



wwPDB X-ray Structure Validation Summary Report ⓘ

Sep 18, 2023 – 08:19 PM EDT

PDB ID : 5DZX
Title : Protocadherin beta 6 extracellular cadherin domains 1-4
Authors : Goodman, K.M.; Mannepalli, S.; Bahna, F.; Honig, B.; Shapiro, L.
Deposited on : 2015-09-26
Resolution : 2.88 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

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 : 4.02b-467
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.35.1
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) : 2.35.1

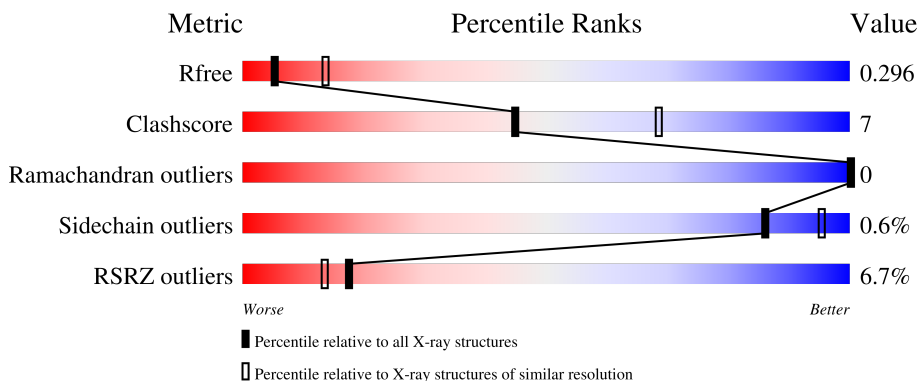
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.88 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	2691 (2.90-2.86)
Clashscore	141614	2947 (2.90-2.86)
Ramachandran outliers	138981	2868 (2.90-2.86)
Sidechain outliers	138945	2871 (2.90-2.86)
RSRZ outliers	127900	2629 (2.90-2.86)

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	425	 6% 78% 20%
1	B	425	 7% 83% 13%
2	C	5	 80% 20%
2	D	5	 60% 40%
3	E	2	 100%

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
2	MAN	D	4	-	-	-	X

2 Entry composition [i](#)

There are 6 unique types of molecules in this entry. The entry contains 6413 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.

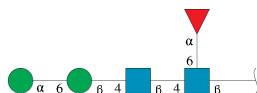
- Molecule 1 is a protein called Protocadherin beta 6.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	414	Total 3138	C 1978	N 523	O 630	S 7	0	1	0
1	B	411	Total 3069	C 1936	N 508	O 618	S 7	0	0	0

There are 16 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	418	HIS	-	expression tag	UNP B2RWV0
A	419	HIS	-	expression tag	UNP B2RWV0
A	420	HIS	-	expression tag	UNP B2RWV0
A	421	HIS	-	expression tag	UNP B2RWV0
A	422	HIS	-	expression tag	UNP B2RWV0
A	423	HIS	-	expression tag	UNP B2RWV0
A	424	HIS	-	expression tag	UNP B2RWV0
A	425	HIS	-	expression tag	UNP B2RWV0
B	418	HIS	-	expression tag	UNP B2RWV0
B	419	HIS	-	expression tag	UNP B2RWV0
B	420	HIS	-	expression tag	UNP B2RWV0
B	421	HIS	-	expression tag	UNP B2RWV0
B	422	HIS	-	expression tag	UNP B2RWV0
B	423	HIS	-	expression tag	UNP B2RWV0
B	424	HIS	-	expression tag	UNP B2RWV0
B	425	HIS	-	expression tag	UNP B2RWV0

