



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 9, 2026 – 05:07 PM UTC

PDB ID : 4CNC / pdb_00004cnc
Title : Crystal structure of human 5T4 (Wnt-activated inhibitory factor 1, Trophoblast glycoprotein)
Authors : Zhao, Y.; Malinauskas, T.; Harlos, K.; Jones, E.Y.
Deposited on : 2014-01-21
Resolution : 1.77 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 Phenix2.0
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

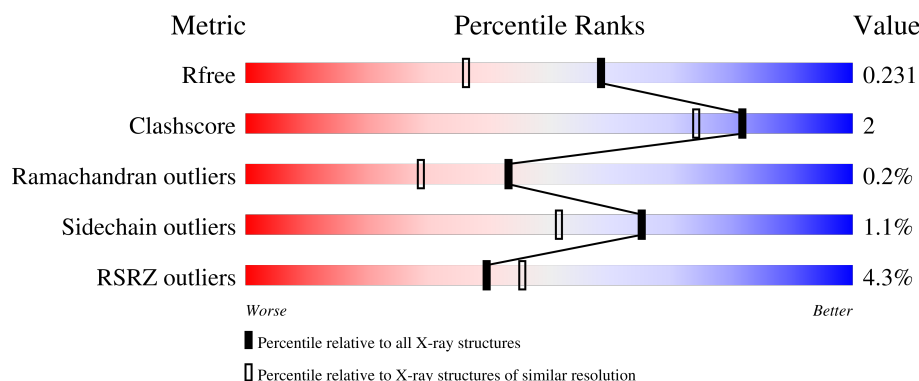
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.77 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}	180053	1365 (1.78-1.78)
Clashscore	190562	1395 (1.78-1.78)
Ramachandran outliers	187476	1382 (1.78-1.78)
Sidechain outliers	187428	1382 (1.78-1.78)
RSRZ outliers	180081	1365 (1.78-1.78)

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 $\leq 5\%$. 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	299	3% 84% 7% 8%
1	B	299	5% 86% 7% 7%
2	C	2	100%
2	D	2	100%

2 Entry composition

There are 8 unique types of molecules in this entry. The entry contains 4712 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 TROPHOBLAST GLYCOPROTEIN.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	274	Total	C	N	O	S	0	1	0
			2133	1348	381	392	12			
1	B	278	Total	C	N	O	S	0	0	0
			2143	1353	381	397	12			

There are 26 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	57	GLU	-	expression tag	UNP Q13641
A	58	THR	-	expression tag	UNP Q13641
A	59	GLY	-	expression tag	UNP Q13641
A	346	GLY	-	expression tag	UNP Q13641
A	347	THR	-	expression tag	UNP Q13641
A	348	GLU	-	expression tag	UNP Q13641
A	349	THR	-	expression tag	UNP Q13641
A	350	SER	-	expression tag	UNP Q13641
A	351	GLN	-	expression tag	UNP Q13641
A	352	VAL	-	expression tag	UNP Q13641
A	353	ALA	-	expression tag	UNP Q13641
A	354	PRO	-	expression tag	UNP Q13641
A	355	ALA	-	expression tag	UNP Q13641
B	57	GLU	-	expression tag	UNP Q13641
B	58	THR	-	expression tag	UNP Q13641
B	59	GLY	-	expression tag	UNP Q13641
B	346	GLY	-	expression tag	UNP Q13641
B	347	THR	-	expression tag	UNP Q13641
B	348	GLU	-	expression tag	UNP Q13641
B	349	THR	-	expression tag	UNP Q13641
B	350	SER	-	expression tag	UNP Q13641
B	351	GLN	-	expression tag	UNP Q13641
B	352	VAL	-	expression tag	UNP Q13641
B	353	ALA	-	expression tag	UNP Q13641
B	354	PRO	-	expression tag	UNP Q13641

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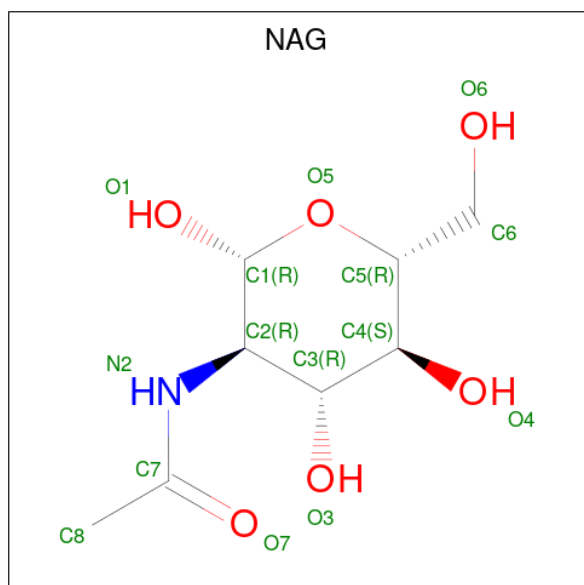
Chain	Residue	Modelled	Actual	Comment	Reference
B	355	ALA	-	expression tag	UNP Q13641

- Molecule 2 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
2	C	2	Total	C	N	O	0	0	0
			28	16	2	10			
2	D	2	Total	C	N	O	0	0	0
			28	16	2	10			

- Molecule 3 is 2-acetamido-2-deoxy-beta-D-glucopyranose (CCD ID: NAG) (formula: C₈H₁₅NO₆).



