	4	BGC	O5-C5-C4	-2.86	103.87	110.83
4	L	1	BGC	O5-C5-C6	2.83	113.44	106.44
2	E	2	BGC	C1-O5-C5	-2.81	108.42	112.19
4	I	3	BGC	C2-C3-C4	2.75	115.70	110.86
3	F	2	BGC	C1-O5-C5	2.74	115.86	112.19
4	G	2	BGC	O5-C1-C2	-2.73	104.27	110.79
2	J	2	BGC	O5-C5-C6	2.69	112.90	107.66

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	E	1	BGC	O6-C6-C5	2.60	120.18	111.33
2	E	1	BGC	O5-C5-C4	2.55	114.30	109.70
4	L	1	BGC	O4-C4-C3	-2.47	104.54	110.38
2	H	2	BGC	O5-C5-C6	2.43	112.39	107.66
4	G	3	BGC	O3-C3-C2	-2.42	105.12	110.05
3	F	2	BGC	C2-C3-C4	2.36	115.01	110.86
4	L	1	BGC	C1-O5-C5	2.35	118.20	113.65
4	I	2	BGC	O5-C5-C4	-2.32	105.19	110.83
2	M	2	BGC	O4-C4-C3	-2.31	104.93	110.38
2	M	1	BGC	O5-C5-C4	2.28	113.81	109.70
3	N	3	BGC	C1-C2-C3	2.26	112.93	109.64
4	L	1	BGC	O3-C3-C4	-2.24	105.09	110.38
4	I	2	BGC	O5-C5-C6	-2.22	103.33	107.66
4	L	1	BGC	O6-C6-C5	-2.20	103.84	111.33
4	I	1	BGC	O2-C2-C3	2.19	115.53	110.38
2	E	2	BGC	O4-C4-C3	-2.18	105.24	110.38
3	F	1	BGC	O3-C3-C2	-2.18	105.24	110.38
2	H	2	BGC	O2-C2-C3	-2.17	105.66	110.15
4	G	1	BGC	O3-C3-C4	-2.16	105.29	110.38
4	L	4	BGC	O4-C4-C3	-2.14	105.34	110.38
4	G	1	BGC	O6-C6-C5	-2.13	104.09	111.33
4	L	4	BGC	O5-C5-C4	-2.11	105.68	110.83
3	F	1	BGC	C1-O5-C5	-2.11	109.57	113.65
2	E	2	BGC	C6-C5-C4	2.09	118.14	113.02
4	L	3	BGC	C1-O5-C5	-2.06	109.43	112.19
4	G	1	BGC	O2-C2-C3	2.06	115.22	110.38
4	I	2	BGC	O2-C2-C3	-2.05	105.91	110.15
2	E	2	BGC	O3-C3-C4	2.05	115.20	110.38
4	L	3	BGC	O4-C4-C3	-2.04	105.56	110.38
2	E	2	BGC	O6-C6-C5	2.04	118.28	111.33
3	F	1	BGC	O5-C1-C2	-2.03	106.73	110.30
3	N	1	BGC	O1-C1-O5	-2.03	104.38	110.41
2	H	1	BGC	O4-C4-C5	-2.03	104.33	109.32
4	G	4	BGC	C3-C4-C5	2.02	113.89	110.23
2	E	2	BGC	O5-C5-C6	2.00	111.56	107.66

All (3) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
4	G	1	BGC	C1
4	I	1	BGC	C1
4	L	1	BGC	C1

All (8) torsion outliers are listed below:

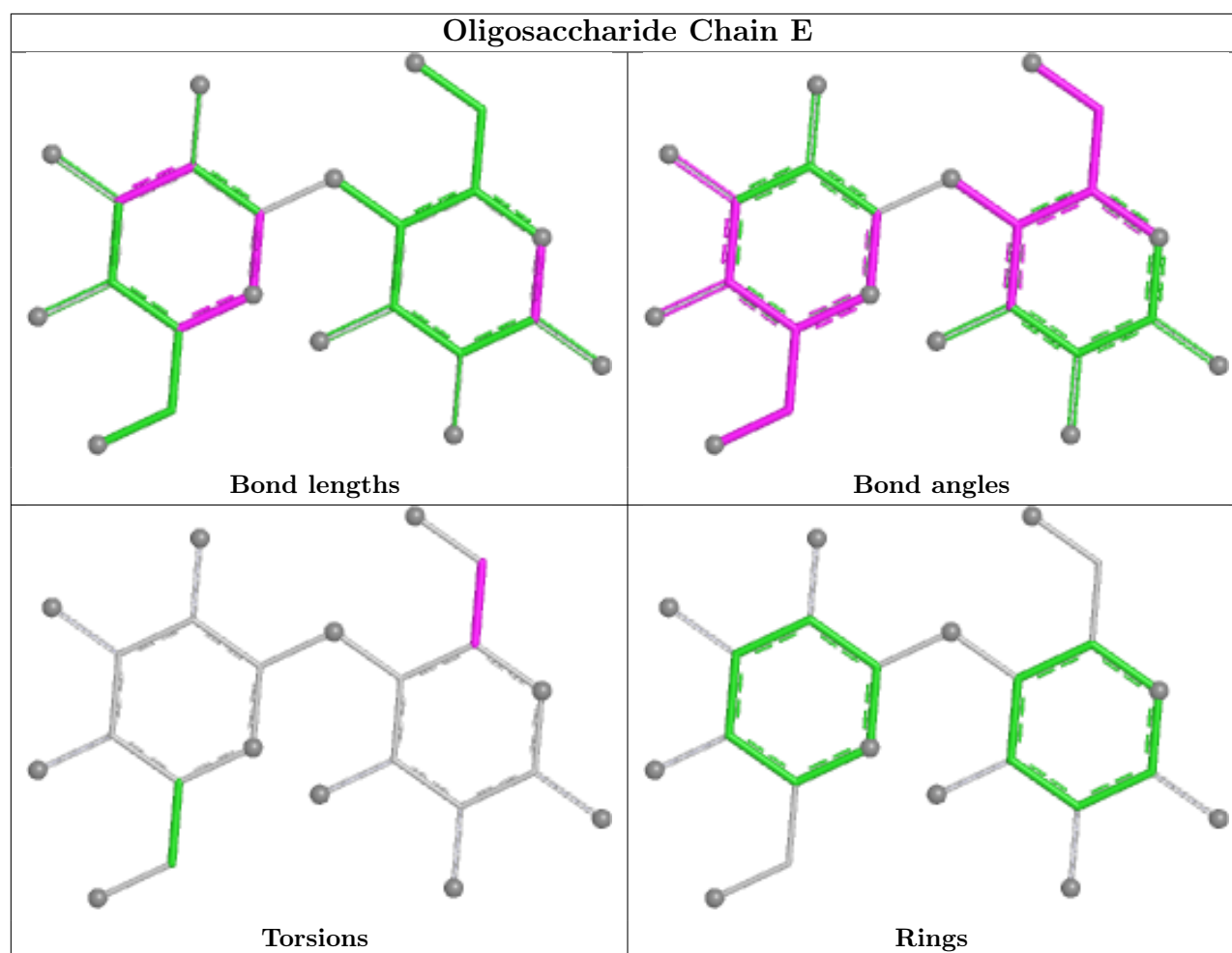
Mol	Chain	Res	Type	Atoms
4	L	4	BGC	O5-C5-C6-O6
4	L	4	BGC	C4-C5-C6-O6
4	G	4	BGC	O5-C5-C6-O6
4	G	4	BGC	C4-C5-C6-O6
2	E	1	BGC	O5-C5-C6-O6
3	N	3	BGC	C4-C5-C6-O6
4	I	1	BGC	O5-C5-C6-O6
3	N	3	BGC	O5-C5-C6-O6

