



# wwPDB X-ray Structure Validation Summary Report ⓘ

Jan 4, 2024 – 03:56 pm GMT

PDB ID : 5FOB  
Title : Crystal Structure of Human Complement C3b in complex with Smallpox Inhibitor of Complement (SPICE)  
Authors : Forneris, F.; Wu, J.; Xue, X.; Gros, P.  
Deposited on : 2015-11-18  
Resolution : 2.60 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](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 : 4.02b-467  
Mogul : 1.8.4, CSD as541be (2020)  
Xtriage (Phenix) : 1.13  
EDS : 2.36  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
Refmac : 5.8.0158  
CCP4 : 7.0.044 (Gargrove)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.36

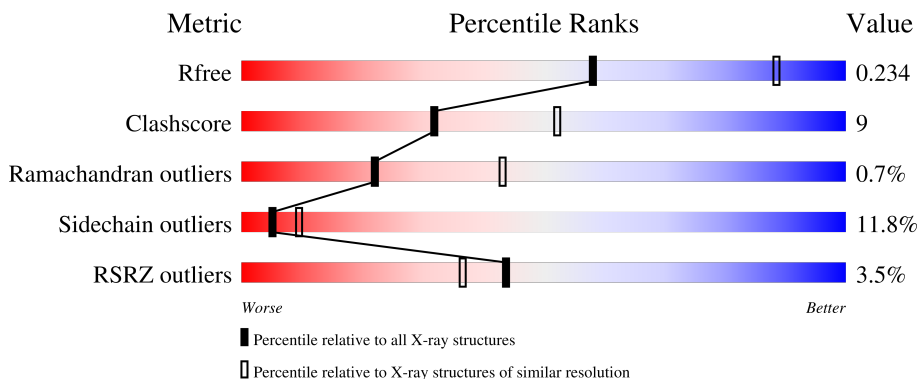
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.60 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	3163 (2.60-2.60)
Clashscore	141614	3518 (2.60-2.60)
Ramachandran outliers	138981	3455 (2.60-2.60)
Sidechain outliers	138945	3455 (2.60-2.60)
RSRZ outliers	127900	3104 (2.60-2.60)

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	645	
2	B	915	
3	C	245	
4	D	4	
5	E	2	

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:

<b>Mol</b>	<b>Type</b>	<b>Chain</b>	<b>Res</b>	<b>Chirality</b>	<b>Geometry</b>	<b>Clashes</b>	<b>Electron density</b>
4	NAG	D	1	X	-	-	-
5	NAG	E	2	-	-	-	X
7	GOL	B	2673	-	-	-	X
9	IOD	B	2678	-	-	X	-
9	IOD	B	2679	-	-	X	-

## 2 Entry composition [i](#)

There are 10 unique types of molecules in this entry. The entry contains 14474 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 COMPLEMENT C3 BETA CHAIN.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	642	5011	3193	846	956	16	0	3	0

- Molecule 2 is a protein called COMPLEMENT C3B ALPHA' CHAIN.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	902	7199	4563	1210	1388	38	0	0	0

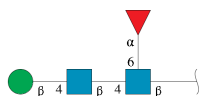
There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	1013	GLU	GLN	SEE REMARK 999	UNP P01024

- Molecule 3 is a protein called SMALLPOX INHIBITOR OF COMPLEMENT SPICE, D15L.

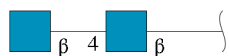
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	C	240	1822	1138	309	356	19	0	2	0

- Molecule 4 is an oligosaccharide called beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[alpha-L-fucopyranose-(1-6)]2-acetamido-2-deoxy-beta-D-glucopyranose.



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
4	D	4	49	28	2	19	0	0	0

- Molecule 5 is an oligosaccharide called 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.

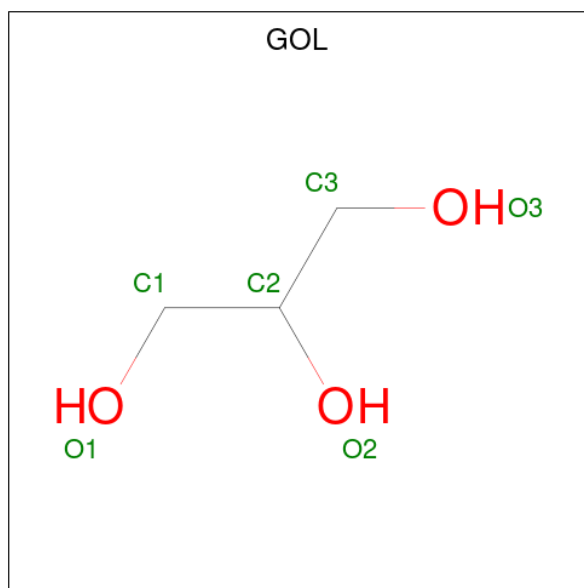


Mol	Chain	Residues	Atoms			ZeroOcc	AltConf	Trace	
			Total	C	N				O
5	E	2	28	16	2	10	0	0	0

- Molecule 6 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	Cl		
6	A	1	1	1	0	0
6	B	2	2	2	0	0
6	C	2	2	2	0	0

- Molecule 7 is GLYCEROL (three-letter code: GOL) (formula: C<sub>3</sub>H<sub>8</sub>O<sub>3</sub>).



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

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

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

- Molecule 8 is SODIUM ION (three-letter code: NA) (formula: Na).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
8	A	1	Total Na 1 1	0	0
8	B	1	Total Na 1 1	0	0

- Molecule 9 is IODIDE ION (three-letter code: IOD) (formula: I).