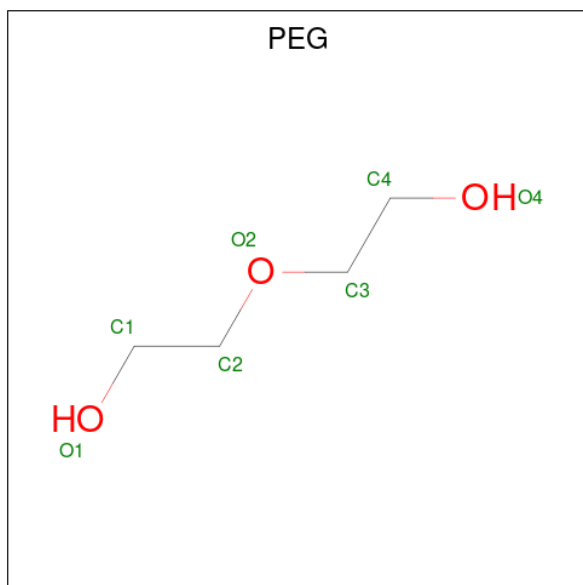
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total	C	N	O	0	0
			14	8	1	5		
3	A	1	Total	C	N	O	0	0
			14	8	1	5		
3	A	1	Total	C	N	O	0	0
			14	8	1	5		

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

- Molecule 4 is DI(HYDROXYETHYL)ETHER (CCD ID: PEG) (formula: $C_4H_{10}O_3$).



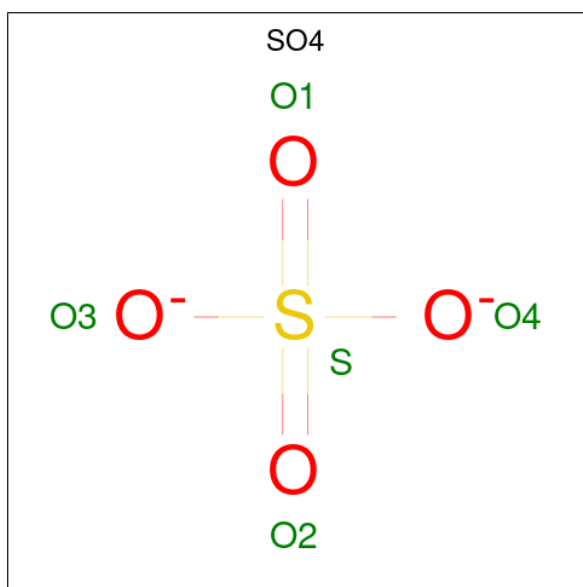
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total	C	O	0	0
			7	4	3		
4	B	1	Total	C	O	0	0
			7	4	3		
4	B	1	Total	C	O	0	0
			7	4	3		
4	B	1	Total	C	O	0	0
			7	4	3		

- Molecule 5 is GLYCEROL (CCD ID: GOL) (formula: $C_3H_8O_3$).



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

- Molecule 6 is SULFATE ION (CCD ID: SO4) (formula: O₄S).



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

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	1	Total O S 5 4 1	0	0
6	A	1	Total O S 5 4 1	0	0
6	A	1	Total O S 5 4 1	0	0
6	A	1	Total O S 5 4 1	0	0
6	A	1	Total O S 5 4 1	0	0
6	A	1	Total O S 5 4 1	0	0
6	A	1	Total O S 5 4 1	0	0
6	B	1	Total O S 5 4 1	0	0
6	B	1	Total O S 5 4 1	0	0
6	B	1	Total O S 5 4 1	0	0
6	B	1	Total O S 5 4 1	0	0
6	B	1	Total O S 5 4 1	0	0
6	B	1	Total O S 5 4 1	0	0

- Molecule 7 is SODIUM ION (CCD ID: NA) (formula: Na).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	B	1	Total Na 1 1	0	0

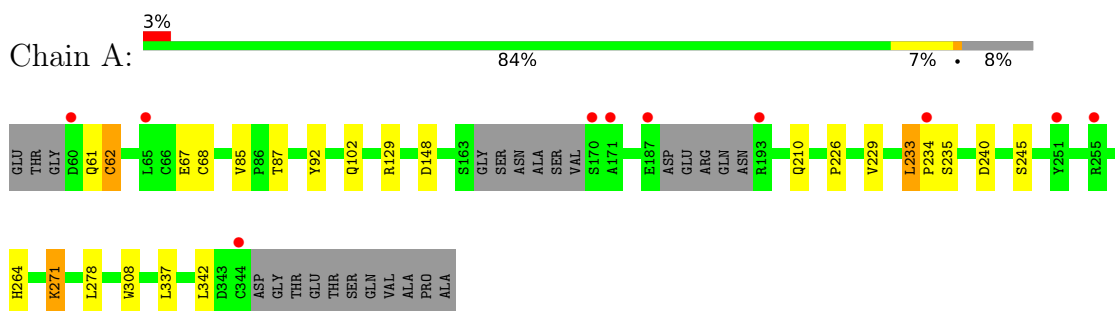
- Molecule 8 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
8	A	105	Total O 105 105	0	0
8	B	74	Total O 74 74	0	0

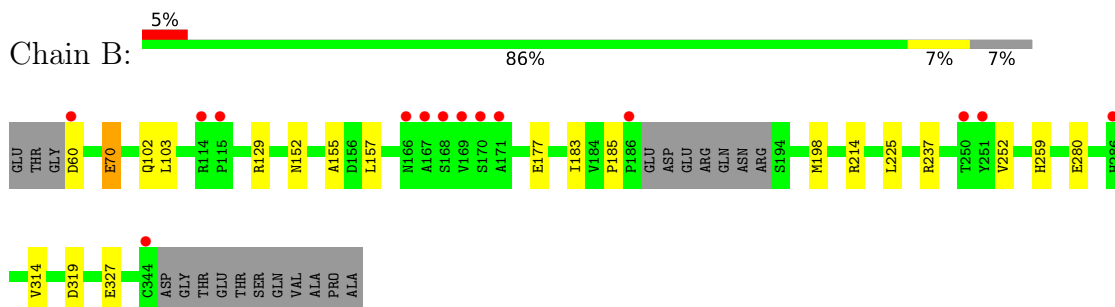
3 Residue-property plots [i](#)

