



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 9, 2026 – 06:11 AM UTC

PDB ID : 5YDJ / pdb_00005ydj
Title : Crystal structure of anopheles gambiae acetylcholinesterase in complex with PMSF
Authors : Han, Q.; Guan, H.; Ding, H.; Liao, C.; Robinson, H.; Li, J.
Deposited on : 2017-09-13
Resolution : 3.04 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

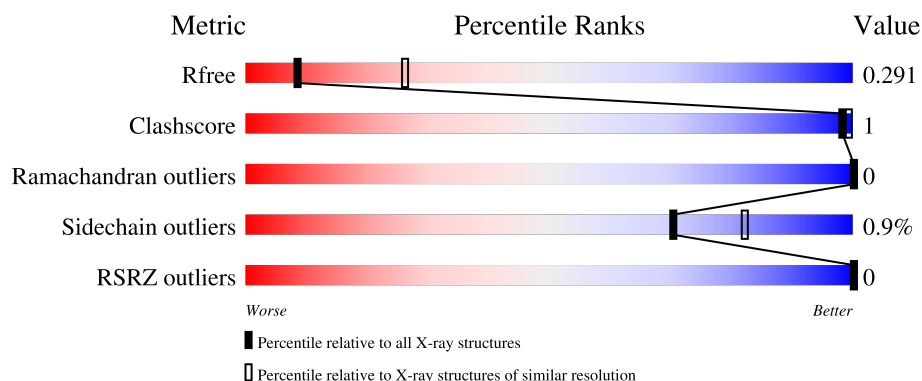
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

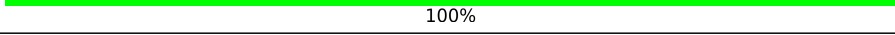
The reported resolution of this entry is 3.04 Å.

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	3685 (3.08-3.00)
Clashscore	190562	4007 (3.08-3.00)
Ramachandran outliers	187476	3834 (3.08-3.00)
Sidechain outliers	187428	3836 (3.08-3.00)
RSRZ outliers	180081	3684 (3.08-3.00)

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	737	 71% 27%
1	B	737	 71% 27%
2	C	2	 100%
2	D	2	 100%

2 Entry composition [i](#)

There are 6 unique types of molecules in this entry. The entry contains 8813 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 Acetylcholinesterase.

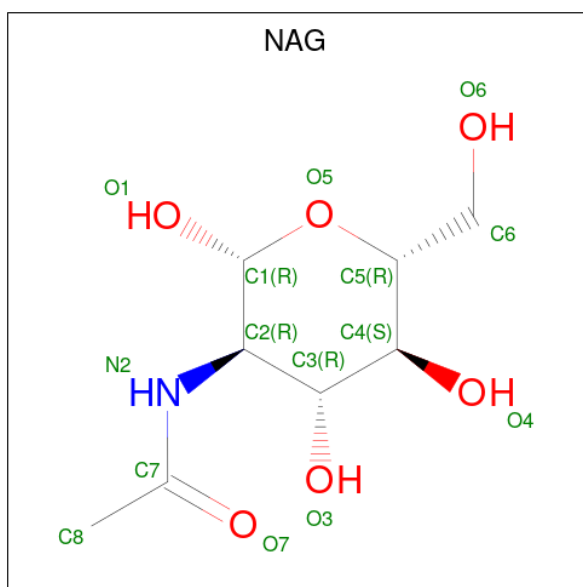
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	538	Total	C	N	O	S	0	0	0
			4267	2718	743	792	14			
1	B	538	Total	C	N	O	S	0	0	0
			4267	2718	743	792	14			

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



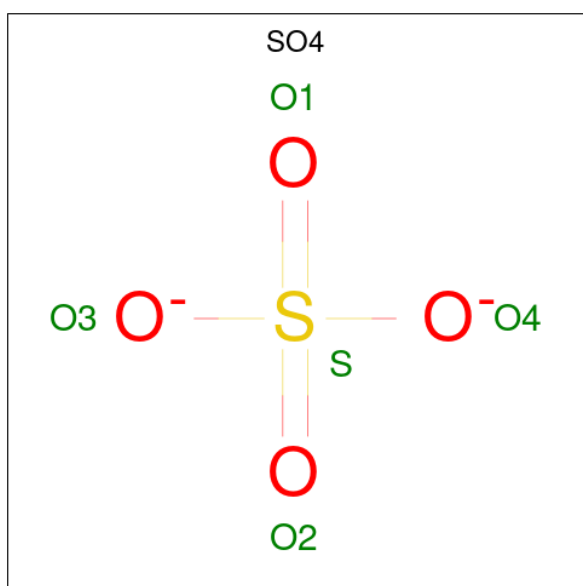
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
2	C	2	Total	C	N	O	0	0	0
			28	16	2	10			
2	D	2	Total	C	N	O	0	0	0
			28	16	2	10			