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

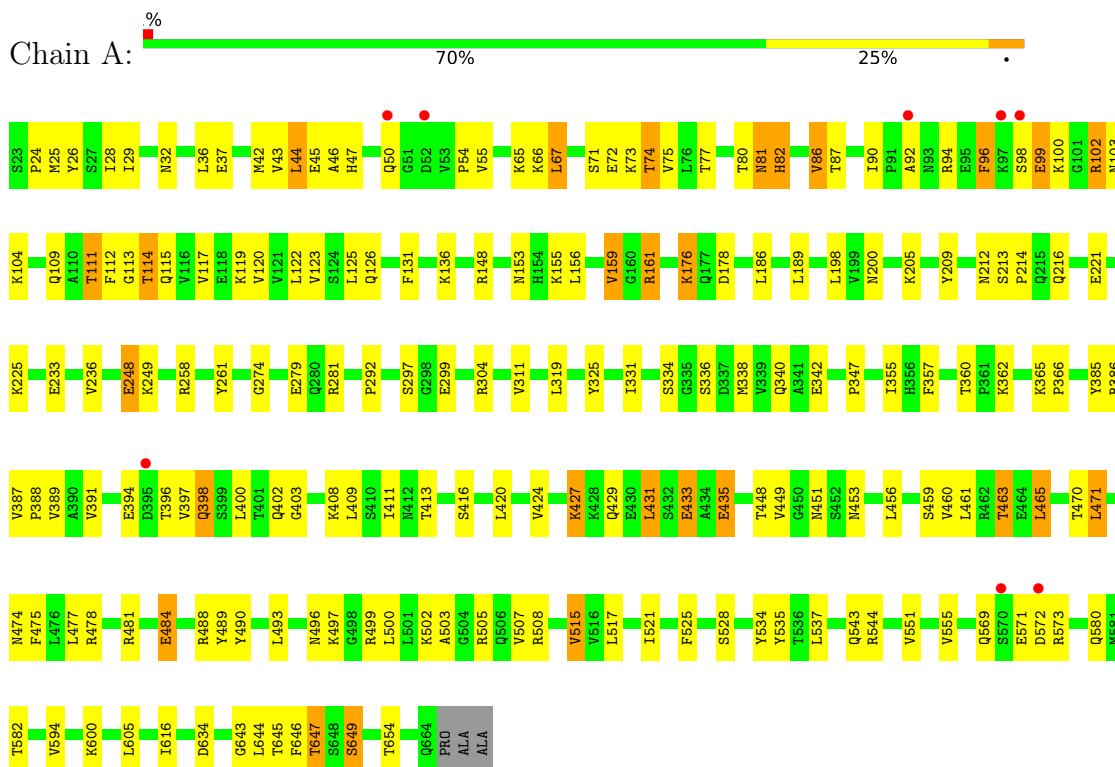
- Molecule 10 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
10	A	98	Total O 98 98	0	0
10	B	92	Total O 92 92	0	0
10	C	17	Total O 17 17	0	0

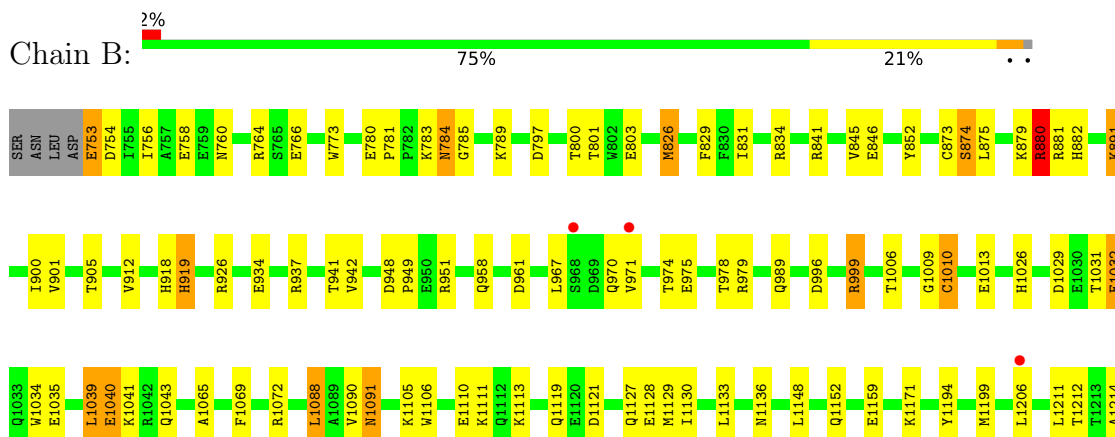
### 3 Residue-property plots

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 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.