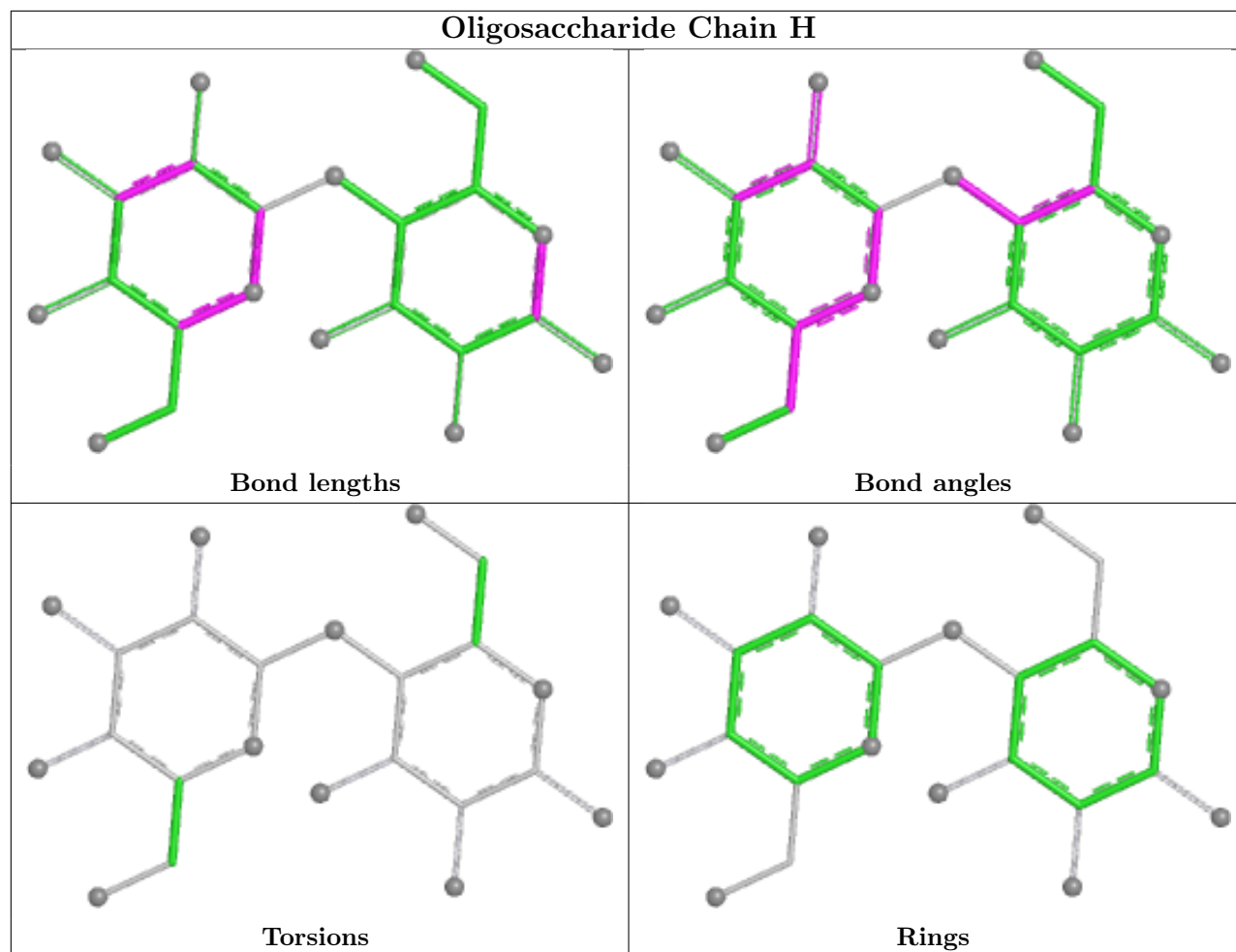
There are no ring outliers.

10 monomers are involved in 16 short contacts:

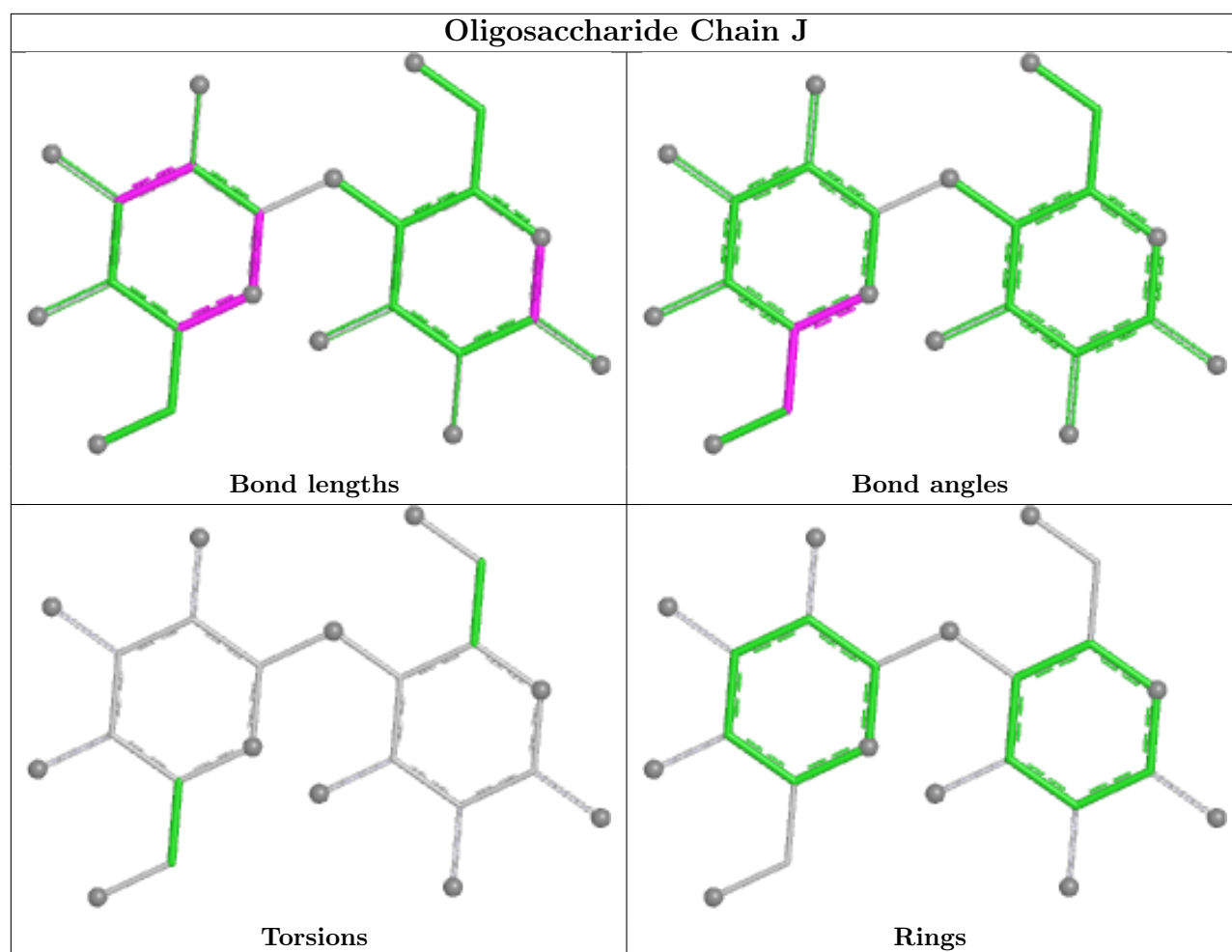
Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	G	1	BGC	2	0
4	L	1	BGC	3	0
4	I	1	BGC	1	0
2	M	1	BGC	1	0
3	N	1	BGC	1	0
4	G	2	BGC	1	0
4	I	2	BGC	1	0
2	E	1	BGC	2	1
4	L	2	BGC	1	0
2	E	2	BGC	2	0