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: TROPHOBLAST GLYCOPROTEIN



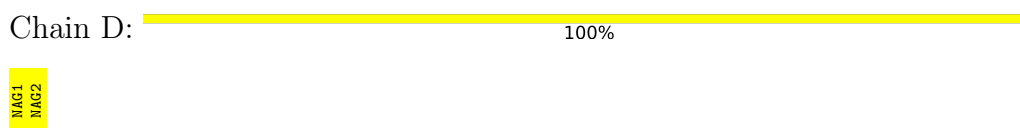
- Molecule 1: TROPHOBLAST GLYCOPROTEIN



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



- Molecule 2: 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 21 1	Depositor
Cell constants a, b, c, α , β , γ	49.60Å 95.82Å 65.97Å 90.00° 91.14° 90.00°	Depositor
Resolution (Å)	54.33 – 1.77 54.33 – 1.77	Depositor EDS
% Data completeness (in resolution range)	99.7 (54.33-1.77) 99.7 (54.33-1.77)	Depositor EDS
R_{merge}	0.06	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.41 (at 1.77Å)	Xtriage
Refinement program	REFMAC 5.7.0032	Depositor
R, R_{free}	0.177 , 0.217 (Not available) , 0.231	Depositor DCC
R_{free} test set	3022 reflections (5.05%)	wwPDB-VP
Wilson B-factor (Å ²)	27.8	Xtriage
Anisotropy	0.078	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.37 , 31.9	EDS
L-test for twinning ²	$\langle L \rangle = 0.47$, $\langle L^2 \rangle = 0.30$	Xtriage
Estimated twinning fraction	0.075 for h,-k,-l	Xtriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	4712	wwPDB-VP
Average B, all atoms (Å ²)	32.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 7.50% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical 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

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: NA, NAG, PEG, GOL, SO4

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\# Z > 5$	RMSZ	$\# Z > 5$
1	A	1.08	4/2175 (0.2%)	1.09	5/2963 (0.2%)
1	B	1.05	0/2186	1.01	2/2981 (0.1%)
All	All	1.06	4/4361 (0.1%)	1.05	7/5944 (0.1%)

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	245	SER	CA-C	-6.15	1.44	1.52
1	A	233	LEU	C-O	-5.78	1.17	1.24
1	A	61	GLN	CA-C	5.39	1.59	1.52
1	A	234	PRO	CA-C	5.37	1.57	1.52

All (7) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	61	GLN	N-CA-C	9.43	122.52	111.02
1	B	319	ASP	CB-CA-C	-6.25	97.12	110.32
1	A	210	GLN	N-CA-C	5.96	118.57	111.71
1	A	62	CYS	N-CA-CB	5.55	120.25	110.37
1	B	103	LEU	N-CA-C	5.38	118.06	111.82
1	A	226	PRO	CA-C-N	5.32	127.40	120.28
1	A	226	PRO	C-N-CA	5.32	127.40	120.28

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	2133	0	2128	12	1
1	B	2143	0	2138	10	0
2	C	28	0	25	0	0
2	D	28	0	25	0	0
3	A	56	0	52	0	0
3	B	28	0	26	0	0
4	A	7	0	10	0	0
4	B	21	0	30	0	0
5	A	6	0	8	2	0
5	B	12	0	16	1	0
6	A	40	0	0	0	0
6	B	30	0	0	0	0
7	B	1	0	0	0	0
8	A	105	0	0	3	1
8	B	74	0	0	0	0
All	All	4712	0	4458	22	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 2.

All (22) 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:85:VAL:O	8:A:2012:HOH:O	2.12	0.67
1:B:177:GLU:OE2	1:B:214:ARG:HD2	1.96	0.65
1:A:102:GLN:HG2	1:A:129:ARG:HD2	1.80	0.63
1:A:278:LEU:HD22	1:A:308:TRP:CE3	2.41	0.55
1:B:237:ARG:HD3	1:B:259:HIS:O	2.12	0.50
1:A:229:VAL:HG13	1:A:233:LEU:HD12	1.96	0.48
1:B:102:GLN:HG2	1:B:129:ARG:HD2	1.96	0.47
1:A:148:ASP:OD2	5:A:1352:GOL:C3	2.64	0.46
1:B:225:LEU:C	1:B:225:LEU:HD23	2.40	0.46
1:A:337:LEU:HD13	1:A:342:LEU:HD21	1.99	0.44
1:B:152:ASN:O	1:B:183:ILE:HA	2.16	0.44
1:A:235:SER:HB2	8:A:2055:HOH:O	2.16	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:155:ALA:HA	1:B:185:PRO:HG3	2.00	0.43
1:B:157:LEU:HB3	1:B:198:MET:HE3	2.00	0.43
1:A:148:ASP:OD2	5:A:1352:GOL:H32	2.18	0.42
1:A:278:LEU:HD22	1:A:308:TRP:CD2	2.55	0.41
1:B:60:ASP:N	5:B:1353:GOL:HO3	2.19	0.41
1:A:68:CYS:HB3	1:A:92:TYR:OH	2.20	0.41
1:A:271:LYS:HE2	8:A:2075:HOH:O	2.21	0.41
1:A:240:ASP:HA	1:A:264:HIS:HB2	2.03	0.41
1:B:252:VAL:O	1:B:280:GLU:OE2	2.38	0.41
1:B:70:GLU:O	1:B:70:GLU:HG3	2.20	0.40