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



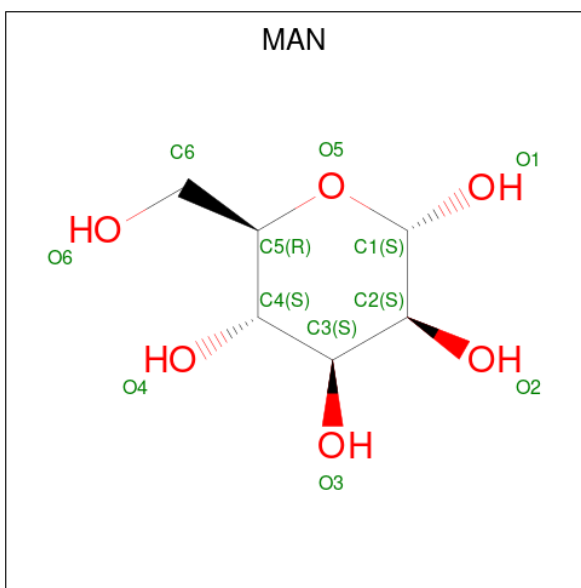
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
2	C	5	60	34	2	24	0	0	0
2	D	5	60	34	2	24	0	0	0

- Molecule 3 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			
3	E	2	28	16	2	10	0	0	0

- Molecule 4 is alpha-D-mannopyranose (three-letter code: MAN) (formula: C₆H₁₂O₆).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
			Total	C	O		
4	A	1	11	6	5	0	0
4	B	1	11	6	5	0	0
4	B	1	11	6	5	0	0

- Molecule 5 is CALCIUM ION (three-letter code: CA) (formula: Ca).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	9	Total Ca 9 9	0	0
5	B	9	Total Ca 9 9	0	0

- Molecule 6 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	3	Total O 3 3	0	0
6	B	4	Total O 4 4	0	0

- Molecule 2: alpha-D-mannopyranose-(1-6)-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

Chain D:  60% 40%



- Molecule 3: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain E:  100%



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	49.04Å 90.53Å 258.13Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	29.97 – 2.88 85.43 – 2.88	Depositor EDS
% Data completeness (in resolution range)	54.9 (29.97-2.88) 55.1 (85.43-2.88)	Depositor EDS
R_{merge}	0.11	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.55 (at 2.86Å)	Xtrriage
Refinement program	PHENIX 1.9_1692	Depositor
R, R_{free}	0.241 , 0.289 0.247 , 0.296	Depositor DCC
R_{free} test set	753 reflections (5.06%)	wwPDB-VP
Wilson B-factor (Å ²)	50.7	Xtrriage
Anisotropy	1.198	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.32 , 43.9	EDS
L-test for twinning ²	$\langle L \rangle = 0.46$, $\langle L^2 \rangle = 0.28$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.92	EDS
Total number of atoms	6413	wwPDB-VP
Average B, all atoms (Å ²)	67.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 24.63 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 3.6981e-03. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

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 [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: CA, NAG, FUC, MAN, BMA

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	0.23	0/3199	0.42	0/4376
1	B	0.22	0/3126	0.41	0/4280
All	All	0.22	0/6325	0.41	0/8656

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 [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	3138	0	3051	51	0
1	B	3069	0	2962	35	0
2	C	60	0	52	0	0
2	D	60	0	52	1	0
3	E	28	0	25	0	0
4	A	11	0	10	0	0
4	B	22	0	20	0	0
5	A	9	0	0	0	0
5	B	9	0	0	0	0
6	A	3	0	0	0	0
6	B	4	0	0	0	0
All	All	6413	0	6172	82	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 7.

The worst 5 of 82 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:B:9:GLU:HG2	1:B:10:GLU:HG2	1.75	0.67
1:A:9:GLU:HG2	1:A:10:GLU:HG2	1.78	0.66
1:A:20:LEU:HD12	1:A:49:LEU:HD13	1.78	0.65
1:A:46:LEU:O	1:A:59:LYS:N	2.28	0.65
1:A:147:ASN:HD21	1:A:150:PHE:HB2	1.62	0.63

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	413/425 (97%)	393 (95%)	20 (5%)	0	100	100
1	B	409/425 (96%)	389 (95%)	20 (5%)	0	100	100
All	All	822/850 (97%)	782 (95%)	40 (5%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	346/370 (94%)	346 (100%)	0	100	100
1	B	334/370 (90%)	330 (99%)	4 (1%)	71	89
All	All	680/740 (92%)	676 (99%)	4 (1%)	86	95