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

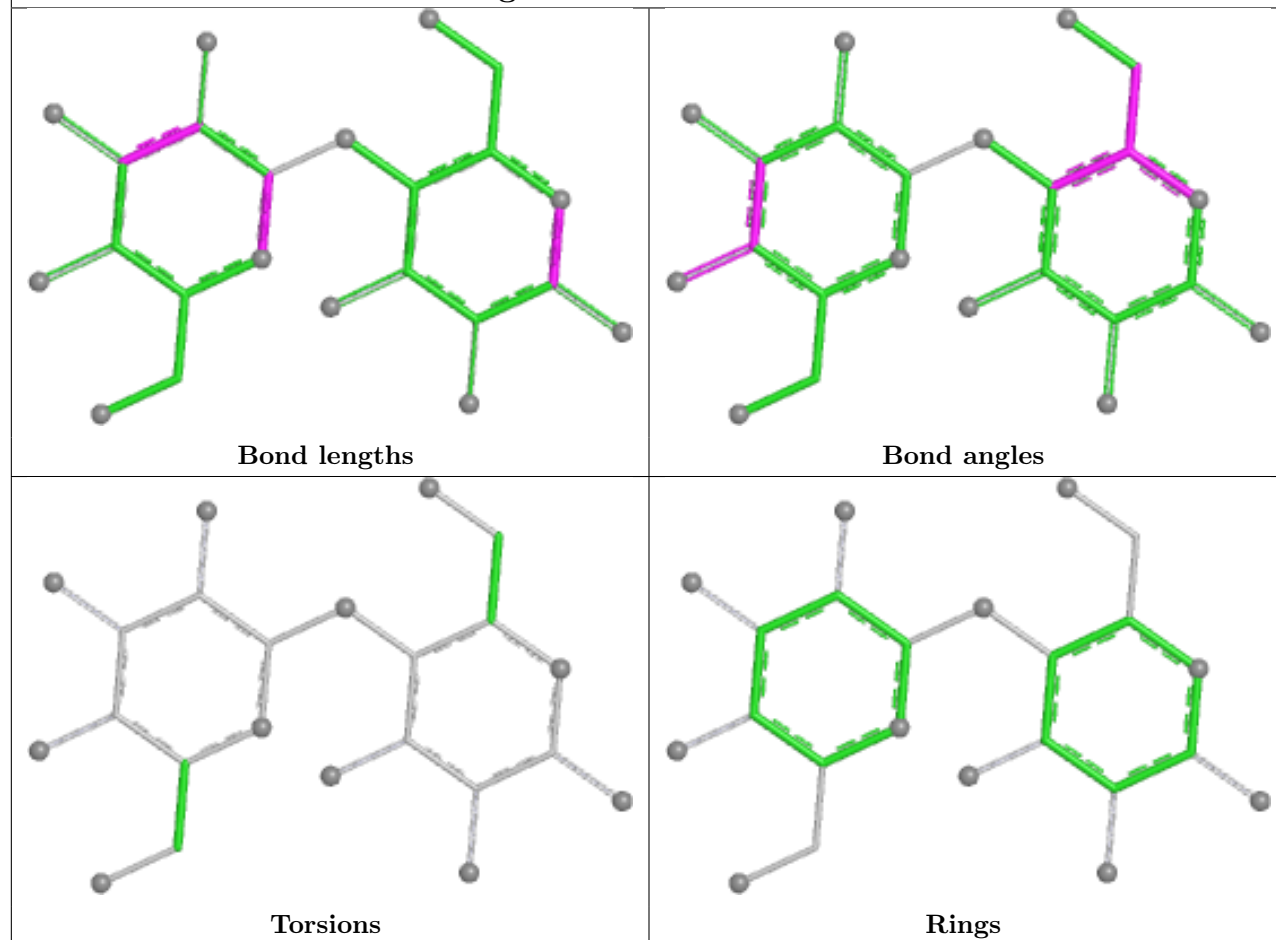