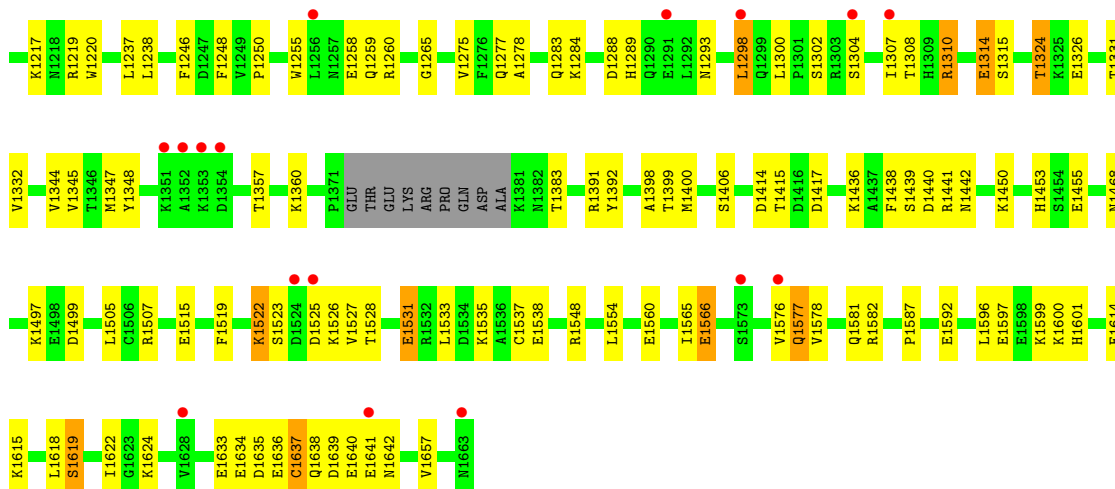
#### • Molecule 1: COMPLEMENT C3 BETA CHAIN



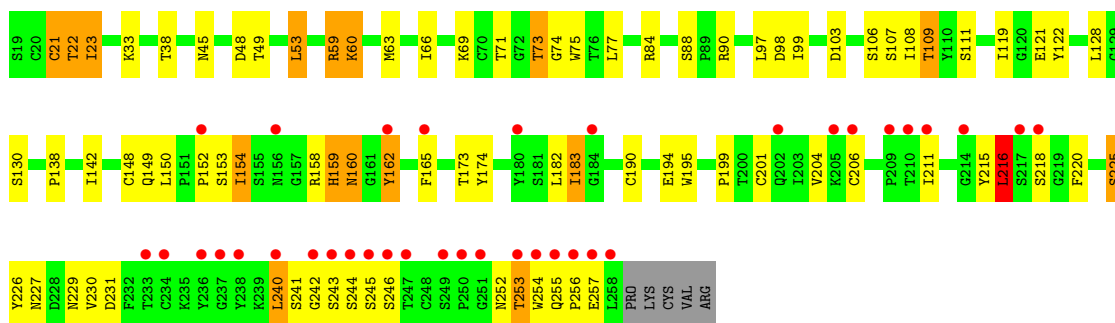
#### • Molecule 2: COMPLEMENT C3B ALPHA' CHAIN



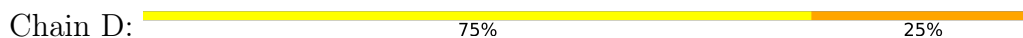




- Molecule 3: SMALLPOX INHIBITOR OF COMPLEMENT SPICE, D15L



- Molecule 4: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[alpha-L-fucopyranose-(1-6)]2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 5: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	68.89Å 83.31Å 127.38Å 75.03° 76.20° 68.50°	Depositor
Resolution (Å)	42.36 – 2.60 42.36 – 2.60	Depositor EDS
% Data completeness (in resolution range)	97.3 (42.36-2.60) 97.3 (42.36-2.60)	Depositor EDS
$R_{merge}$	0.11	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.08 (at 2.61Å)	Xtrriage
Refinement program	PHENIX (PHENIX.REFINE)	Depositor
R, $R_{free}$	0.198 , 0.230 0.202 , 0.234	Depositor DCC
$R_{free}$ test set	2251 reflections (2.99%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	60.6	Xtrriage
Anisotropy	0.428	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.29 , 69.7	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.49$ , $\langle L^2 \rangle = 0.32$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.94	EDS
Total number of atoms	14474	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	80.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.14% 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: BMA, IOD, CL, NAG, GOL, NA, FUC

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	0.26	0/5121	0.47	0/6958
2	B	0.26	0/7343	0.47	2/9943 (0.0%)
3	C	0.29	0/1877	0.54	0/2550
All	All	0.27	0/14341	0.48	2/19451 (0.0%)

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	1009	GLY	C-N-CA	5.79	136.18	121.70
2	B	880	ARG	NE-CZ-NH1	-5.03	117.79	120.30

There are no chirality outliers.

There are no planarity outliers.

### 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	5011	0	5068	98	0
2	B	7199	0	7116	116	1
3	C	1822	0	1703	45	1
4	D	49	0	43	3	0
5	E	28	0	25	0	0
6	A	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	B	2	0	0	1	0
6	C	2	0	0	0	0
7	A	60	0	80	11	0
7	B	72	0	96	13	0
7	C	12	0	16	2	0
8	A	1	0	0	0	0
8	B	1	0	0	0	0
9	A	3	0	0	1	0
9	B	4	0	0	8	0
10	A	98	0	0	1	0
10	B	92	0	0	4	0
10	C	17	0	0	0	0
All	All	14474	0	14147	254	1

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 9.