All (4) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	57	LEU
1	B	130	GLN
1	B	323	LEU
1	B	368	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	147	ASN
1	B	147	ASN

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](#)

12 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	1,2	14,14,15	0.48	0	17,19,21	0.58	0
2	NAG	C	2	2	14,14,15	0.47	0	17,19,21	0.46	0
2	BMA	C	3	2	11,11,12	0.62	0	15,15,17	0.94	0
2	MAN	C	4	2	11,11,12	0.92	1 (9%)	15,15,17	0.90	1 (6%)
2	FUC	C	5	2	10,10,11	0.83	0	14,14,16	0.85	0
2	NAG	D	1	1,2	14,14,15	0.43	0	17,19,21	0.51	0
2	NAG	D	2	2	14,14,15	0.32	0	17,19,21	0.43	0
2	BMA	D	3	2	11,11,12	0.66	0	15,15,17	0.73	0
2	MAN	D	4	2	11,11,12	0.73	0	15,15,17	1.15	2 (13%)
2	FUC	D	5	2	10,10,11	0.79	0	14,14,16	0.83	0
3	NAG	E	1	1,3	14,14,15	0.35	0	17,19,21	0.69	1 (5%)
3	NAG	E	2	3	14,14,15	0.56	0	17,19,21	0.67	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	1,2	-	4/6/23/26	0/1/1/1
2	NAG	C	2	2	-	2/6/23/26	0/1/1/1
2	BMA	C	3	2	-	2/2/19/22	0/1/1/1
2	MAN	C	4	2	-	1/2/19/22	0/1/1/1
2	FUC	C	5	2	-	-	0/1/1/1
2	NAG	D	1	1,2	-	0/6/23/26	0/1/1/1
2	NAG	D	2	2	-	0/6/23/26	0/1/1/1
2	BMA	D	3	2	-	1/2/19/22	0/1/1/1
2	MAN	D	4	2	-	0/2/19/22	0/1/1/1
2	FUC	D	5	2	-	-	0/1/1/1
3	NAG	E	1	1,3	-	2/6/23/26	0/1/1/1
3	NAG	E	2	3	-	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	C	4	MAN	O5-C1	-2.38	1.39	1.43

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	4	MAN	C1-O5-C5	2.70	115.85	112.19
3	E	2	NAG	C1-O5-C5	2.53	115.63	112.19
2	D	4	MAN	O2-C2-C3	-2.19	105.75	110.14
2	C	4	MAN	O2-C2-C3	-2.18	105.78	110.14
3	E	1	NAG	C1-O5-C5	2.09	115.03	112.19

There are no chirality outliers.

5 of 14 torsion outliers are listed below:

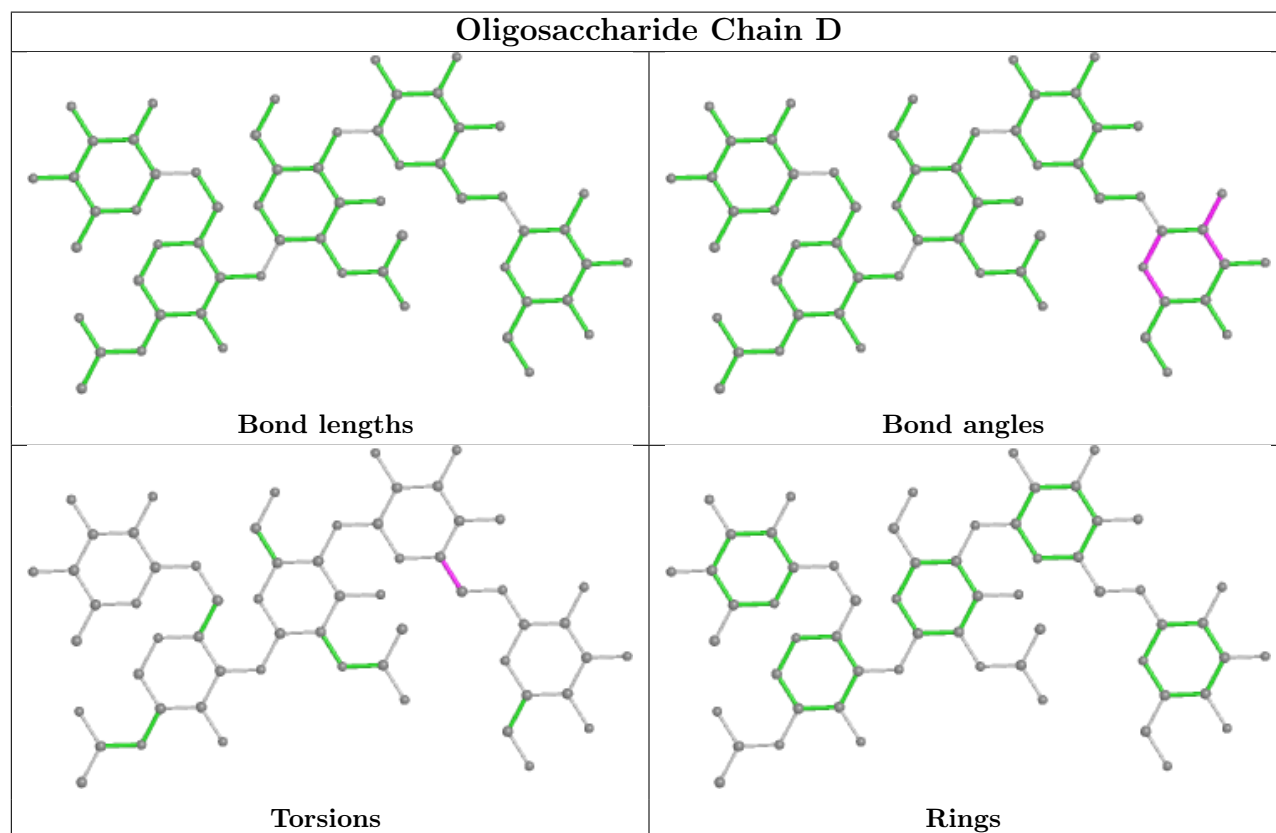
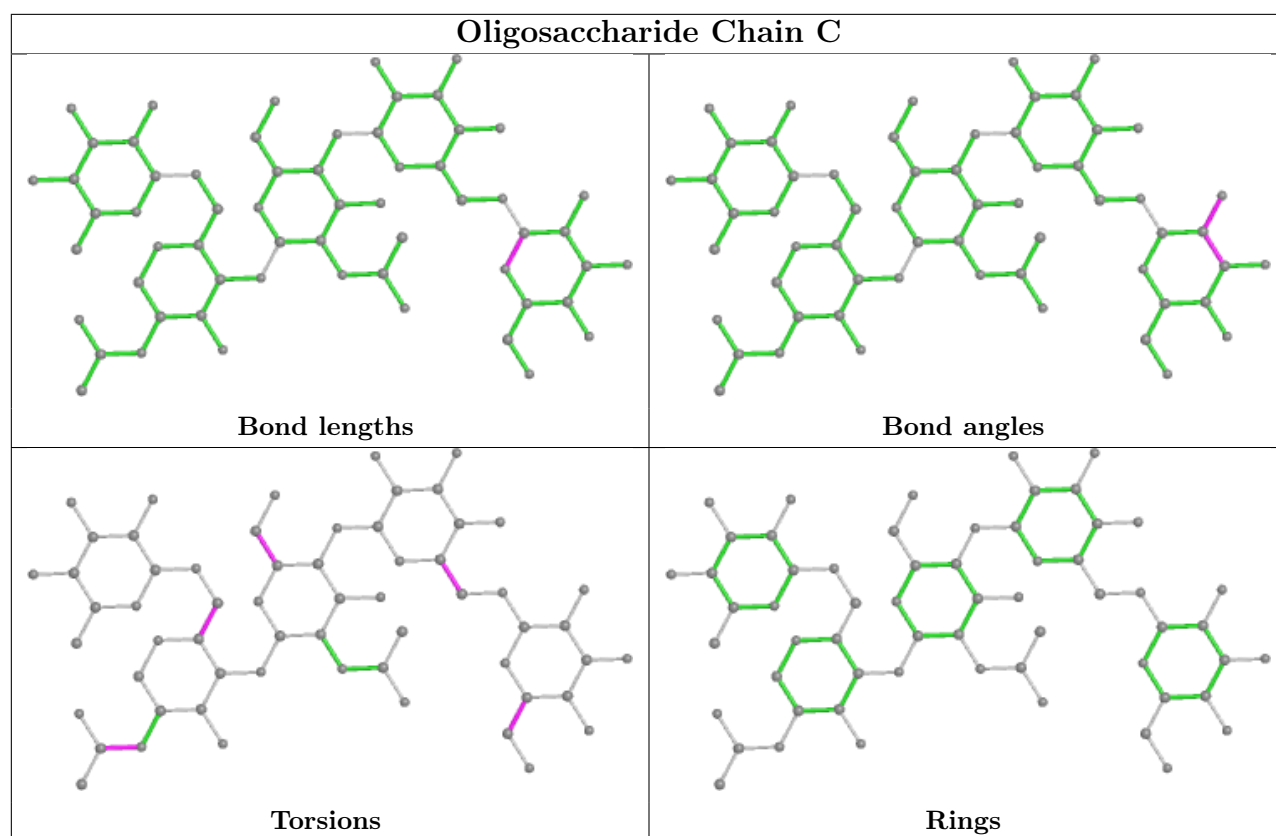
Mol	Chain	Res	Type	Atoms
3	E	2	NAG	O5-C5-C6-O6
3	E	2	NAG	C4-C5-C6-O6
2	C	1	NAG	O5-C5-C6-O6
2	C	2	NAG	O5-C5-C6-O6
2	C	3	BMA	C4-C5-C6-O6