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)
1:A:67:GLU:OE1	8:A:2102:HOH:O[2_656]	2.13	0.07

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	269/299 (90%)	257 (96%)	11 (4%)	1 (0%)	30	16
1	B	274/299 (92%)	261 (95%)	13 (5%)	0	100	100
All	All	543/598 (91%)	518 (95%)	24 (4%)	1 (0%)	43	29

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	62	CYS

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	236/256 (92%)	234 (99%)	2 (1%)	73	63
1	B	238/256 (93%)	235 (99%)	3 (1%)	61	46
All	All	474/512 (93%)	469 (99%)	5 (1%)	65	51

All (5) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	87	THR
1	A	271	LYS
1	B	70	GLU
1	B	314	VAL
1	B	327	GLU

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

Mol	Chain	Res	Type
1	A	146	GLN
1	A	232	GLN
1	B	182	HIS

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

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

5.5 Carbohydrates [i](#)

4 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	NAG	C	1	2,1	14,14,15	0.90	0	17,19,21	2.07	6 (35%)
2	NAG	C	2	2	14,14,15	0.71	0	17,19,21	1.59	3 (17%)
2	NAG	D	1	2,1	14,14,15	0.87	1 (7%)	17,19,21	1.52	3 (17%)
2	NAG	D	2	2	14,14,15	0.72	0	17,19,21	1.44	1 (5%)

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	NAG	C	1	2,1	-	0/6/23/26	0/1/1/1
2	NAG	C	2	2	-	0/6/23/26	0/1/1/1
2	NAG	D	1	2,1	-	0/6/23/26	0/1/1/1
2	NAG	D	2	2	-	2/6/23/26	0/1/1/1

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	1	NAG	O7-C7	2.43	1.28	1.23

All (13) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	2	NAG	C1-O5-C5	4.92	118.78	112.19
2	C	1	NAG	O4-C4-C5	-4.39	98.51	109.32
2	C	1	NAG	O5-C1-C2	-3.69	105.58	111.29
2	D	1	NAG	C8-C7-N2	-3.03	111.08	116.12
2	C	1	NAG	C8-C7-N2	-2.93	111.25	116.12
2	C	2	NAG	C4-C3-C2	-2.64	107.15	111.02
2	D	1	NAG	O4-C4-C5	-2.55	103.05	109.32
2	C	2	NAG	C1-C2-N2	2.46	114.31	110.43
2	C	1	NAG	C4-C3-C2	-2.46	107.41	111.02

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	1	NAG	C3-C4-C5	-2.41	105.86	110.23
2	D	1	NAG	C4-C3-C2	-2.39	107.52	111.02
2	C	1	NAG	O3-C3-C2	-2.27	104.69	109.40
2	C	2	NAG	C3-C4-C5	-2.15	106.33	110.23

There are no chirality outliers.

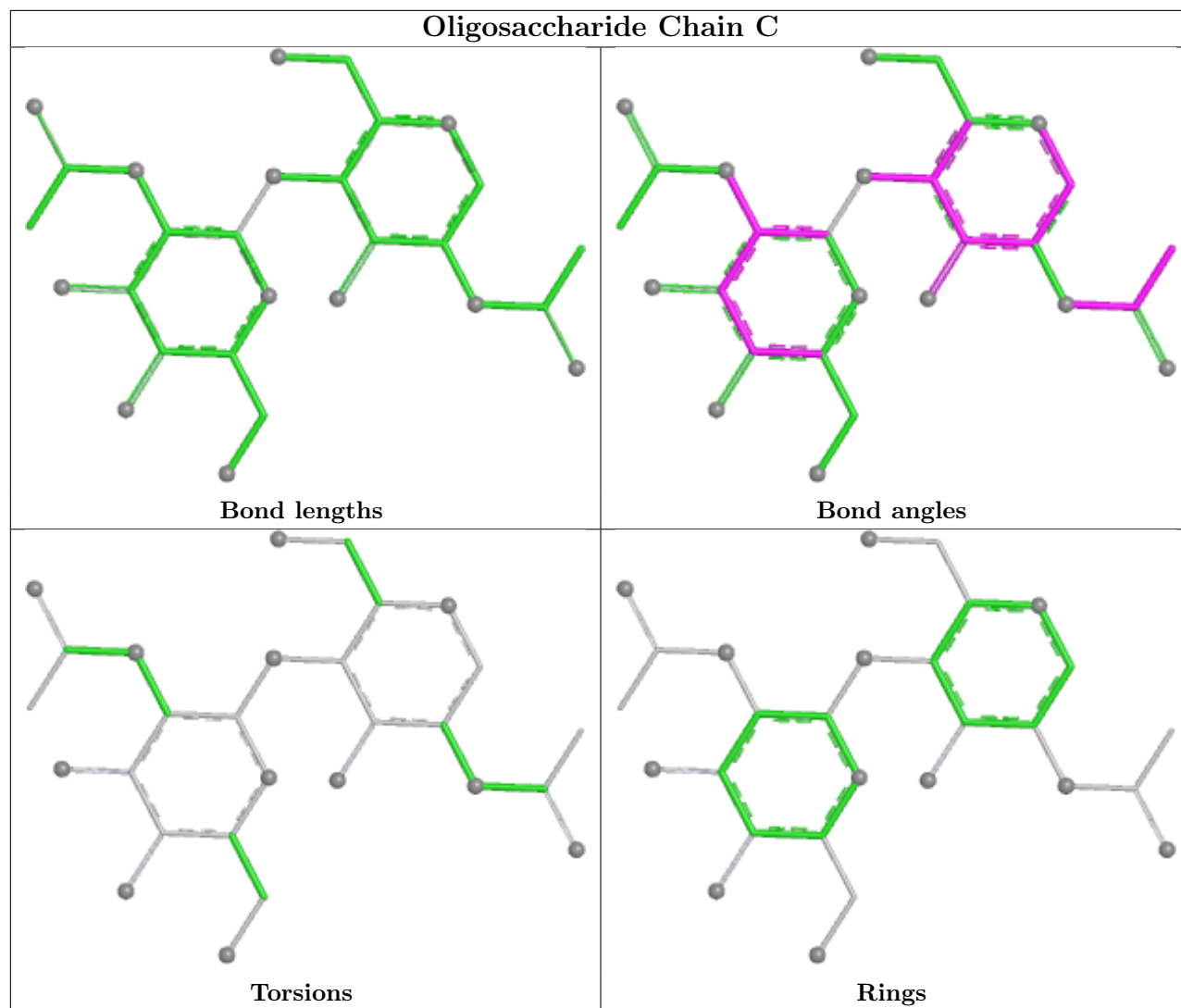
All (2) torsion outliers are listed below:

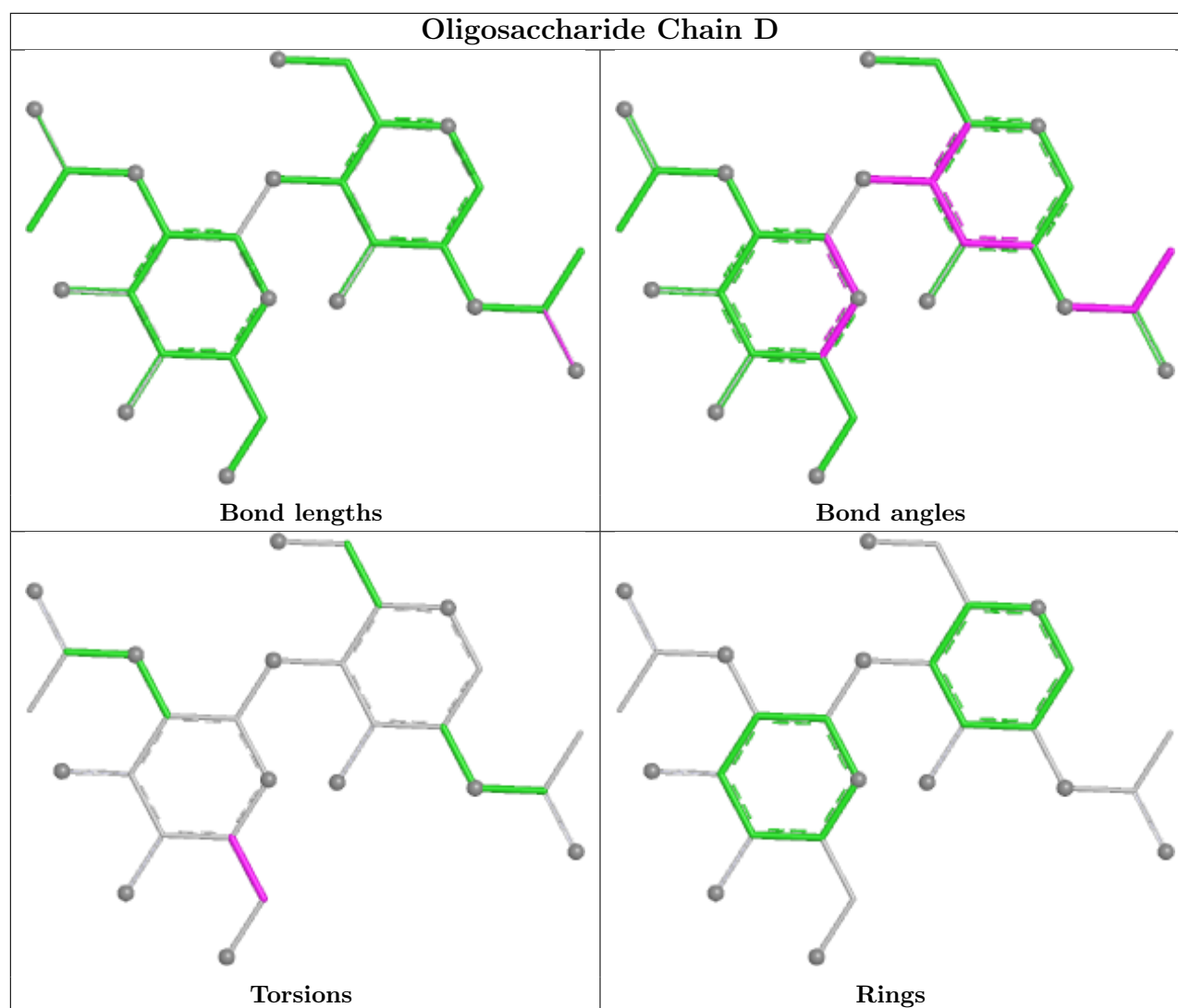
Mol	Chain	Res	Type	Atoms
2	D	2	NAG	C4-C5-C6-O6
2	D	2	NAG	O5-C5-C6-O6

There are no ring outliers.

No monomer is involved in short contacts.