The worst 5 of 254 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:760:ASN:ND2	9:B:2679:IOD:I	2.35	1.25
9:B:2679:IOD:I	10:B:2007:HOH:O	2.24	1.25
2:B:1032:GLU:HG3	9:B:2678:IOD:I	2.26	1.04
2:B:1010:CYS:HB3	2:B:1013:GLU:HB2	1.43	0.99
2:B:1105:LYS:HD2	9:B:2681:IOD:I	2.45	0.87

All (1) 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)
2:B:1600:LYS:NZ	3:C:73:THR:O[1_545]	2.09	0.11

## 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	643/645 (100%)	625 (97%)	15 (2%)	3 (0%)	29	52
2	B	898/915 (98%)	875 (97%)	22 (2%)	1 (0%)	51	75
3	C	240/245 (98%)	218 (91%)	14 (6%)	8 (3%)	4	6
All	All	1781/1805 (99%)	1718 (96%)	51 (3%)	12 (1%)	22	43

5 of 12 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	C	21	CYS
3	C	240	LEU
3	C	256	PRO
1	A	82	HIS
3	C	22	THR

### 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	566/567 (100%)	491 (87%)	75 (13%)	4	7
2	B	797/810 (98%)	722 (91%)	75 (9%)	8	17
3	C	205/215 (95%)	169 (82%)	36 (18%)	2	3
All	All	1568/1592 (98%)	1382 (88%)	186 (12%)	5	9

5 of 186 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	B	1314	GLU
2	B	1624	LYS
2	B	1357	THR
2	B	1527	VAL
3	C	23	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (5) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	60	HIS
1	A	82	HIS
1	A	216	GLN
1	A	580	GLN
2	B	1277	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](#)

6 monosaccharides are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 2$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z  > 2$	Counts	RMSZ	$\# Z  > 2$
4	NAG	D	1	1,4	14,14,15	0.56	0	17,19,21	0.94	0
4	NAG	D	2	4	14,14,15	0.61	0	17,19,21	0.90	0
4	BMA	D	3	4	11,11,12	0.72	0	15,15,17	0.92	1 (6%)
4	FUC	D	4	4	10,10,11	1.04	0	14,14,16	1.16	1 (7%)
5	NAG	E	1	2,5	14,14,15	0.72	0	17,19,21	0.84	0
5	NAG	E	2	5	14,14,15	0.55	0	17,19,21	0.67	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. '2' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	NAG	D	1	1,4	1/1/5/7	2/6/23/26	0/1/1/1
4	NAG	D	2	4	-	3/6/23/26	0/1/1/1
4	BMA	D	3	4	-	0/2/19/22	0/1/1/1
4	FUC	D	4	4	-	-	0/1/1/1
5	NAG	E	1	2,5	-	2/6/23/26	0/1/1/1
5	NAG	E	2	5	-	0/6/23/26	0/1/1/1

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	D	3	BMA	O2-C2-C3	-2.30	105.53	110.14
4	D	4	FUC	O5-C5-C4	2.18	113.43	109.52

All (1) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
4	D	1	NAG	C1

5 of 7 torsion outliers are listed below:

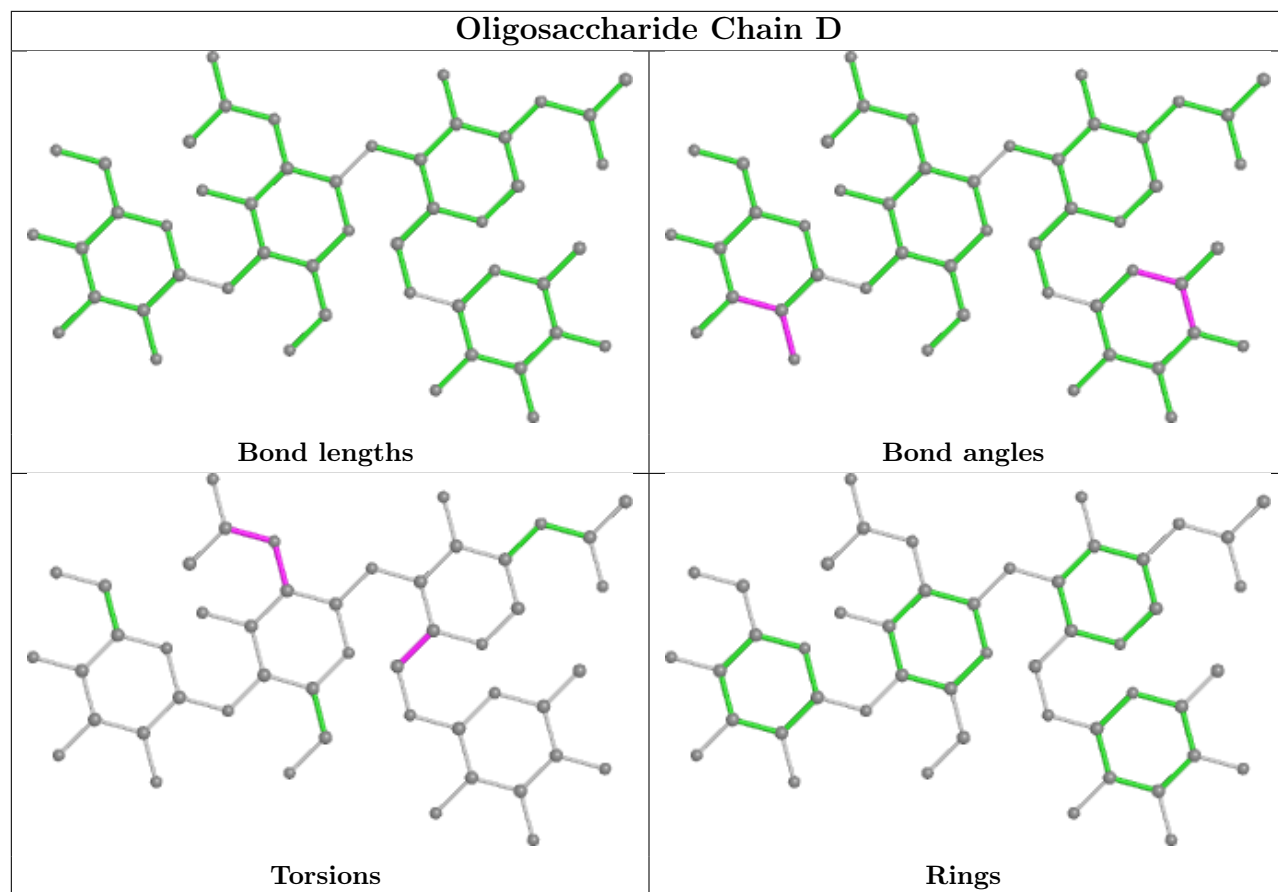
Mol	Chain	Res	Type	Atoms
4	D	2	NAG	C3-C2-N2-C7
4	D	2	NAG	C8-C7-N2-C2
4	D	2	NAG	O7-C7-N2-C2
4	D	1	NAG	C4-C5-C6-O6
4	D	1	NAG	O5-C5-C6-O6