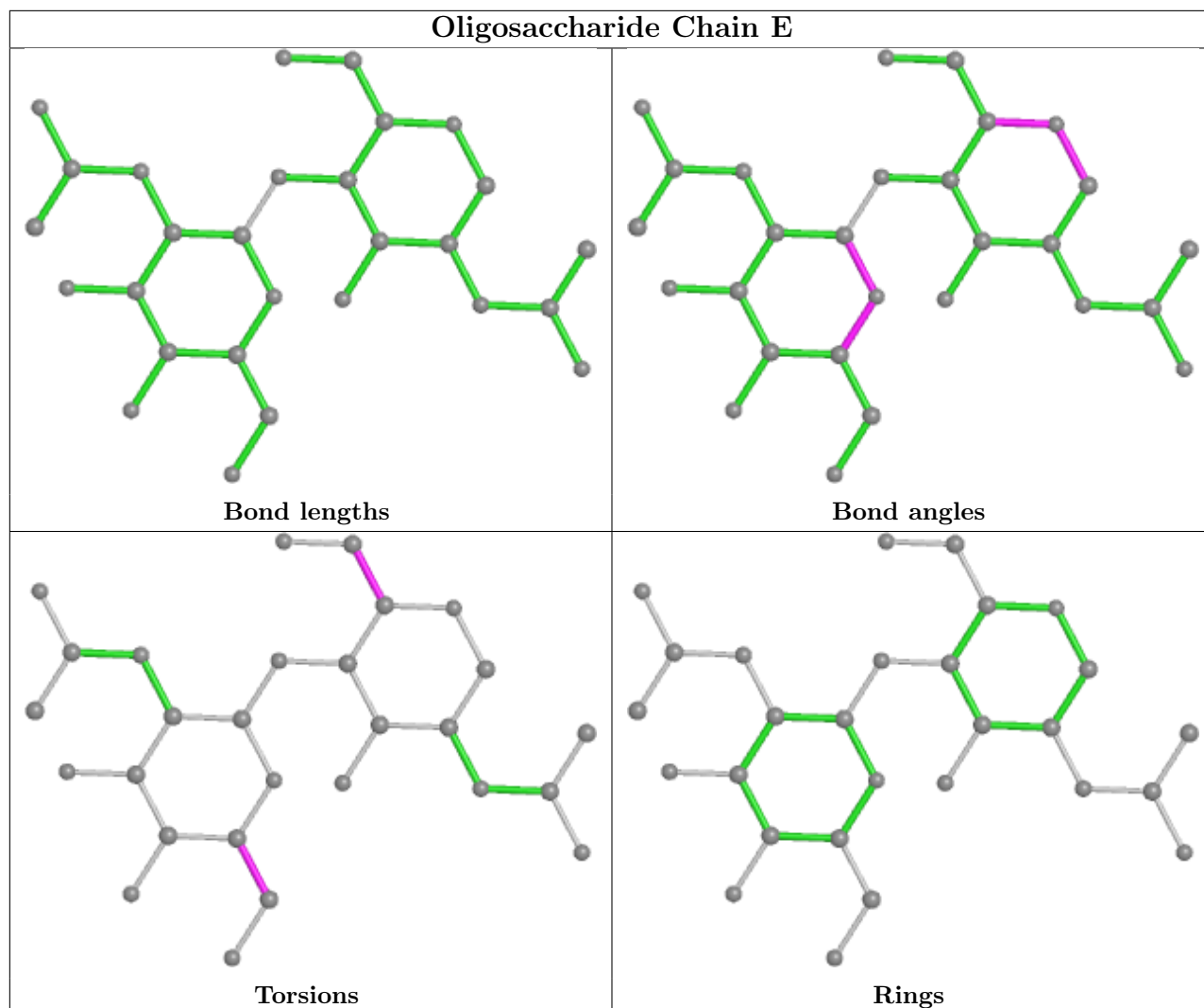
There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	D	1	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 21 ligands modelled in this entry, 18 are monoatomic - leaving 3 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	MAN	A	511	1	11,11,12	0.69	0	15,15,17	1.15	2 (13%)
4	MAN	B	504	1	11,11,12	0.72	0	15,15,17	1.08	2 (13%)
4	MAN	B	503	1	11,11,12	0.65	0	15,15,17	1.21	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
4	MAN	A	511	1	-	0/2/19/22	0/1/1/1
4	MAN	B	504	1	-	0/2/19/22	0/1/1/1
4	MAN	B	503	1	-	0/2/19/22	0/1/1/1