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 28 ligands modelled in this entry, 1 is monoatomic - leaving 27 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	$\# Z > 2$
4	PEG	B	1351	-	6,6,6	0.67	0	5,5,5	0.29	0
5	GOL	B	1352	-	5,5,5	0.35	0	5,5,5	1.29	0
6	SO4	A	1355	-	4,4,4	0.42	0	6,6,6	0.22	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
6	SO4	A	1359	-	4,4,4	0.48	0	6,6,6	0.40	0
6	SO4	B	1359	-	4,4,4	0.50	0	6,6,6	0.25	0
4	PEG	A	1351	-	6,6,6	0.42	0	5,5,5	0.48	0
6	SO4	A	1354	-	4,4,4	0.52	0	6,6,6	0.69	0
3	NAG	A	1349	1	14,14,15	0.45	0	17,19,21	1.17	1 (5%)
3	NAG	A	1348	1	14,14,15	0.81	0	17,19,21	1.73	5 (29%)
6	SO4	B	1356	-	4,4,4	0.44	0	6,6,6	0.31	0
6	SO4	A	1356	-	4,4,4	0.34	0	6,6,6	0.94	0
6	SO4	A	1358	-	4,4,4	0.92	0	6,6,6	0.55	0
5	GOL	A	1352	-	5,5,5	0.80	0	5,5,5	0.89	0
6	SO4	A	1357	-	4,4,4	0.46	0	6,6,6	0.26	0
5	GOL	B	1353	-	5,5,5	0.50	0	5,5,5	0.61	0
4	PEG	B	1350	-	6,6,6	0.57	0	5,5,5	0.57	0
6	SO4	B	1357	-	4,4,4	0.71	0	6,6,6	0.90	0
3	NAG	B	1347	1	14,14,15	0.67	0	17,19,21	2.13	3 (17%)
6	SO4	B	1355	-	4,4,4	0.54	0	6,6,6	0.77	0
3	NAG	A	1350	1	14,14,15	0.37	0	17,19,21	1.55	1 (5%)
6	SO4	A	1353	-	4,4,4	0.29	0	6,6,6	0.65	0
3	NAG	B	1348	1	14,14,15	0.87	0	17,19,21	1.53	2 (11%)
3	NAG	A	1345	1	14,14,15	0.52	0	17,19,21	1.81	1 (5%)
6	SO4	B	1354	-	4,4,4	0.52	0	6,6,6	0.69	0
4	PEG	B	1349	-	6,6,6	0.76	0	5,5,5	0.75	0
6	SO4	A	1360	-	4,4,4	0.53	0	6,6,6	0.28	0
6	SO4	B	1358	-	4,4,4	0.59	0	6,6,6	0.52	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
3	NAG	A	1345	1	-	0/6/23/26	0/1/1/1
4	PEG	B	1351	-	-	1/4/4/4	-
5	GOL	B	1352	-	-	0/4/4/4	-
3	NAG	B	1347	1	-	0/6/23/26	0/1/1/1
4	PEG	B	1349	-	-	3/4/4/4	-
4	PEG	A	1351	-	-	1/4/4/4	-
5	GOL	A	1352	-	-	4/4/4/4	-
3	NAG	A	1350	1	-	2/6/23/26	0/1/1/1
5	GOL	B	1353	-	-	2/4/4/4	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	NAG	A	1349	1	-	0/6/23/26	0/1/1/1
4	PEG	B	1350	-	-	3/4/4/4	-
3	NAG	A	1348	1	-	0/6/23/26	0/1/1/1
3	NAG	B	1348	1	-	0/6/23/26	0/1/1/1

There are no bond length outliers.

All (13) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	B	1347	NAG	C1-O5-C5	6.29	120.62	112.19
3	A	1345	NAG	C1-O5-C5	5.50	119.55	112.19
3	A	1350	NAG	C1-O5-C5	4.33	117.99	112.19
3	B	1348	NAG	O5-C1-C2	3.85	117.24	111.29
3	B	1347	NAG	C1-C2-N2	-3.70	104.60	110.43
3	A	1348	NAG	C4-C3-C2	-3.33	106.14	111.02
3	A	1348	NAG	C2-N2-C7	-3.22	118.58	122.90
3	A	1348	NAG	C3-C4-C5	3.00	115.67	110.23
3	A	1348	NAG	C1-O5-C5	2.76	115.88	112.19
3	B	1347	NAG	C8-C7-N2	2.66	120.53	116.12
3	B	1348	NAG	C1-O5-C5	2.57	115.64	112.19
3	A	1348	NAG	C1-C2-N2	-2.28	106.84	110.43
3	A	1349	NAG	O3-C3-C2	-2.20	104.83	109.40

There are no chirality outliers.

All (16) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	A	1352	GOL	O1-C1-C2-O2
5	A	1352	GOL	O1-C1-C2-C3
5	A	1352	GOL	C1-C2-C3-O3
5	B	1353	GOL	C1-C2-C3-O3
4	A	1351	PEG	O1-C1-C2-O2
4	B	1351	PEG	O2-C3-C4-O4
4	B	1350	PEG	O1-C1-C2-O2
5	A	1352	GOL	O2-C2-C3-O3
4	B	1350	PEG	C4-C3-O2-C2
4	B	1349	PEG	O1-C1-C2-O2
5	B	1353	GOL	O2-C2-C3-O3
4	B	1350	PEG	O2-C3-C4-O4
3	A	1350	NAG	C4-C5-C6-O6
4	B	1349	PEG	C1-C2-O2-C3

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Mol	Chain	Res	Type	Atoms
3	A	1350	NAG	O5-C5-C6-O6
4	B	1349	PEG	C4-C3-O2-C2

There are no ring outliers.