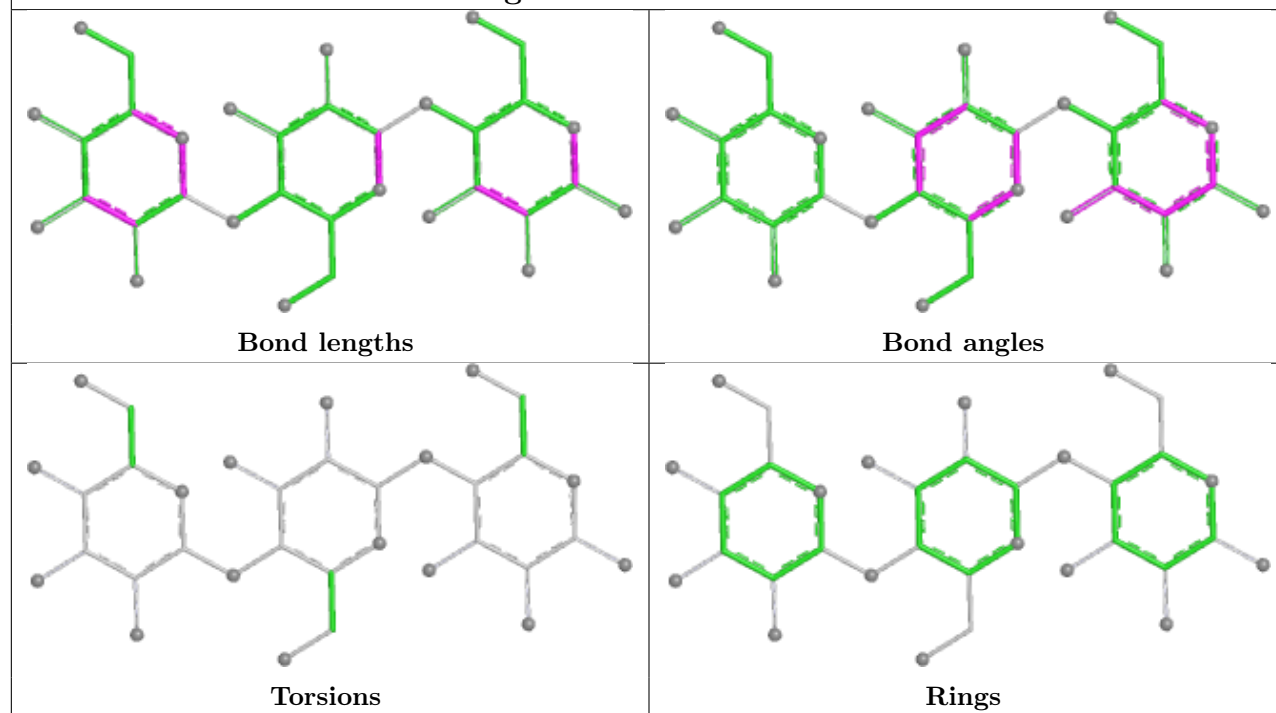


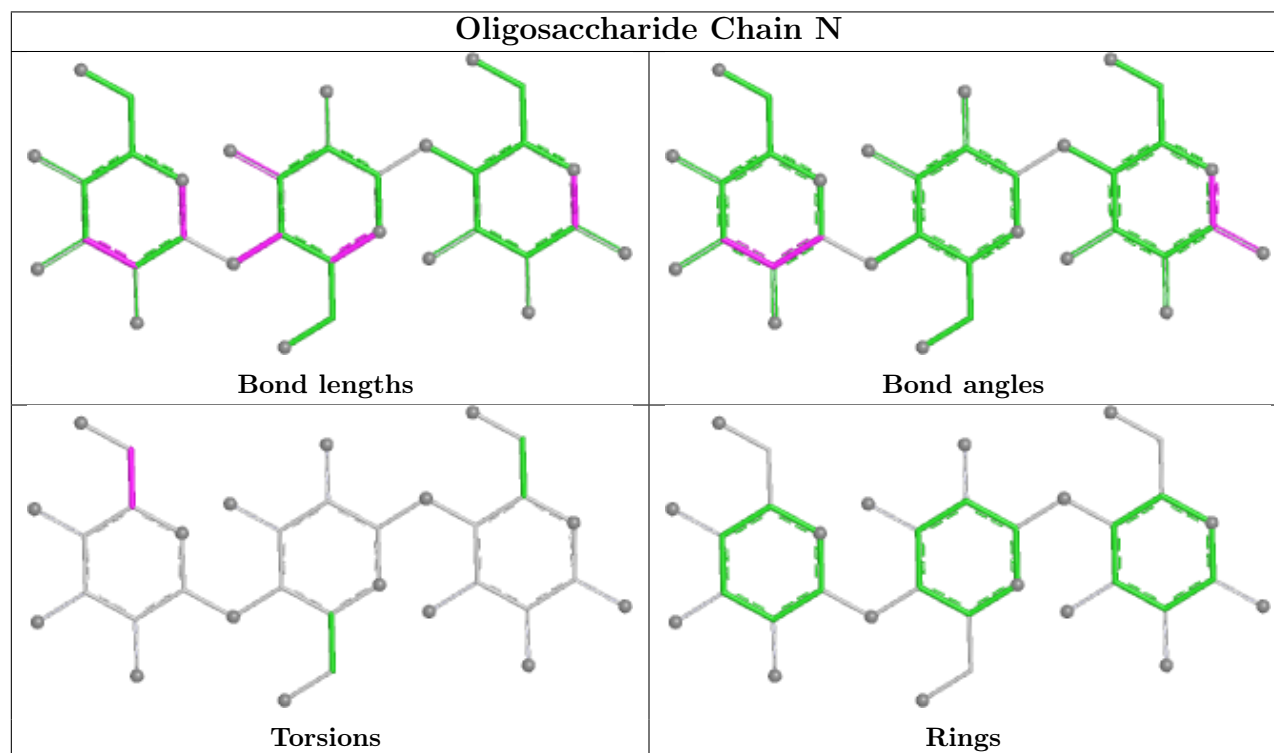
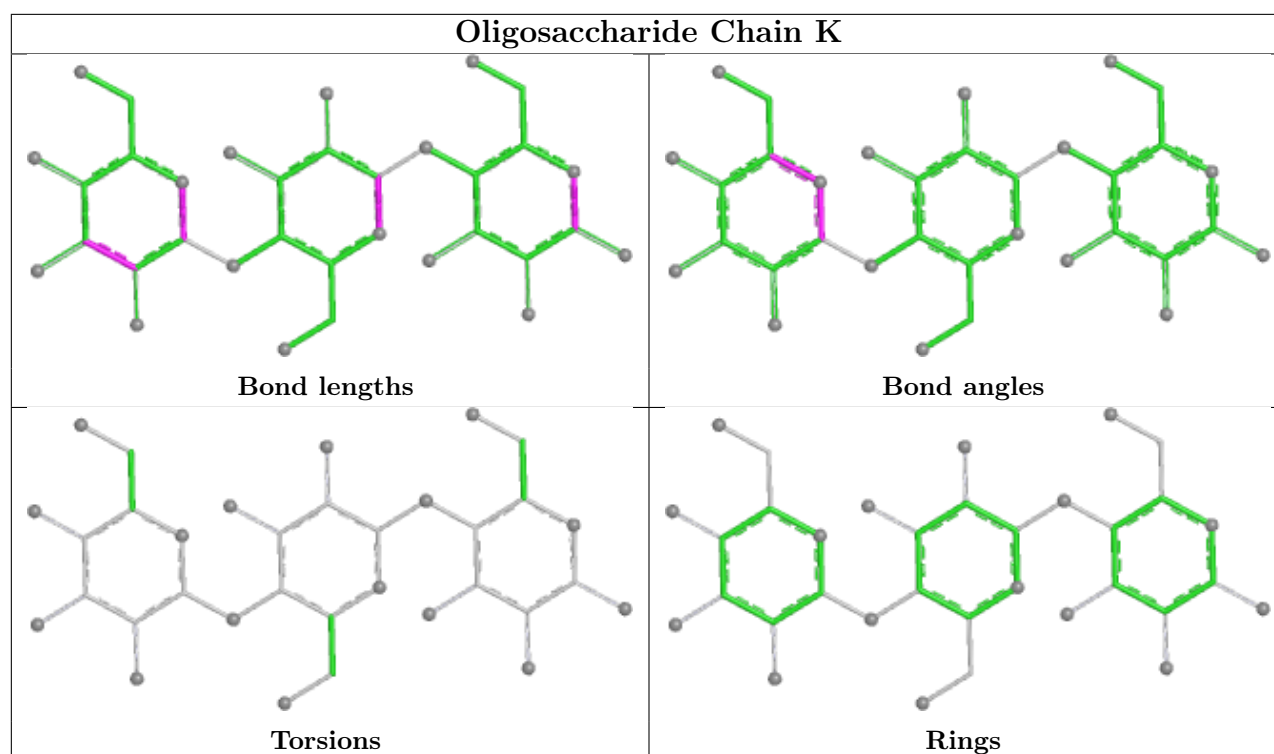