There are no ring outliers.

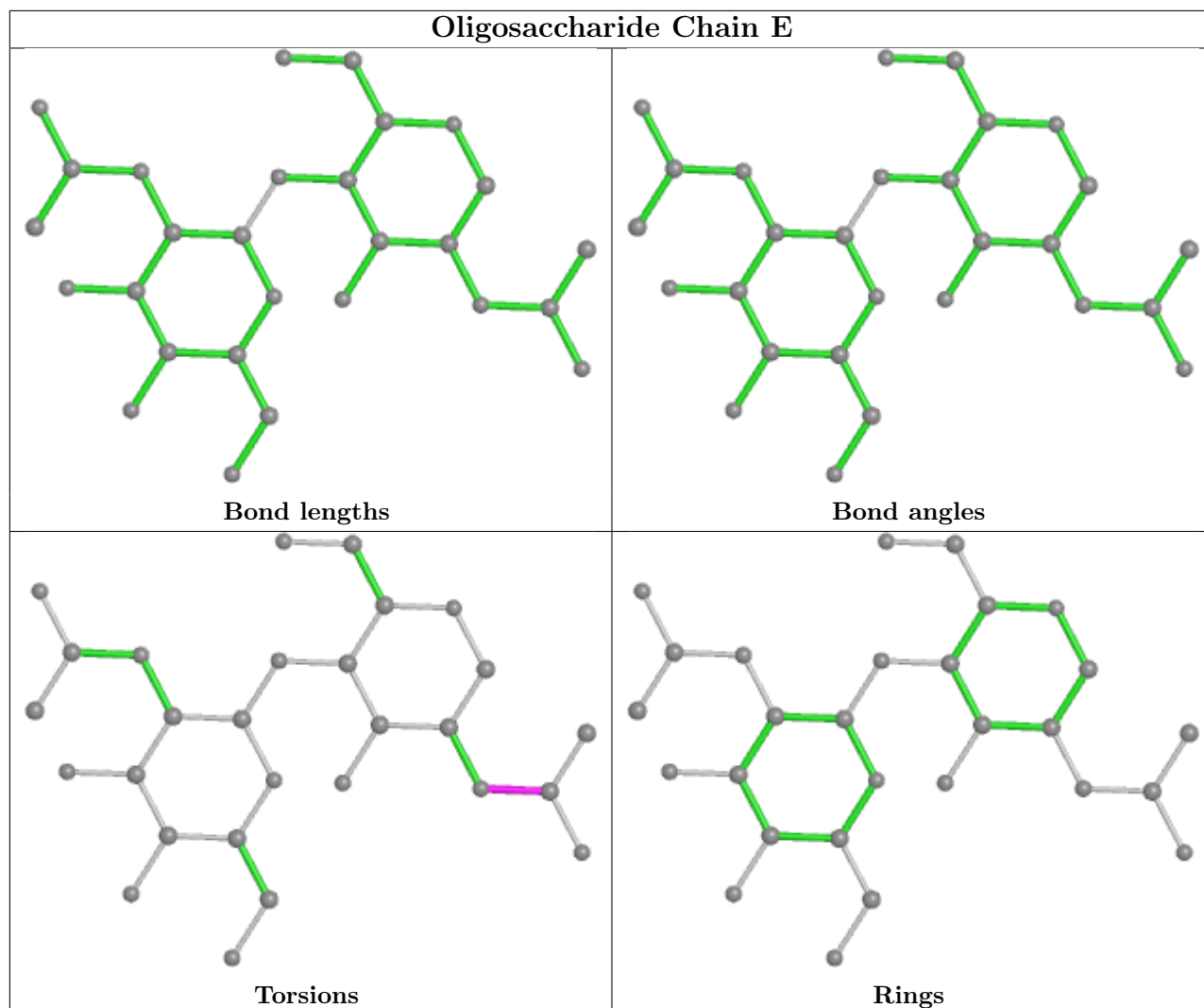
3 monomers are involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	D	1	NAG	1	0
4	D	4	FUC	2	0
4	D	2	NAG	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.







## 5.6 Ligand geometry [i](#)

Of 38 ligands modelled in this entry, 14 are monoatomic - leaving 24 for Mogul analysis.