2 monomers are involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	A	1352	GOL	2	0
5	B	1353	GOL	1	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 ⓘ

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, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q < 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ > 2		OWAB(Å ²)	Q < 0.9
1	A	274/299 (91%)	0.35	10 (3%)	46 52	14, 30, 46, 69	1 (0%)
1	B	278/299 (92%)	0.36	14 (5%)	34 40	20, 29, 48, 69	0
All	All	552/598 (92%)	0.35	24 (4%)	40 45	14, 30, 47, 69	1 (0%)

All (24) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	344	CYS	4.2
1	B	169	VAL	3.9
1	A	60	ASP	3.8
1	B	167	ALA	3.3
1	B	171	ALA	3.3
1	A	234	PRO	3.0
1	A	193	ARG	2.9
1	B	186	PRO	2.9
1	A	171	ALA	2.8
1	B	115	PRO	2.6
1	B	170	SER	2.5
1	A	187	GLU	2.5
1	B	168	SER	2.5
1	A	251	TYR	2.4
1	B	60	ASP	2.3
1	B	250	THR	2.3
1	B	251	TYR	2.3
1	A	255	ARG	2.2
1	A	170	SER	2.1
1	B	286	HIS	2.1
1	B	166	ASN	2.0
1	A	344	CYS	2.0
1	A	65	LEU	2.0
1	B	114	ARG	2.0

6.2 Non-standard residues in protein, DNA, RNA chains ⓘ

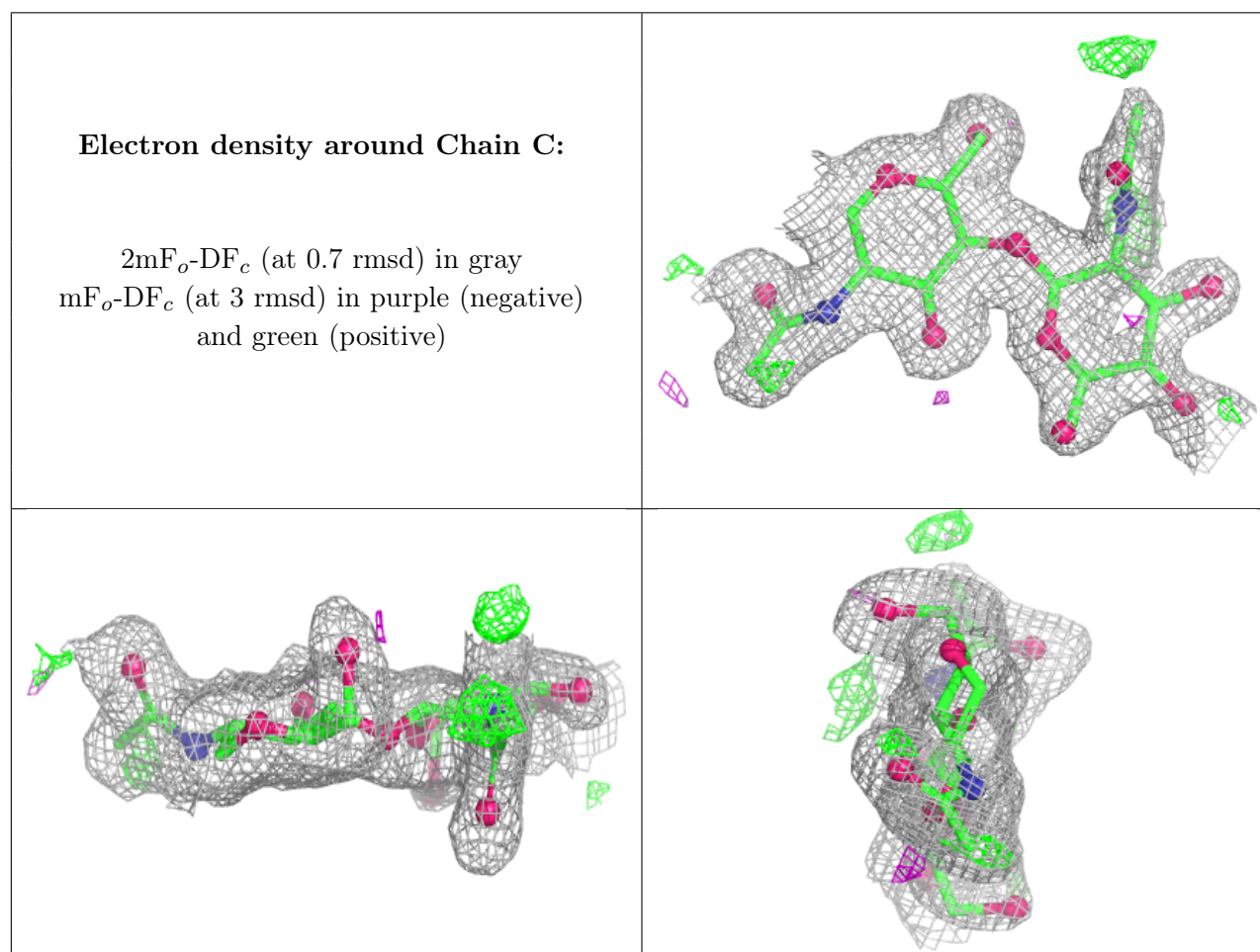
There are no non-standard protein/DNA/RNA residues in this entry.