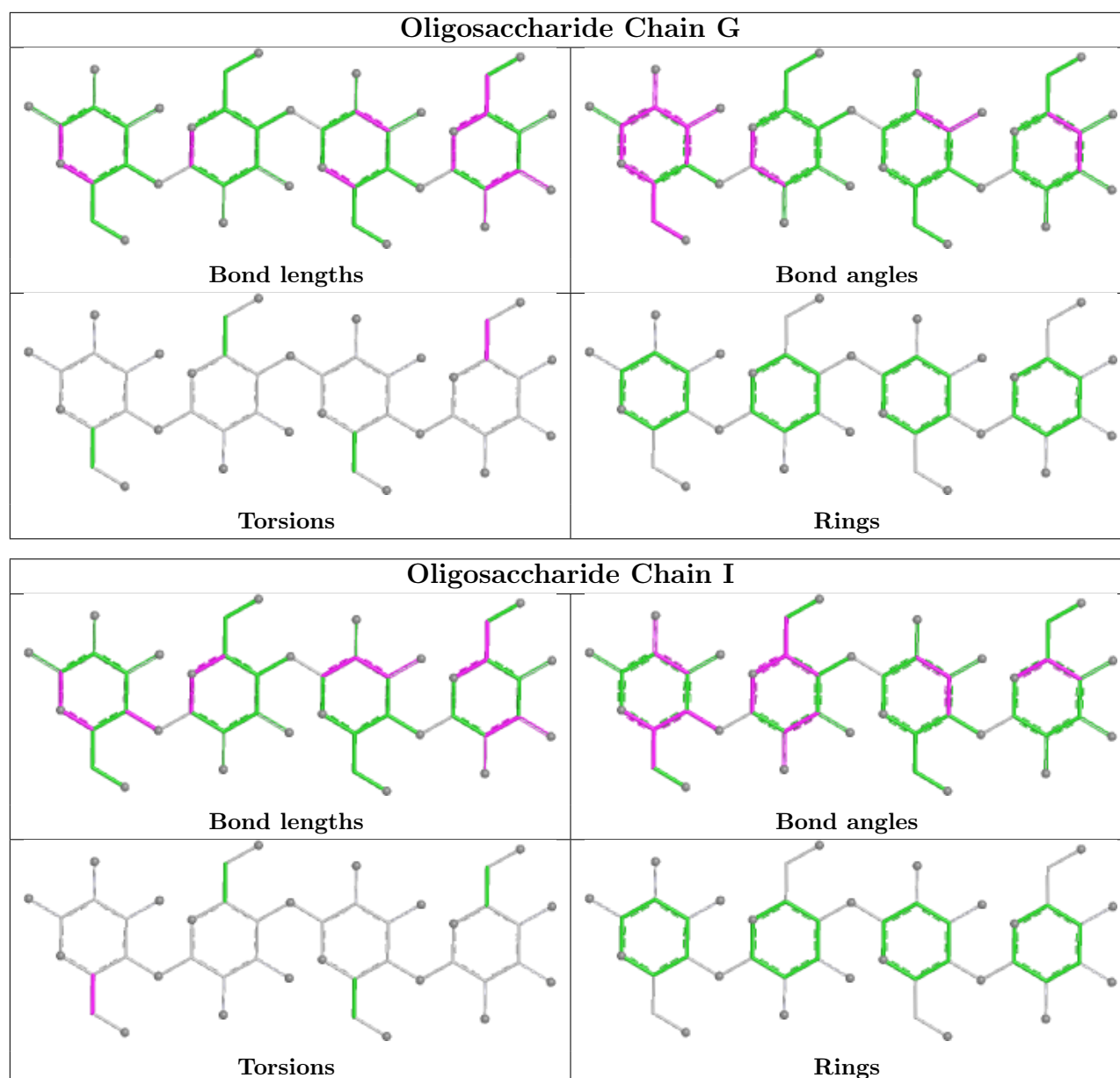
## Oligosaccharide Chain M

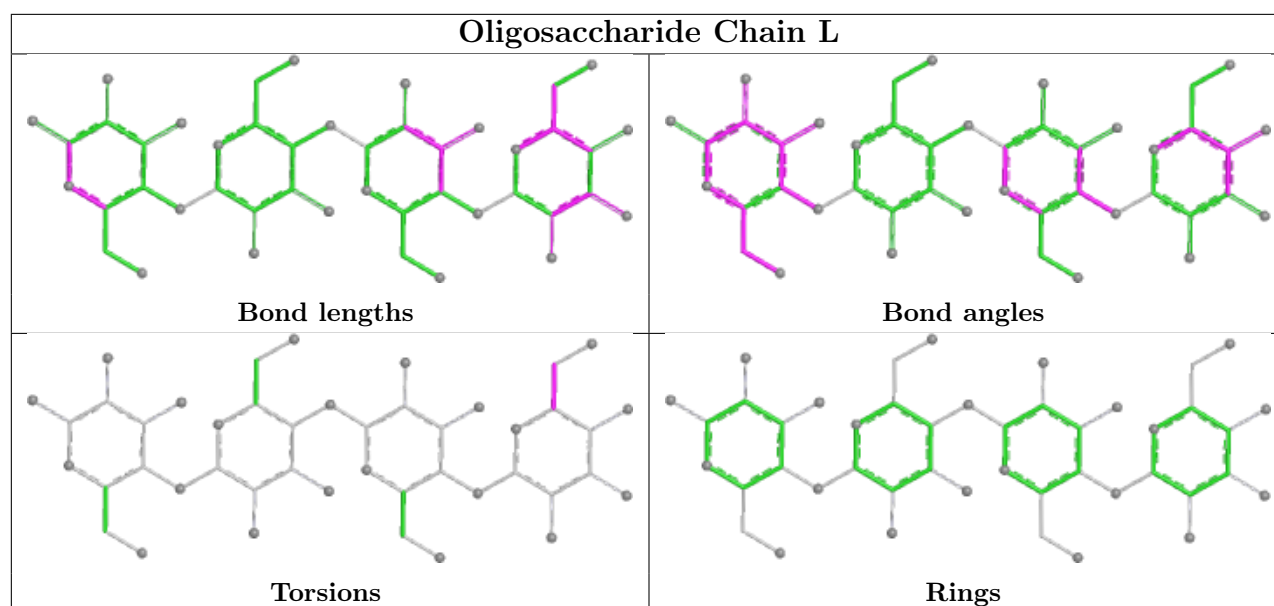


## Oligosaccharide Chain F









## 5.6 Ligand geometry [i](#)

2 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
5	SRT	D	401	-	9,9,9	1.74	3 (33%)	12,12,12	2.85	5 (41%)
5	SRT	C	401	-	9,9,9	1.97	4 (44%)	12,12,12	3.14	5 (41%)

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
5	SRT	D	401	-	1/1/4/4	3/12/12/12	-
5	SRT	C	401	-	1/1/4/4	4/12/12/12	-

All (7) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	C	401	SRT	C2-C1	-3.73	1.47	1.52
5	D	401	SRT	C2-C1	-3.20	1.48	1.52
5	C	401	SRT	O4-C4	2.17	1.28	1.22
5	D	401	SRT	C3-C2	-2.14	1.46	1.53
5	C	401	SRT	O1-C1	-2.05	1.24	1.30
5	C	401	SRT	C3-C4	-2.02	1.49	1.52
5	D	401	SRT	C3-C4	-2.02	1.49	1.52

All (10) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	C	401	SRT	O3-C3-C2	-6.08	97.78	110.17
5	C	401	SRT	C3-C2-C1	5.91	122.92	109.82
5	D	401	SRT	O3-C3-C2	-5.46	99.04	110.17
5	D	401	SRT	O2-C2-C3	4.69	119.72	110.17
5	D	401	SRT	C3-C2-C1	4.29	119.33	109.82
5	C	401	SRT	O2-C2-C1	4.20	119.66	110.69
5	D	401	SRT	O2-C2-C1	3.30	117.74	110.69
5	C	401	SRT	O2-C2-C3	2.88	116.03	110.17
5	D	401	SRT	O1-C1-C2	2.40	119.99	113.31
5	C	401	SRT	O1-C1-C2	2.08	119.08	113.31

All (2) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
5	C	401	SRT	C2
5	D	401	SRT	C2

All (7) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	C	401	SRT	O1-C1-C2-C3
5	D	401	SRT	O11-C1-C2-C3
5	D	401	SRT	O1-C1-C2-C3
5	C	401	SRT	C1-C2-C3-O3
5	C	401	SRT	O11-C1-C2-C3
5	D	401	SRT	C1-C2-C3-O3
5	C	401	SRT	C1-C2-C3-C4