- 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	B	1	Total	C	N	O	0	0
			14	8	1	5		

- Molecule 4 is SULFATE ION (CCD ID: SO₄) (formula: O₄S).



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

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

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

- Molecule 5 is COBALT (II) ION (CCD ID: CO) (formula: Co).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	1	Total	Co	0	0
			1	1		
5	B	1	Total	Co	0	0
			1	1		

- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	23	Total	O	0	0
			23	23		
6	B	25	Total	O	0	0
			25	25		

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

Chain D:  100%

MOL
MOL2

4 Data and refinement statistics

Property	Value	Source
Space group	P 61	Depositor
Cell constants a, b, c, α , β , γ	147.65Å 147.65Å 224.18Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	61.48 – 3.04 61.48 – 3.04	Depositor EDS
% Data completeness (in resolution range)	100.0 (61.48-3.04) 100.0 (61.48-3.04)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.22 (at 3.07Å)	Xtriage
Refinement program	REFMAC 5.8.0158	Depositor
R, R_{free}	0.251 , 0.286 0.253 , 0.291	Depositor DCC
R_{free} test set	2701 reflections (5.08%)	wwPDB-VP
Wilson B-factor (Å ²)	64.8	Xtriage
Anisotropy	0.033	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.34 , 29.2	EDS
L-test for twinning ²	$\langle L \rangle = 0.39$, $\langle L^2 \rangle = 0.22$	Xtriage
Estimated twinning fraction	0.367 for h,-h-k,-l	Xtriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	8813	wwPDB-VP
Average B, all atoms (Å ²)	59.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.14% 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: CO, SO4, SEB, NAG

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	0.55	0/4374	0.82	0/5968
1	B	0.55	0/4374	0.81	0/5968
All	All	0.55	0/8748	0.82	0/11936

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	4267	0	4111	5	0
1	B	4267	0	4111	4	0
2	C	28	0	25	1	0
2	D	28	0	25	0	0
3	A	14	0	13	0	0
3	B	14	0	13	0	0
4	A	65	0	0	0	0
4	B	80	0	0	0	0
5	A	1	0	0	0	0
5	B	1	0	0	0	0
6	A	23	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	B	25	0	0	0	0
All	All	8813	0	8298	10	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 1.

All (10) 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:274:LEU:HD21	1:A:307:LEU:HD23	1.88	0.56
1:B:264:ARG:HA	1:B:265:PRO:C	2.34	0.53
1:B:221:THR:O	1:B:221:THR:HG23	2.14	0.48
1:A:360:SEB:HE2	1:A:600:HIS:NE2	2.30	0.46
1:A:532:VAL:O	1:A:536:THR:OG1	2.32	0.45
2:C:1:NAG:H3	2:C:2:NAG:O5	2.17	0.45
1:A:208:HIS:CE1	1:A:331:PHE:CE2	3.06	0.44
1:B:170:THR:N	1:B:173:GLY:O	2.53	0.41
1:B:313:SER:O	1:B:317:LEU:HB2	2.21	0.41
1:A:183:PRO:HB2	1:A:613:ASN:HA	2.02	0.40

There are no symmetry-related clashes.

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	535/737 (73%)	504 (94%)	31 (6%)	0	100	100
1	B	535/737 (73%)	505 (94%)	30 (6%)	0	100	100
All	All	1070/1474 (73%)	1009 (94%)	61 (6%)	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	454/611 (74%)	451 (99%)	3 (1%)	76	84
1	B	454/611 (74%)	449 (99%)	5 (1%)	65	80
All	All	908/1222 (74%)	900 (99%)	8 (1%)	70	82

All (8) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	268	LYS
1	A	496	THR
1	A	571	TYR
1	B	163	ASN
1	B	268	LYS
1	B	274	LEU
1	B	476	THR
1	B	503	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (8) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	269	ASN
1	A	439	ASN
1	A	520	ASN
1	B	169	ASN
1	B	434	HIS
1	B	439	ASN
1	B	569	GLN
1	B	577	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