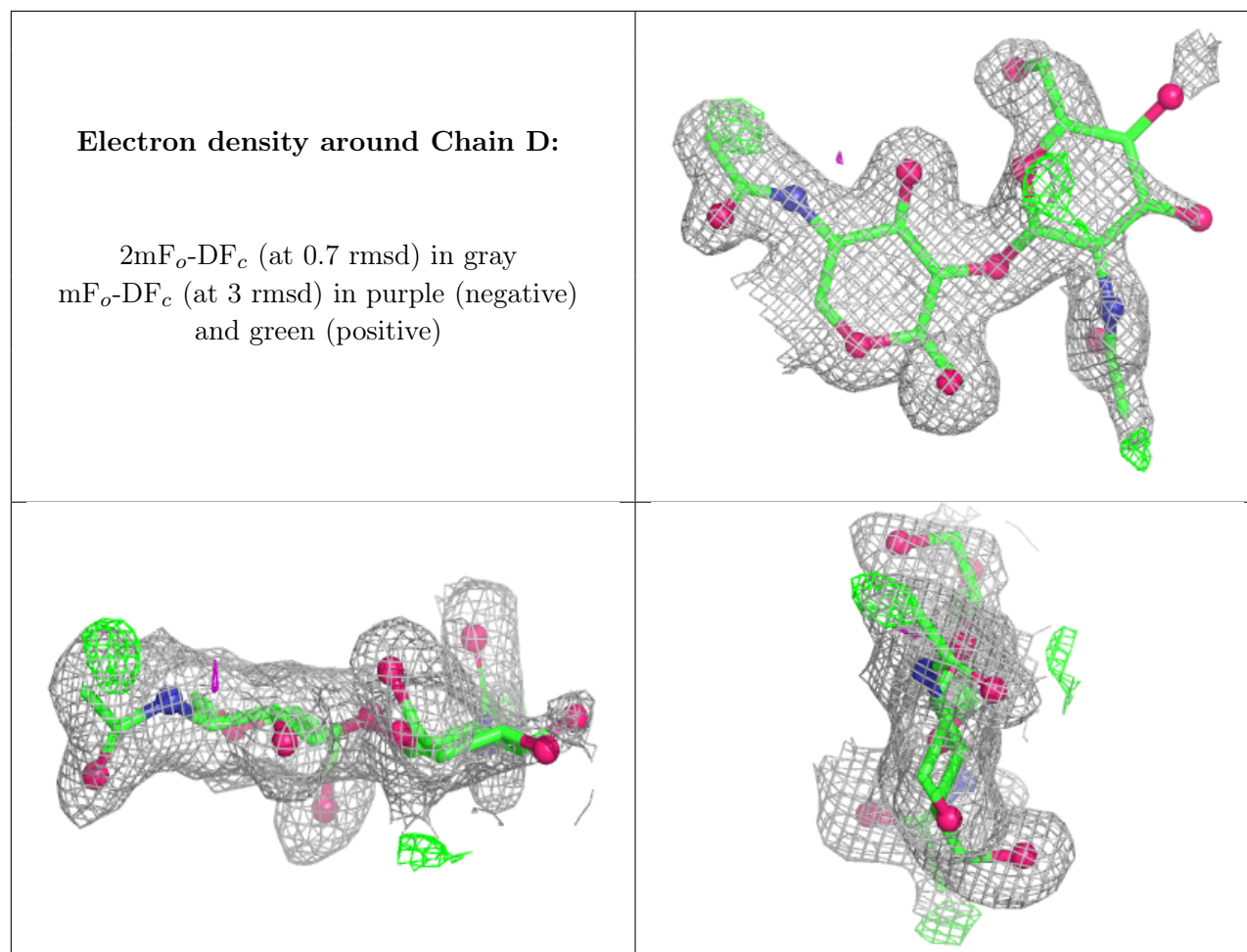
6.3 Carbohydrates ⓘ

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
2	NAG	D	2	14/15	0.68	0.16	55,63,76,81	0
2	NAG	C	2	14/15	0.69	0.16	49,59,63,69	0
2	NAG	D	1	14/15	0.92	0.09	24,32,39,40	0
2	NAG	C	1	14/15	0.92	0.09	20,29,35,36	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, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
6	SO4	B	1358	5/5	0.68	0.19	59,71,76,82	0
6	SO4	A	1358	5/5	0.73	0.13	44,55,62,69	0
6	SO4	B	1359	5/5	0.73	0.11	96,103,106,108	0
5	GOL	B	1353	6/6	0.74	0.17	44,51,54,59	0
6	SO4	A	1360	5/5	0.76	0.12	74,79,82,84	0
6	SO4	A	1359	5/5	0.78	0.12	72,79,90,98	0
4	PEG	B	1349	7/7	0.79	0.20	42,52,58,59	0
4	PEG	B	1350	7/7	0.79	0.16	57,65,72,76	0
4	PEG	B	1351	7/7	0.79	0.17	56,59,66,66	0
3	NAG	A	1345	14/15	0.80	0.13	43,49,54,55	0
5	GOL	A	1352	6/6	0.81	0.17	34,42,48,57	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
6	SO4	A	1357	5/5	0.82	0.11	72,74,79,80	0
3	NAG	A	1348	14/15	0.84	0.13	35,45,49,56	0
6	SO4	B	1357	5/5	0.86	0.10	44,46,60,60	0
4	PEG	A	1351	7/7	0.86	0.15	36,55,61,64	0
3	NAG	A	1350	14/15	0.86	0.12	47,53,61,62	0
3	NAG	B	1347	14/15	0.87	0.11	36,45,52,52	0
6	SO4	B	1356	5/5	0.89	0.09	52,58,62,63	0
6	SO4	A	1354	5/5	0.89	0.09	66,66,70,71	0
5	GOL	B	1352	6/6	0.91	0.11	38,44,48,50	0
6	SO4	A	1356	5/5	0.91	0.10	36,48,54,54	0
7	NA	B	1360	1/1	0.91	0.20	56,56,56,56	0
3	NAG	A	1349	14/15	0.92	0.09	28,33,36,36	0
6	SO4	A	1355	5/5	0.94	0.06	64,64,66,67	0
6	SO4	B	1355	5/5	0.95	0.08	40,41,42,46	0
3	NAG	B	1348	14/15	0.95	0.07	27,29,34,43	0
6	SO4	A	1353	5/5	0.96	0.07	39,40,45,49	0
6	SO4	B	1354	5/5	0.97	0.07	40,41,44,48	0

6.5 Other polymers [i](#)

There are no such residues in this entry.