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<sup>th</sup> 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 <sup>2</sup> )	Q < 0.9
1	A	338/351 (96%)	0.18	11 (3%)	49	55	7, 20, 34, 66	6 (1%)
1	B	338/351 (96%)	0.24	9 (2%)	56	61	8, 22, 36, 57	5 (1%)
1	C	338/351 (96%)	0.53	14 (4%)	41	47	9, 24, 39, 74	4 (1%)
1	D	338/351 (96%)	0.52	18 (5%)	32	37	10, 25, 44, 77	6 (1%)
All	All	1352/1404 (96%)	0.37	52 (3%)	44	49	7, 23, 40, 77	21 (1%)

All (52) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	22	CYS	6.6
1	A	22	CYS	5.6
1	C	22	CYS	5.0
1	B	22	CYS	4.3
1	D	171	GLU	4.2
1	D	226	SER	4.1
1	D	236	THR	3.8
1	A	277	LYS	3.7
1	B	47	ALA	3.5
1	D	235	LYS	3.3
1	D	233	PRO	3.0
1	A	235	LYS	2.9
1	A	135	ARG	2.9
1	A	32	ARG	2.9
1	B	46	ASP	2.8
1	C	359	TRP	2.8
1	D	234	ASP	2.8
1	A	227	LYS	2.7
1	C	47	ALA	2.7
1	C	277	LYS	2.5
1	D	134	ALA	2.5

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Mol	Chain	Res	Type	RSRZ
1	B	234	ASP	2.5
1	C	149	LYS	2.5
1	D	46	ASP	2.4
1	C	258	ALA	2.4
1	A	226	SER	2.4
1	C	235	LYS	2.4
1	A	258	ALA	2.4
1	B	233	PRO	2.4
1	C	32	ARG	2.3
1	B	226	SER	2.3
1	D	102	GLU	2.3
1	A	358	ASP	2.3
1	B	101	ASP	2.3
1	C	135	ARG	2.3
1	C	236	THR	2.3
1	D	227	LYS	2.2
1	A	236	THR	2.2
1	D	101	ASP	2.2
1	B	100	LYS	2.2
1	D	225	LYS	2.2
1	D	237	LEU	2.1
1	D	47	ALA	2.1
1	B	235	LYS	2.1
1	A	206	ARG	2.1
1	C	279	VAL	2.1
1	C	23	THR	2.1
1	D	172	GLU	2.1
1	C	358	ASP	2.1
1	C	84	ALA	2.1
1	D	105	TRP	2.0
1	D	153	VAL	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](#)

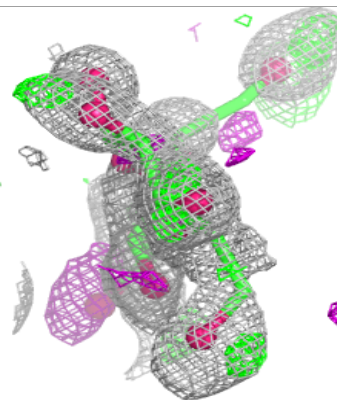
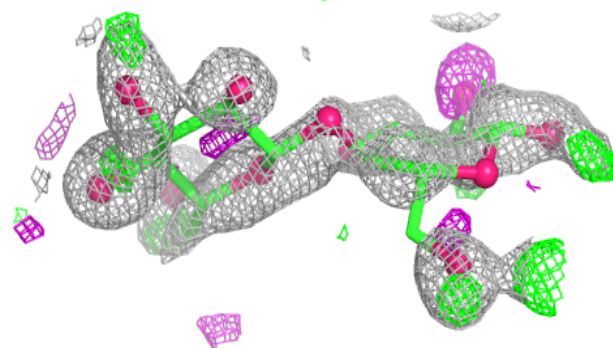
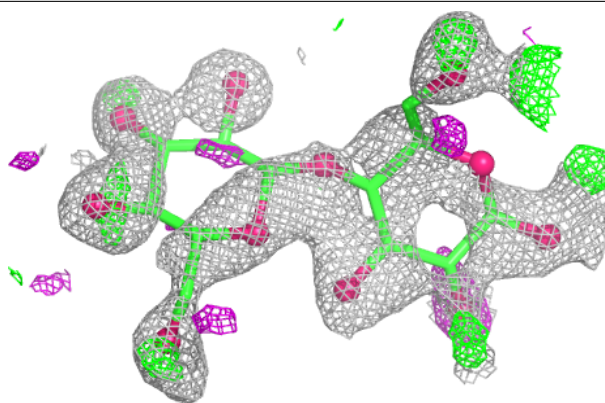
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95<sup>th</sup> percentile and maximum values of B factors of atoms in the group. The column labelled 'Q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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
2	BGC	E	1	12/12	0.66	0.24	33,43,44,46	12
4	BGC	I	1	12/12	0.70	0.24	21,37,43,43	12
4	BGC	L	4	11/12	0.72	0.17	36,41,47,49	11
3	BGC	N	3	11/12	0.74	0.15	34,40,46,50	11
2	BGC	M	1	12/12	0.76	0.16	37,41,45,46	12
2	BGC	J	1	12/12	0.77	0.17	50,57,59,59	12
3	BGC	F	3	11/12	0.80	0.14	34,37,41,42	11
4	BGC	G	4	11/12	0.81	0.14	33,40,44,45	11
2	BGC	H	1	12/12	0.81	0.15	30,35,38,38	12
4	BGC	I	4	11/12	0.81	0.14	29,34,38,40	11
4	BGC	G	1	12/12	0.81	0.18	22,27,31,33	12
2	BGC	E	2	11/12	0.84	0.19	25,33,38,39	11
4	BGC	L	1	12/12	0.85	0.15	21,26,31,34	12
3	BGC	F	1	12/12	0.86	0.13	27,30,34,36	12
2	BGC	M	2	11/12	0.87	0.13	25,31,36,37	11
3	BGC	N	2	11/12	0.87	0.12	23,26,30,33	11
2	BGC	J	2	11/12	0.87	0.13	30,36,45,47	11
3	BGC	F	2	11/12	0.89	0.10	28,31,33,34	11
4	BGC	L	3	11/12	0.89	0.12	20,25,30,33	11
3	BGC	K	1	12/12	0.89	0.12	21,24,27,27	12
2	BGC	H	2	11/12	0.90	0.12	21,28,36,39	11
4	BGC	I	3	11/12	0.90	0.12	19,22,25,29	11
4	BGC	G	3	11/12	0.91	0.12	23,26,30,31	11
3	BGC	N	1	12/12	0.91	0.10	20,23,28,31	12
4	BGC	I	2	11/12	0.93	0.09	18,20,25,27	11
3	BGC	K	3	11/12	0.93	0.10	22,25,30,31	11
3	BGC	K	2	11/12	0.93	0.09	20,21,24,24	11
4	BGC	G	2	11/12	0.94	0.09	21,24,27,28	11
4	BGC	L	2	11/12	0.94	0.10	19,21,26,27	11