2 non-standard protein/DNA/RNA residues 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
1	SEB	B	360	1	15,16,17	2.80	1 (6%)	16,21,23	1.35	2 (12%)
1	SEB	A	360	1	15,16,17	2.93	1 (6%)	16,21,23	1.16	2 (12%)

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
1	SEB	B	360	1	-	5/10/13/15	0/1/1/1
1	SEB	A	360	1	-	3/10/13/15	0/1/1/1

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	360	SEB	CE-SD	-11.10	1.67	1.78
1	B	360	SEB	CE-SD	-10.57	1.67	1.78

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	360	SEB	OG-CB-CA	3.94	112.45	107.63
1	A	360	SEB	OG-CB-CA	2.87	111.14	107.63
1	B	360	SEB	OG-SD-CE	2.51	111.09	104.18
1	A	360	SEB	OG-SD-CE	2.15	110.10	104.18

There are no chirality outliers.

All (8) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	A	360	SEB	CZ-CE-SD-OD2
1	A	360	SEB	CZ-CE-SD-OD1
1	A	360	SEB	CZ-CE-SD-OG
1	B	360	SEB	CB-OG-SD-OD2
1	B	360	SEB	CZ-CE-SD-OD2
1	B	360	SEB	SD-CE-CZ-CH2
1	B	360	SEB	SD-CE-CZ-CH1
1	B	360	SEB	CB-OG-SD-CE

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	A	360	SEB	1	0

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	0.87	0	17,19,21	1.60	2 (11%)
2	NAG	C	2	2	14,14,15	0.54	0	17,19,21	2.81	6 (35%)
2	NAG	D	1	2,1	14,14,15	0.44	0	17,19,21	1.03	0
2	NAG	D	2	2	14,14,15	0.37	0	17,19,21	0.92	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	NAG	C	1	2,1	-	3/6/23/26	0/1/1/1
2	NAG	C	2	2	-	3/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	NAG	D	1	2,1	-	1/6/23/26	0/1/1/1
2	NAG	D	2	2	-	2/6/23/26	0/1/1/1

There are no bond length outliers.

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	2	NAG	C1-O5-C5	7.31	121.98	112.19
2	C	2	NAG	O5-C1-C2	5.75	120.18	111.29
2	C	2	NAG	C1-C2-N2	-4.98	102.58	110.43
2	C	1	NAG	C4-C3-C2	4.78	118.02	111.02
2	C	2	NAG	C3-C4-C5	2.42	114.63	110.23
2	C	2	NAG	O5-C5-C4	2.36	116.58	110.83
2	C	1	NAG	C3-C4-C5	2.26	114.33	110.23
2	C	2	NAG	O7-C7-N2	2.04	125.59	121.98

There are no chirality outliers.

All (9) torsion outliers are listed below:

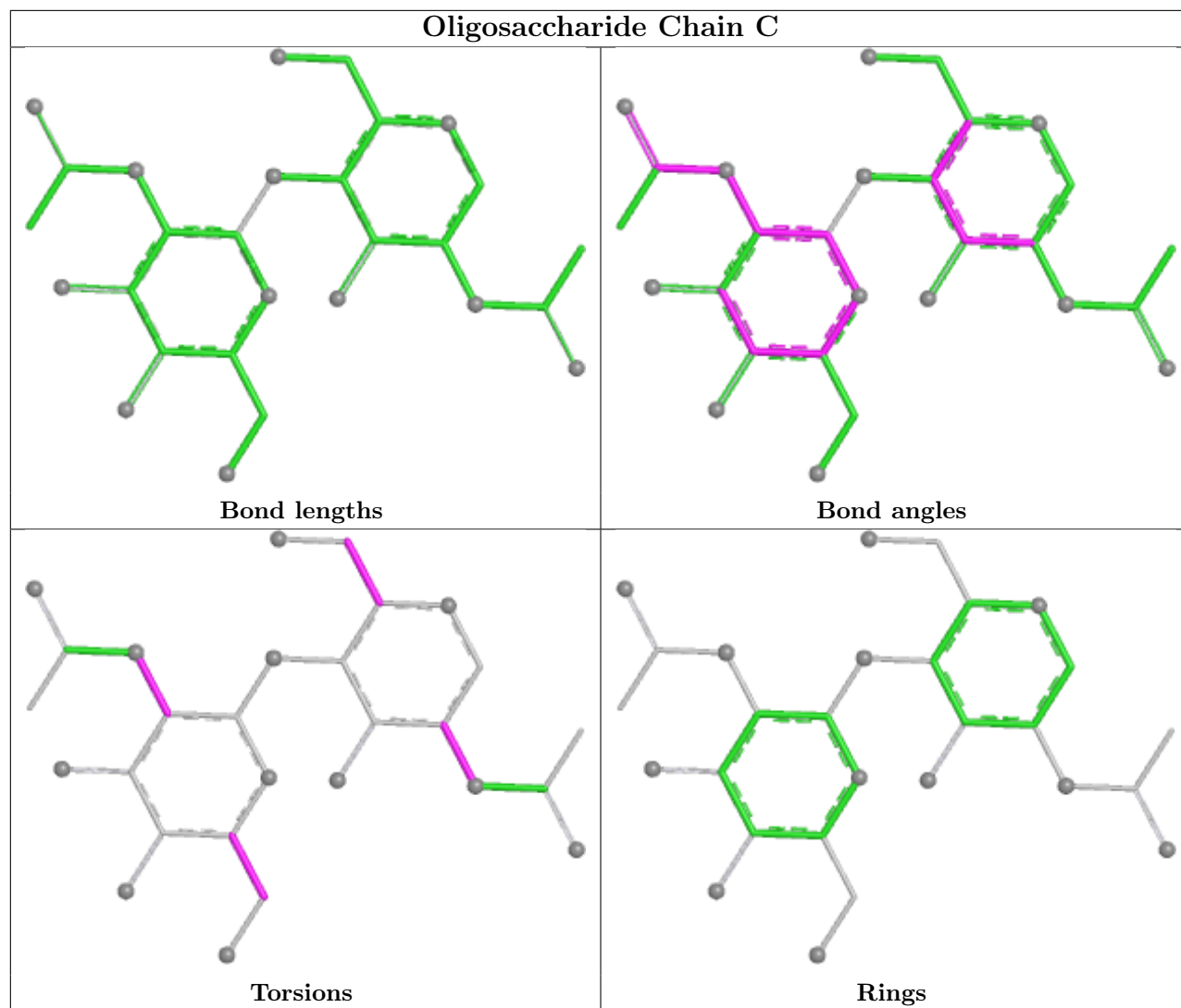
Mol	Chain	Res	Type	Atoms
2	C	2	NAG	C1-C2-N2-C7
2	C	1	NAG	O5-C5-C6-O6
2	C	1	NAG	C4-C5-C6-O6
2	D	2	NAG	C4-C5-C6-O6
2	D	2	NAG	O5-C5-C6-O6
2	C	2	NAG	C3-C2-N2-C7
2	C	2	NAG	O5-C5-C6-O6
2	C	1	NAG	C3-C2-N2-C7
2	D	1	NAG	C3-C2-N2-C7