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	$\# Z  > 2$
7	GOL	A	1669	-	5,5,5	0.35	0	5,5,5	0.23	0
7	GOL	A	1672	-	5,5,5	0.35	0	5,5,5	0.30	0
7	GOL	A	1668	-	5,5,5	0.37	0	5,5,5	0.28	0
7	GOL	B	2664	-	5,5,5	0.38	0	5,5,5	0.30	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
7	GOL	B	2672	-	5,5,5	0.38	0	5,5,5	0.29	0
7	GOL	B	2667	-	5,5,5	0.36	0	5,5,5	0.32	0
7	GOL	A	1674	-	5,5,5	0.36	0	5,5,5	0.29	0
7	GOL	C	1260	-	5,5,5	0.37	0	5,5,5	0.30	0
7	GOL	A	1666	-	5,5,5	0.37	0	5,5,5	0.26	0
7	GOL	B	2666	-	5,5,5	0.37	0	5,5,5	0.39	0
7	GOL	C	1259	-	5,5,5	0.37	0	5,5,5	0.29	0
7	GOL	A	1670	-	5,5,5	0.34	0	5,5,5	0.33	0
7	GOL	A	1667	-	5,5,5	0.35	0	5,5,5	0.34	0
7	GOL	B	2671	-	5,5,5	0.35	0	5,5,5	0.33	0
7	GOL	B	2670	-	5,5,5	0.37	0	5,5,5	0.25	0
7	GOL	A	1671	-	5,5,5	0.38	0	5,5,5	0.26	0
7	GOL	B	2669	-	5,5,5	0.38	0	5,5,5	0.33	0
7	GOL	B	2675	-	5,5,5	0.39	0	5,5,5	0.33	0
7	GOL	B	2668	-	5,5,5	0.34	0	5,5,5	0.29	0
7	GOL	A	1675	-	5,5,5	0.36	0	5,5,5	0.37	0
7	GOL	B	2665	-	5,5,5	0.35	0	5,5,5	0.34	0
7	GOL	B	2673	-	5,5,5	0.36	0	5,5,5	0.27	0
7	GOL	A	1673	-	5,5,5	0.37	0	5,5,5	0.26	0
7	GOL	B	2674	-	5,5,5	0.39	0	5,5,5	0.27	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
7	GOL	A	1669	-	-	2/4/4/4	-
7	GOL	A	1672	-	-	2/4/4/4	-
7	GOL	A	1668	-	-	2/4/4/4	-
7	GOL	B	2664	-	-	4/4/4/4	-
7	GOL	B	2672	-	-	2/4/4/4	-
7	GOL	B	2667	-	-	2/4/4/4	-
7	GOL	A	1674	-	-	1/4/4/4	-
7	GOL	C	1260	-	-	0/4/4/4	-
7	GOL	A	1666	-	-	2/4/4/4	-
7	GOL	B	2666	-	-	4/4/4/4	-
7	GOL	C	1259	-	-	2/4/4/4	-
7	GOL	A	1670	-	-	2/4/4/4	-
7	GOL	A	1667	-	-	2/4/4/4	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
7	GOL	B	2671	-	-	2/4/4/4	-
7	GOL	B	2670	-	-	2/4/4/4	-
7	GOL	A	1671	-	-	2/4/4/4	-
7	GOL	B	2669	-	-	2/4/4/4	-
7	GOL	B	2675	-	-	2/4/4/4	-
7	GOL	B	2668	-	-	2/4/4/4	-
7	GOL	A	1675	-	-	2/4/4/4	-
7	GOL	B	2665	-	-	2/4/4/4	-
7	GOL	B	2673	-	-	2/4/4/4	-
7	GOL	A	1673	-	-	2/4/4/4	-
7	GOL	B	2674	-	-	2/4/4/4	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

5 of 49 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
7	A	1666	GOL	C1-C2-C3-O3
7	A	1667	GOL	C1-C2-C3-O3
7	A	1668	GOL	C1-C2-C3-O3
7	A	1669	GOL	O2-C2-C3-O3
7	A	1670	GOL	C1-C2-C3-O3

There are no ring outliers.

15 monomers are involved in 26 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
7	A	1669	GOL	1	0
7	A	1668	GOL	2	0
7	B	2664	GOL	2	0
7	B	2667	GOL	1	0
7	A	1674	GOL	1	0
7	C	1260	GOL	2	0
7	B	2666	GOL	3	0
7	A	1667	GOL	2	0
7	A	1671	GOL	1	0
7	B	2675	GOL	1	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
7	B	2668	GOL	2	0
7	A	1675	GOL	2	0
7	B	2665	GOL	1	0
7	A	1673	GOL	2	0
7	B	2674	GOL	3	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, 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	642/645 (99%)	-0.10	8 (1%) 79 76	29, 73, 140, 195	0
2	B	902/915 (98%)	-0.08	19 (2%) 63 58	28, 74, 121, 174	0
3	C	240/245 (97%)	0.52	36 (15%) 2 1	44, 91, 171, 207	0
All	All	1784/1805 (98%)	-0.00	63 (3%) 44 36	28, 75, 142, 207	0

The worst 5 of 63 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
3	C	209	PRO	6.6
3	C	217	SER	6.0
3	C	243	SER	6.0
3	C	250	PRO	5.3
3	C	242	GLY	5.2