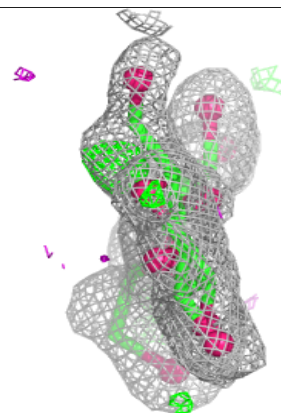
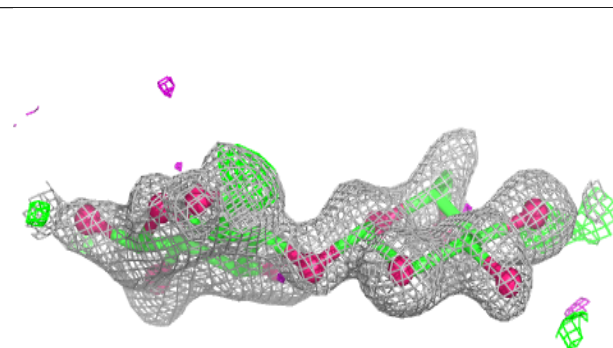
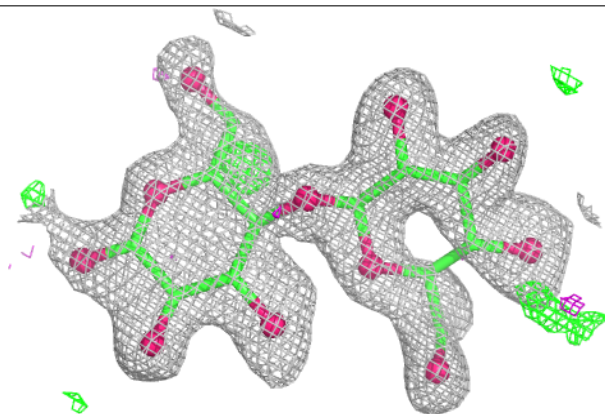
The following is a graphical depiction of the model fit to experimental electron density for oligosaccharide. Each fit is shown from different orientation to approximate a three-dimensional view.

**Electron density around Chain E:**

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

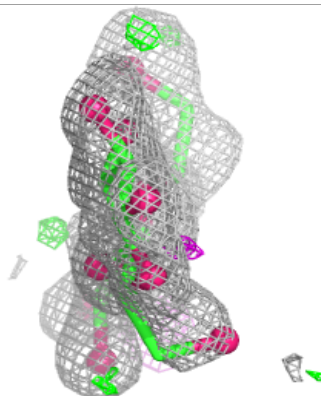
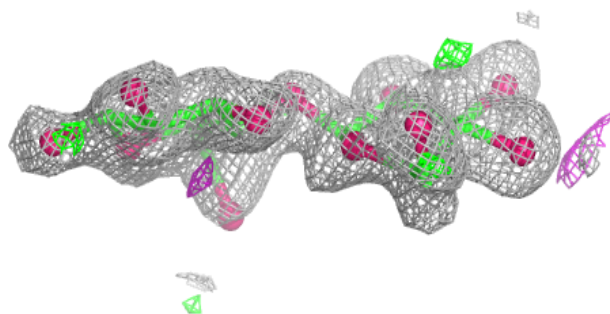
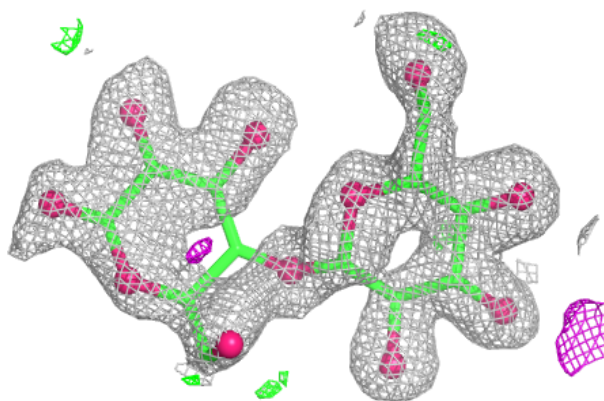
**Electron density around Chain H:**

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

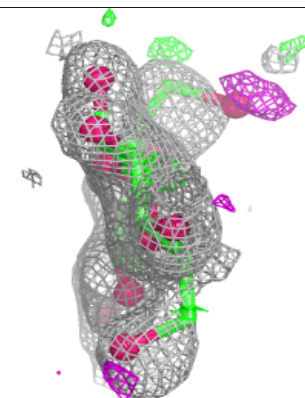
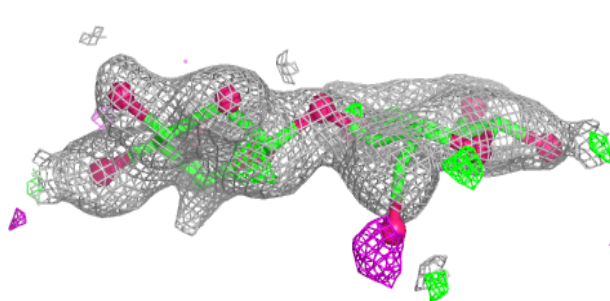
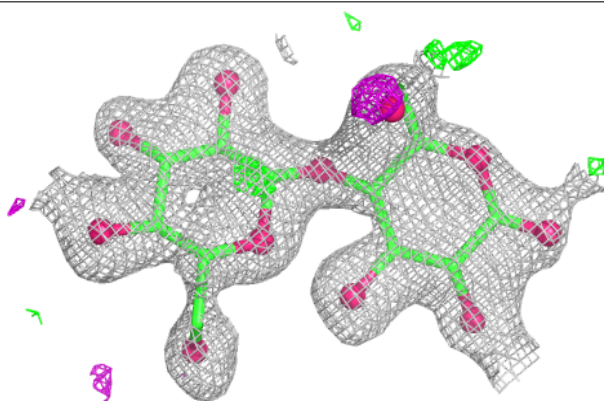


**Electron density around Chain J:**

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

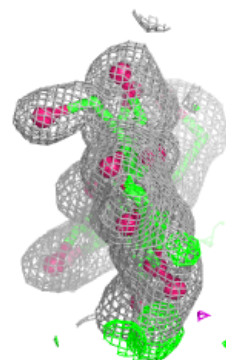
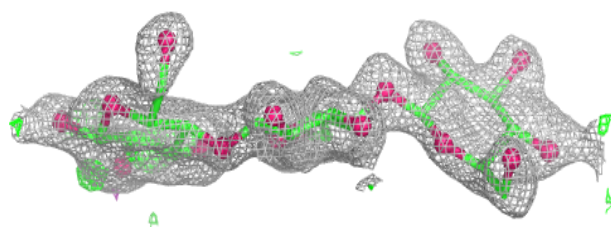
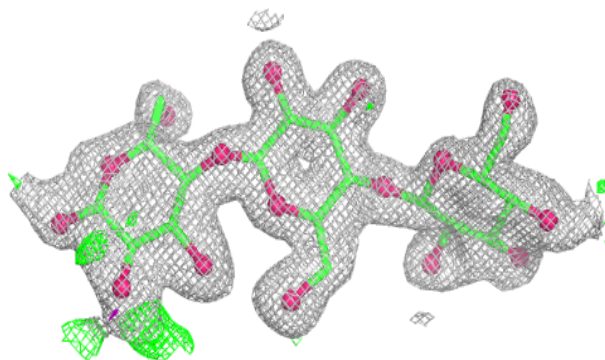
**Electron density around Chain M:**