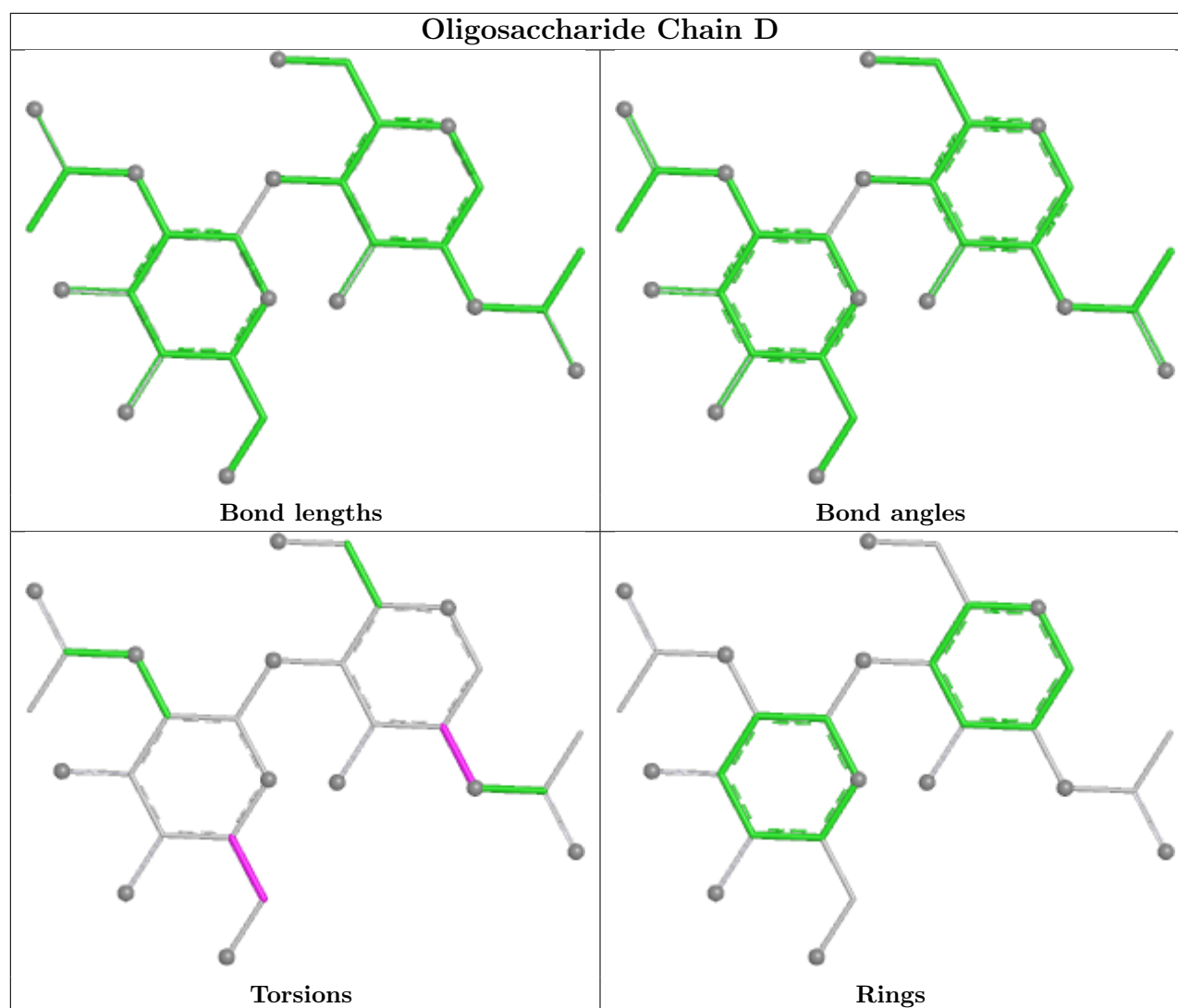
There are no ring outliers.

2 monomers are involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	C	1	NAG	1	0
2	C	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 33 ligands modelled in this entry, 2 are monoatomic - leaving 31 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	SO4	A	804	-	4,4,4	0.44	0	6,6,6	0.09	0
4	SO4	A	808	-	4,4,4	0.43	0	6,6,6	0.06	0
4	SO4	B	804	-	4,4,4	0.45	0	6,6,6	0.08	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
4	SO4	B	808	-	4,4,4	0.42	0	6,6,6	0.09	0
4	SO4	A	812	-	4,4,4	0.43	0	6,6,6	0.09	0
4	SO4	A	803	-	4,4,4	0.43	0	6,6,6	0.08	0
4	SO4	A	813	-	4,4,4	0.45	0	6,6,6	0.08	0
4	SO4	B	814	-	4,4,4	0.44	0	6,6,6	0.07	0
4	SO4	A	809	-	4,4,4	0.43	0	6,6,6	0.08	0
4	SO4	B	811	-	4,4,4	0.43	0	6,6,6	0.07	0
4	SO4	B	807	-	4,4,4	0.44	0	6,6,6	0.09	0
4	SO4	B	805	-	4,4,4	0.42	0	6,6,6	0.10	0
4	SO4	B	812	-	4,4,4	0.44	0	6,6,6	0.08	0
4	SO4	B	816	-	4,4,4	0.42	0	6,6,6	0.08	0
4	SO4	B	803	-	4,4,4	0.43	0	6,6,6	0.07	0
4	SO4	B	809	-	4,4,4	0.43	0	6,6,6	0.09	0
4	SO4	B	802	-	4,4,4	0.43	0	6,6,6	0.10	0
4	SO4	A	805	-	4,4,4	0.43	0	6,6,6	0.08	0
4	SO4	A	802	-	4,4,4	0.43	0	6,6,6	0.07	0
3	NAG	B	801	1	14,14,15	0.39	0	17,19,21	0.78	0
4	SO4	A	810	-	4,4,4	0.43	0	6,6,6	0.07	0
4	SO4	A	811	-	4,4,4	0.44	0	6,6,6	0.08	0
4	SO4	B	813	-	4,4,4	0.43	0	6,6,6	0.11	0
4	SO4	B	810	-	4,4,4	0.43	0	6,6,6	0.08	0
4	SO4	B	815	-	4,4,4	0.44	0	6,6,6	0.07	0
4	SO4	A	814	-	4,4,4	0.42	0	6,6,6	0.07	0
4	SO4	A	806	-	4,4,4	0.43	0	6,6,6	0.07	0
4	SO4	A	807	-	4,4,4	0.44	0	6,6,6	0.07	0
3	NAG	A	801	1	14,14,15	0.42	0	17,19,21	1.15	2 (11%)
4	SO4	B	817	-	4,4,4	0.42	0	6,6,6	0.06	0
4	SO4	B	806	-	4,4,4	0.43	0	6,6,6	0.07	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	B	801	1	-	2/6/23/26	0/1/1/1
3	NAG	A	801	1	-	2/6/23/26	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($^{\circ}$)	Ideal($^{\circ}$)
3	A	801	NAG	C2-N2-C7	3.16	127.14	122.90
3	A	801	NAG	C8-C7-N2	2.41	120.11	116.12