### 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.

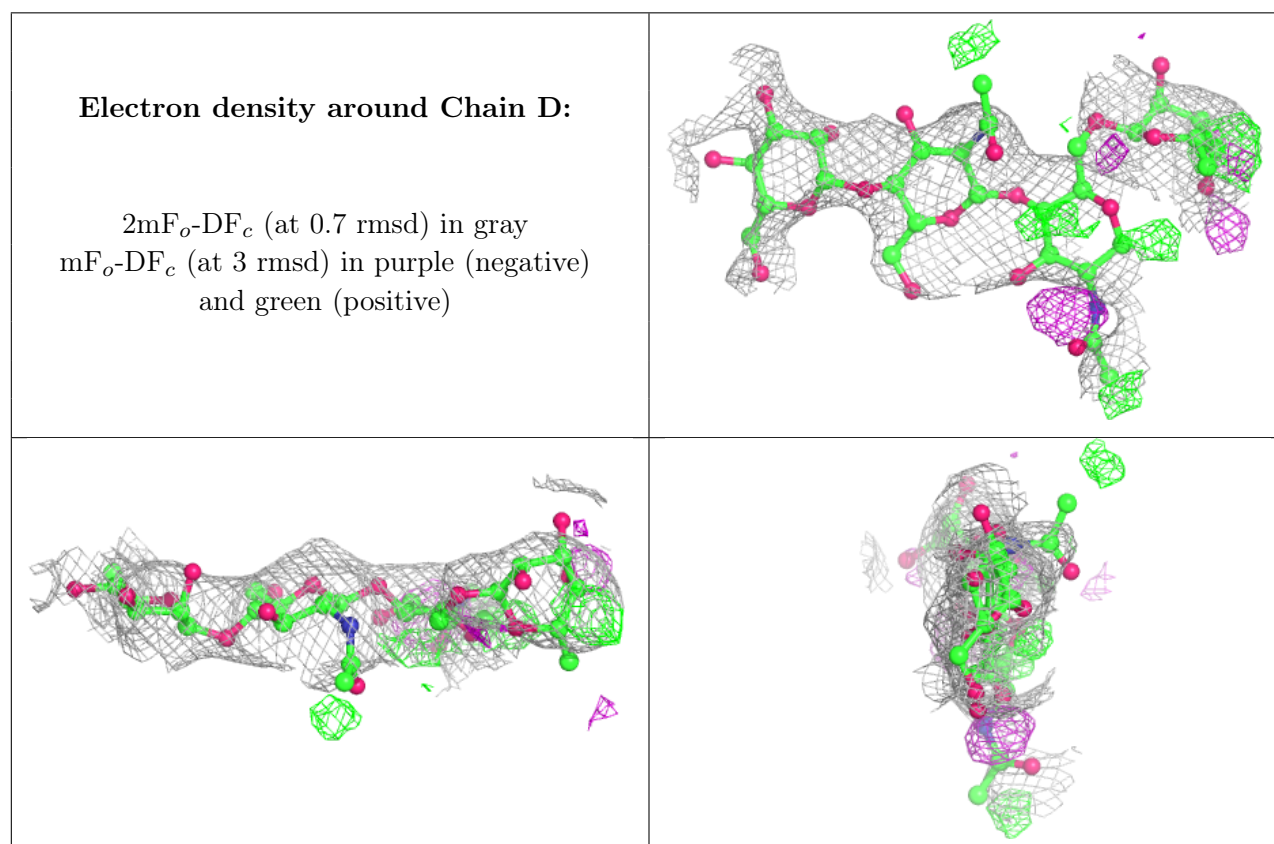
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å <sup>2</sup> )	Q<0.9
4	BMA	D	3	11/12	0.53	0.29	148,156,159,161	0
4	NAG	D	1	14/15	0.71	0.26	98,124,145,149	0
5	NAG	E	2	14/15	0.71	0.55	153,160,164,164	0