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

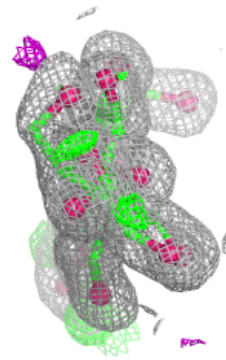
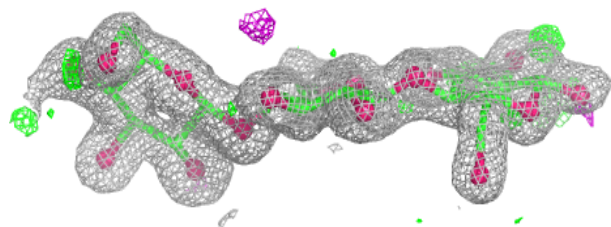
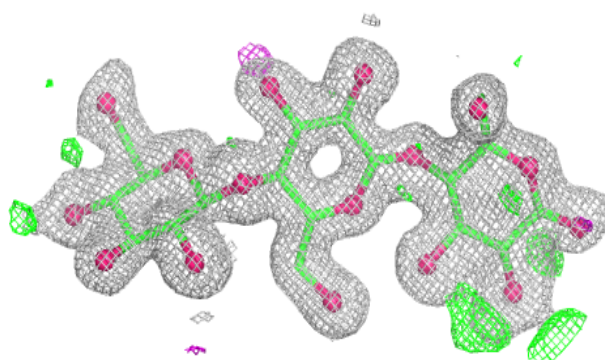


**Electron density around Chain F:**

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

**Electron density around Chain K:**

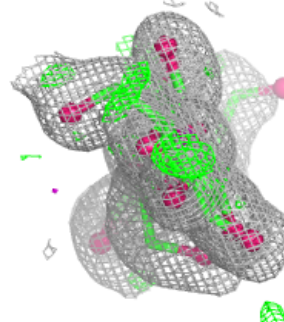
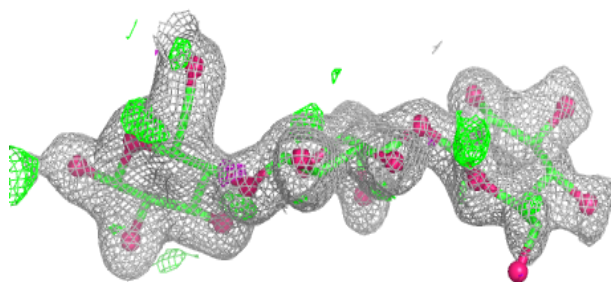
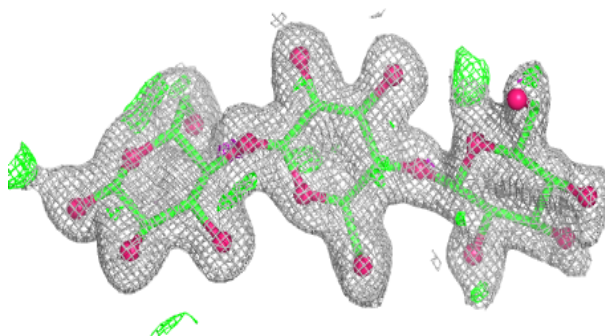
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



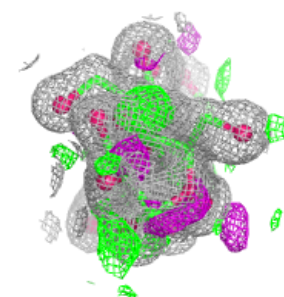
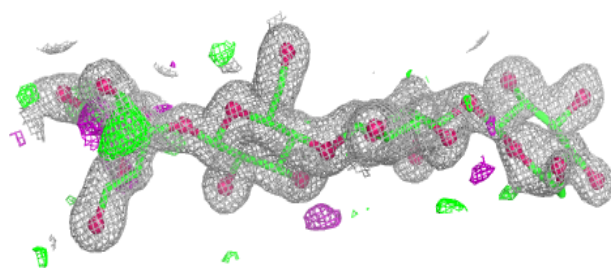
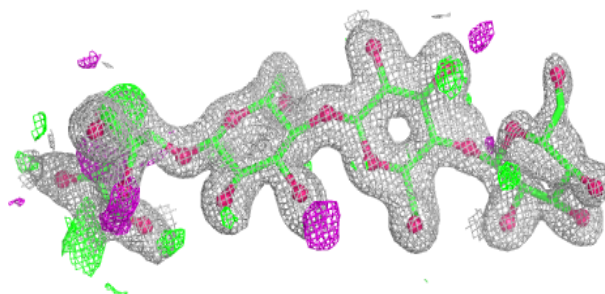


**Electron density around Chain N:**

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

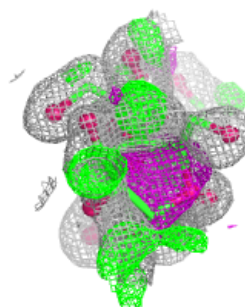
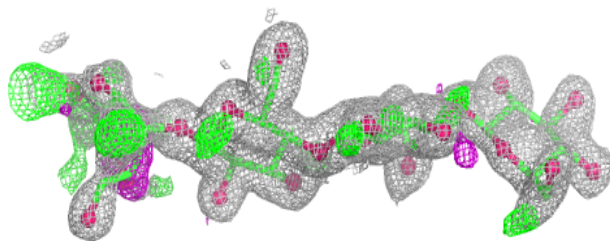
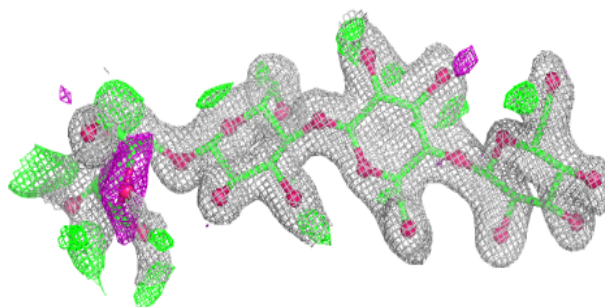
**Electron density around Chain G:**

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

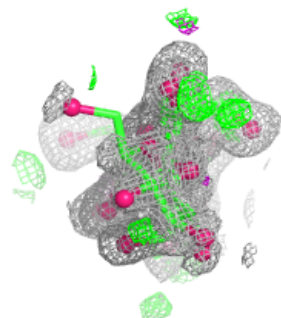
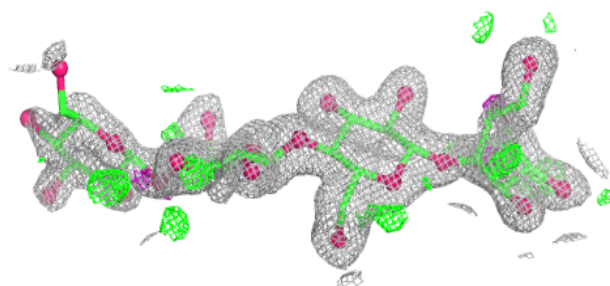
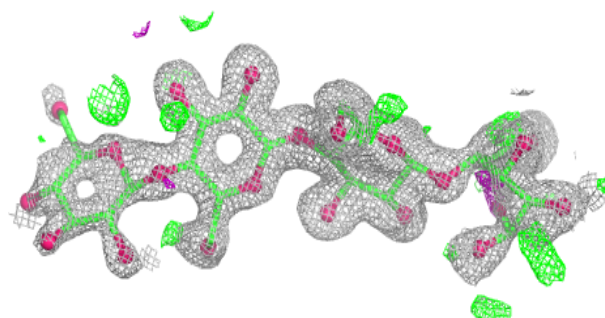


**Electron density around Chain I:**

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

**Electron density around Chain L:**

$2mF_o-DF_c$  (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, 95<sup>th</sup> 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( $\text{\AA}^2$ )	Q<0.9
5	SRT	D	401	10/10	0.94	0.08	20,22,24,25	0
5	SRT	C	401	10/10	0.95	0.07	19,20,23,24	0

## 6.5 Other polymers [i](#)

There are no such residues in this entry.