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	B	801	NAG	O5-C5-C6-O6
3	A	801	NAG	C8-C7-N2-C2
3	A	801	NAG	O7-C7-N2-C2
3	B	801	NAG	C4-C5-C6-O6

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data [i](#)

6.1 Protein, DNA and RNA chains [i](#)

In the following table, the column labelled ‘#RSRZ> 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q< 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	537/737 (72%)	-1.59	0 100 100	37, 56, 83, 111	0
1	B	537/737 (72%)	-1.55	0 100 100	36, 57, 82, 114	0
All	All	1074/1474 (72%)	-1.57	0 100 100	36, 57, 83, 114	0

There are no RSRZ outliers to report.

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

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

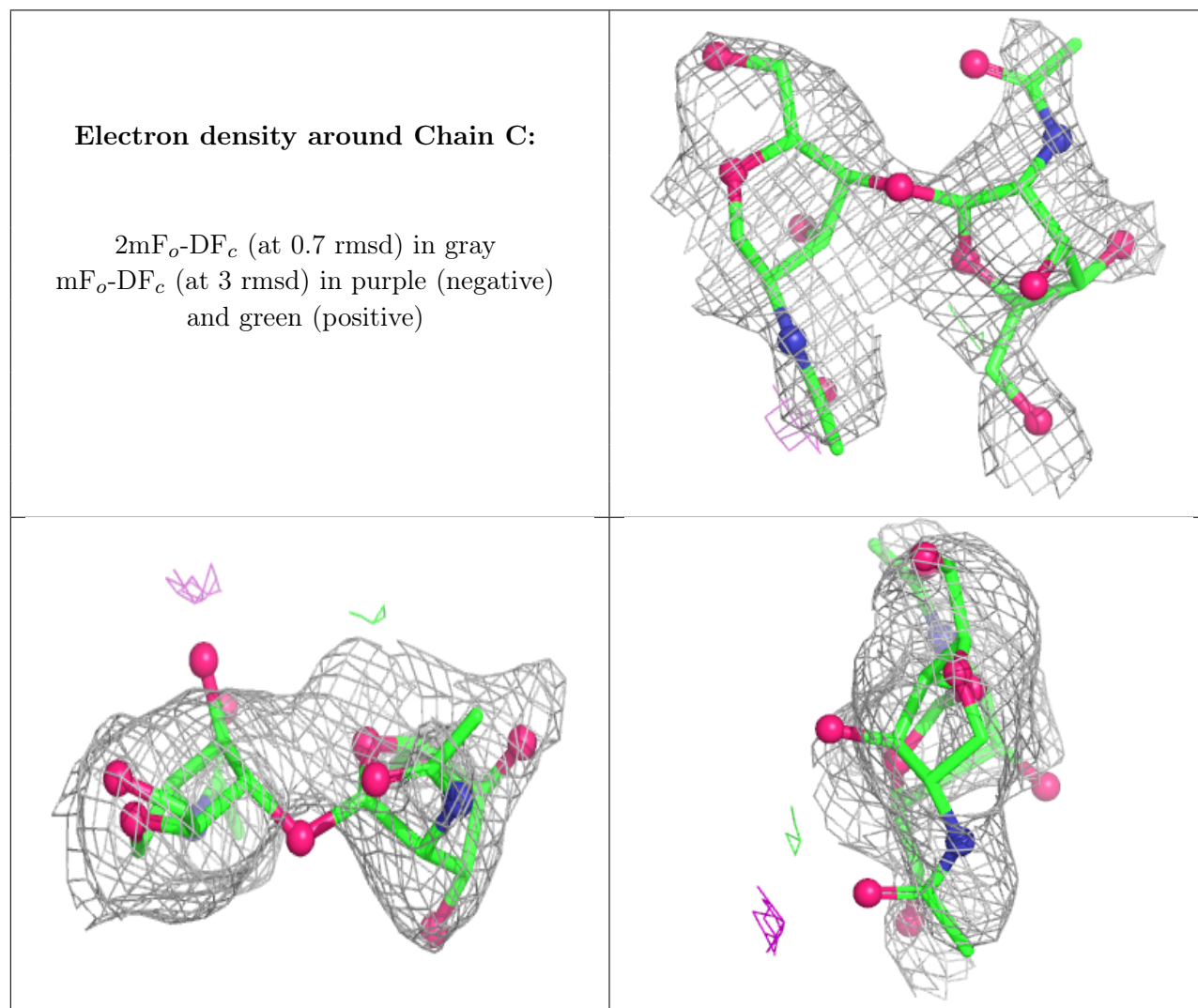
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
1	SEB	A	360	16/17	0.99	0.05	46,93,105,105	0
1	SEB	B	360	16/17	0.99	0.06	54,83,110,115	0