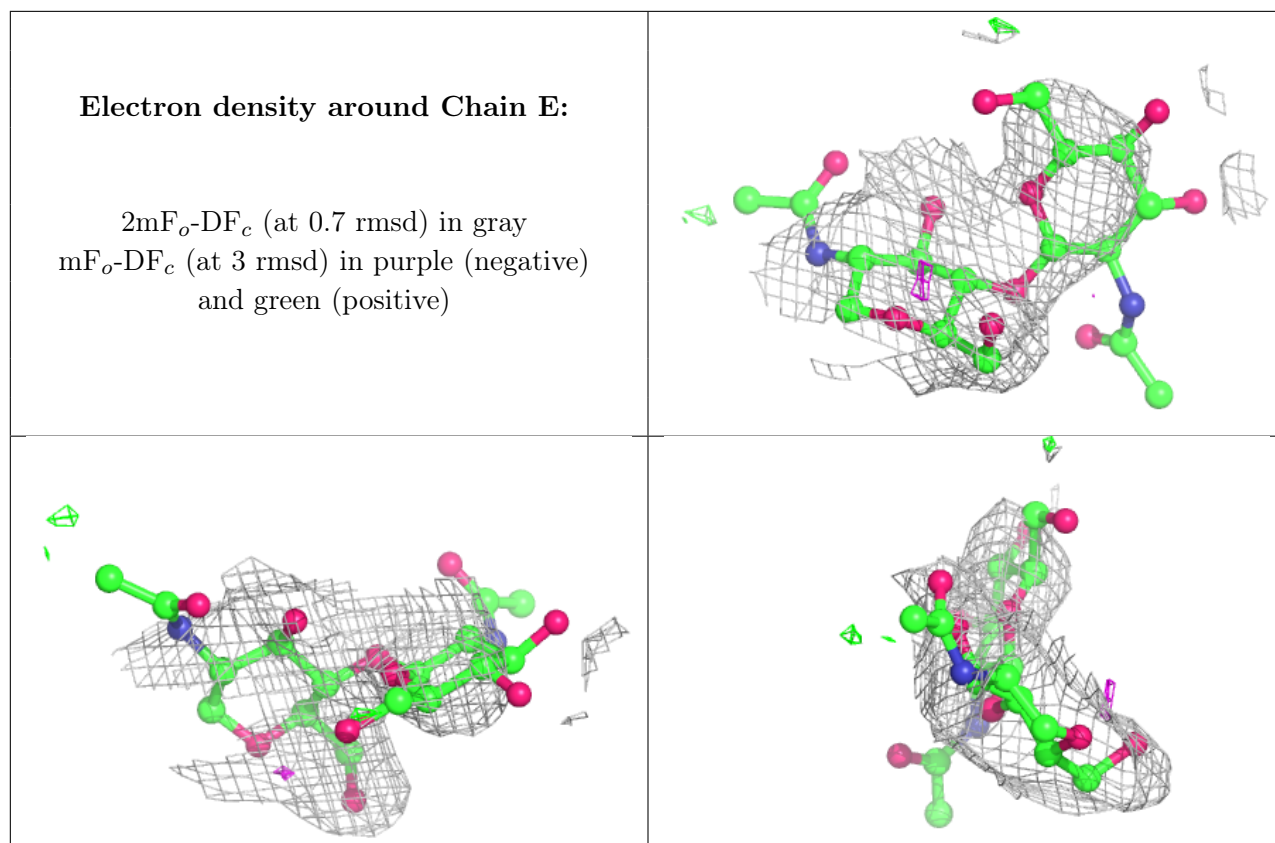
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
4	FUC	D	4	10/11	0.81	0.32	67,116,142,148	0
5	NAG	E	1	14/15	0.83	0.26	103,130,146,146	0
4	NAG	D	2	14/15	0.89	0.17	137,141,147,152	0

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.





## 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(Å <sup>2</sup> )	Q<0.9
6	CL	B	2682	1/1	0.53	0.31	66,66,66,66	0
7	GOL	B	2673	6/6	0.55	0.50	104,108,113,114	0
7	GOL	A	1669	6/6	0.61	0.39	95,100,101,102	0
7	GOL	A	1668	6/6	0.71	0.35	98,106,111,118	0
7	GOL	B	2669	6/6	0.73	0.39	116,118,119,119	0
7	GOL	A	1675	6/6	0.74	0.29	121,124,125,128	0
8	NA	A	1676	1/1	0.75	0.17	55,55,55,55	0
7	GOL	B	2670	6/6	0.78	0.19	87,99,105,107	0
7	GOL	A	1672	6/6	0.79	0.18	81,86,89,94	0
7	GOL	B	2668	6/6	0.81	0.18	56,77,84,88	0
7	GOL	A	1671	6/6	0.82	0.24	75,92,96,98	0
7	GOL	B	2672	6/6	0.82	0.32	105,110,115,116	0
7	GOL	A	1674	6/6	0.84	0.27	74,100,109,110	0
8	NA	B	2677	1/1	0.84	0.38	85,85,85,85	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
7	GOL	B	2674	6/6	0.85	0.15	72,77,85,87	0
7	GOL	B	2667	6/6	0.87	0.20	75,80,86,91	0
7	GOL	B	2671	6/6	0.88	0.21	77,79,80,82	0
7	GOL	B	2675	6/6	0.88	0.17	76,84,85,88	0
7	GOL	C	1259	6/6	0.89	0.21	77,94,98,101	0
6	CL	B	2676	1/1	0.90	0.18	72,72,72,72	0
7	GOL	A	1666	6/6	0.90	0.16	76,92,95,99	0
6	CL	A	1665	1/1	0.91	0.09	87,87,87,87	0
7	GOL	A	1670	6/6	0.91	0.17	57,64,69,76	0
7	GOL	C	1260	6/6	0.91	0.27	54,83,89,90	0
7	GOL	B	2664	6/6	0.91	0.27	79,83,87,90	0
7	GOL	B	2665	6/6	0.91	0.18	59,64,71,77	0
7	GOL	B	2666	6/6	0.95	0.13	52,55,64,70	0
7	GOL	A	1673	6/6	0.95	0.34	75,77,87,88	0
9	IOD	B	2680	1/1	0.96	0.14	68,68,68,68	1
9	IOD	A	1677	1/1	0.97	0.20	55,55,55,55	1
9	IOD	A	1678	1/1	0.97	0.16	64,64,64,64	1
7	GOL	A	1667	6/6	0.97	0.28	76,78,91,105	0
6	CL	C	1262	1/1	0.98	0.12	60,60,60,60	0
6	CL	C	1261	1/1	0.98	0.27	49,49,49,49	0
9	IOD	B	2678	1/1	0.99	0.12	83,83,83,83	1
9	IOD	B	2679	1/1	0.99	0.10	67,67,67,67	1
9	IOD	A	1679	1/1	0.99	0.14	65,65,65,65	1
9	IOD	B	2681	1/1	0.99	0.17	75,75,75,75	1

## 6.5 Other polymers [\(i\)](#)

There are no such residues in this entry.