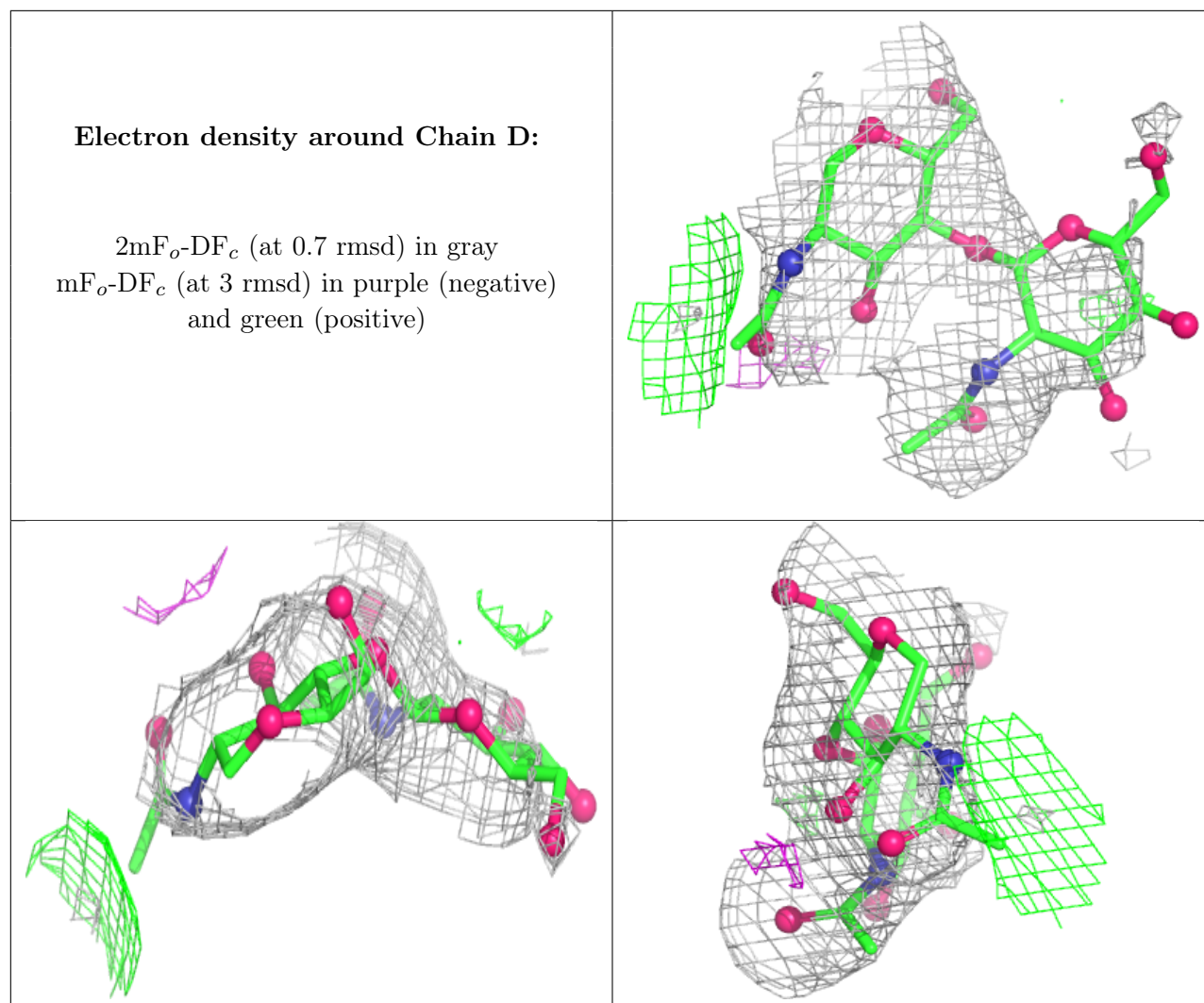
6.3 Carbohydrates [i](#)

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
2	NAG	C	2	14/15	0.98	0.05	96,107,113,119	0
2	NAG	D	1	14/15	0.98	0.06	83,93,105,105	0
2	NAG	D	2	14/15	0.98	0.06	74,108,114,125	0
2	NAG	C	1	14/15	0.99	0.05	79,95,110,122	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 ⓘ

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
3	NAG	A	801	14/15	0.91	0.10	94,115,123,124	0
3	NAG	B	801	14/15	0.94	0.10	110,121,129,132	0
4	SO4	B	807	5/5	0.96	0.08	103,104,111,112	0
4	SO4	B	809	5/5	0.97	0.08	114,114,123,125	0
4	SO4	B	814	5/5	0.97	0.05	88,96,100,104	0
4	SO4	A	810	5/5	0.98	0.07	111,114,123,125	0
4	SO4	A	813	5/5	0.98	0.12	80,82,92,95	0
4	SO4	A	814	5/5	0.98	0.10	90,94,103,104	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
4	SO4	B	805	5/5	0.98	0.07	108,118,124,126	0
4	SO4	A	803	5/5	0.98	0.06	114,115,120,124	0
4	SO4	B	808	5/5	0.98	0.07	106,111,114,116	0
4	SO4	A	805	5/5	0.98	0.07	132,135,140,142	0
4	SO4	B	811	5/5	0.98	0.09	84,84,95,98	0
4	SO4	B	812	5/5	0.98	0.06	77,83,91,98	0
4	SO4	B	813	5/5	0.98	0.10	102,112,118,128	0
4	SO4	A	809	5/5	0.98	0.08	74,80,91,92	0
5	CO	B	818	1/1	0.98	0.09	111,111,111,111	0
4	SO4	A	804	5/5	0.99	0.05	100,103,120,123	0
4	SO4	B	806	5/5	0.99	0.04	100,101,109,111	0
4	SO4	A	806	5/5	0.99	0.06	71,80,87,89	0
4	SO4	A	811	5/5	0.99	0.07	82,93,94,99	0
4	SO4	A	812	5/5	0.99	0.07	100,101,104,105	0
4	SO4	B	810	5/5	0.99	0.05	132,133,137,142	0
4	SO4	A	807	5/5	0.99	0.08	82,83,91,92	0
4	SO4	A	808	5/5	0.99	0.06	105,109,120,127	0
4	SO4	B	802	5/5	0.99	0.07	95,100,108,108	0
4	SO4	B	803	5/5	0.99	0.04	64,75,77,78	0
4	SO4	B	815	5/5	0.99	0.05	72,82,88,94	0
4	SO4	B	816	5/5	0.99	0.06	82,83,91,97	0
4	SO4	B	817	5/5	0.99	0.12	91,100,103,107	0
5	CO	A	815	1/1	0.99	0.06	127,127,127,127	0
4	SO4	B	804	5/5	0.99	0.06	77,81,83,85	0
4	SO4	A	802	5/5	1.00	0.03	63,63,66,66	0

6.5 Other polymers [i](#)

There are no such residues in this entry.