There are no bond length outliers.

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	B	503	MAN	C1-O5-C5	3.28	116.64	112.19
4	A	511	MAN	C1-O5-C5	3.06	116.34	112.19
4	B	504	MAN	C1-O5-C5	2.74	115.90	112.19
4	A	511	MAN	O2-C2-C3	-2.17	105.79	110.14
4	B	504	MAN	O2-C2-C3	-2.12	105.89	110.14

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [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	414/425 (97%)	0.35	25 (6%) 21 17	38, 61, 88, 106	0
1	B	411/425 (96%)	0.43	30 (7%) 15 11	39, 63, 115, 134	0
All	All	825/850 (97%)	0.39	55 (6%) 17 13	38, 63, 99, 134	0

The worst 5 of 55 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	126	LEU	5.3
1	B	375	ALA	4.9
1	B	363	LEU	4.7
1	B	111	LEU	3.6
1	A	272	ILE	3.5

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, 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.

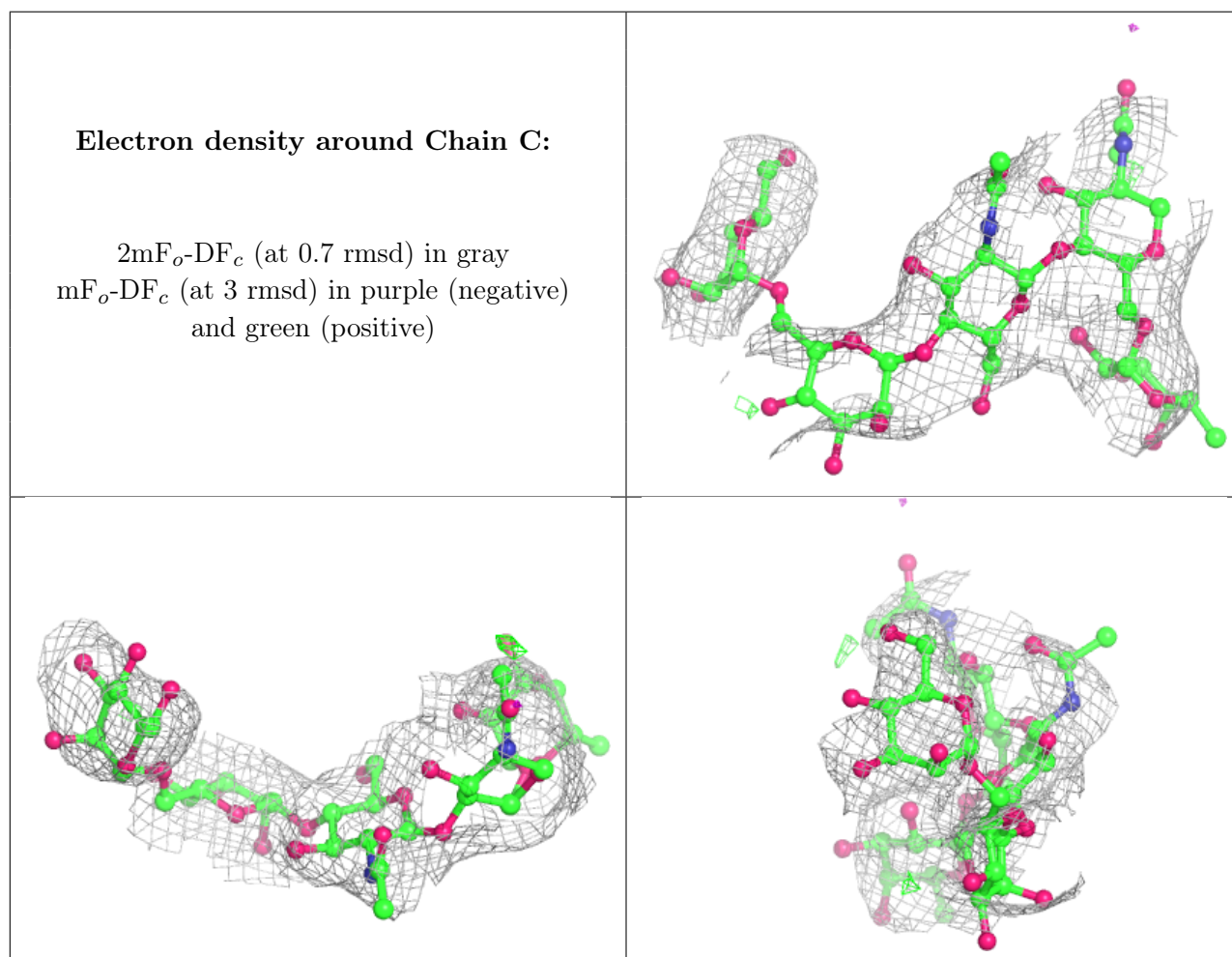
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
2	BMA	C	3	11/12	0.55	0.23	135,147,152,152	0
2	MAN	D	4	11/12	0.61	0.42	90,129,145,145	0
2	BMA	D	3	11/12	0.62	0.24	101,114,137,138	0
2	MAN	C	4	11/12	0.69	0.21	116,134,144,146	0
2	FUC	C	5	10/11	0.77	0.27	109,119,122,124	0

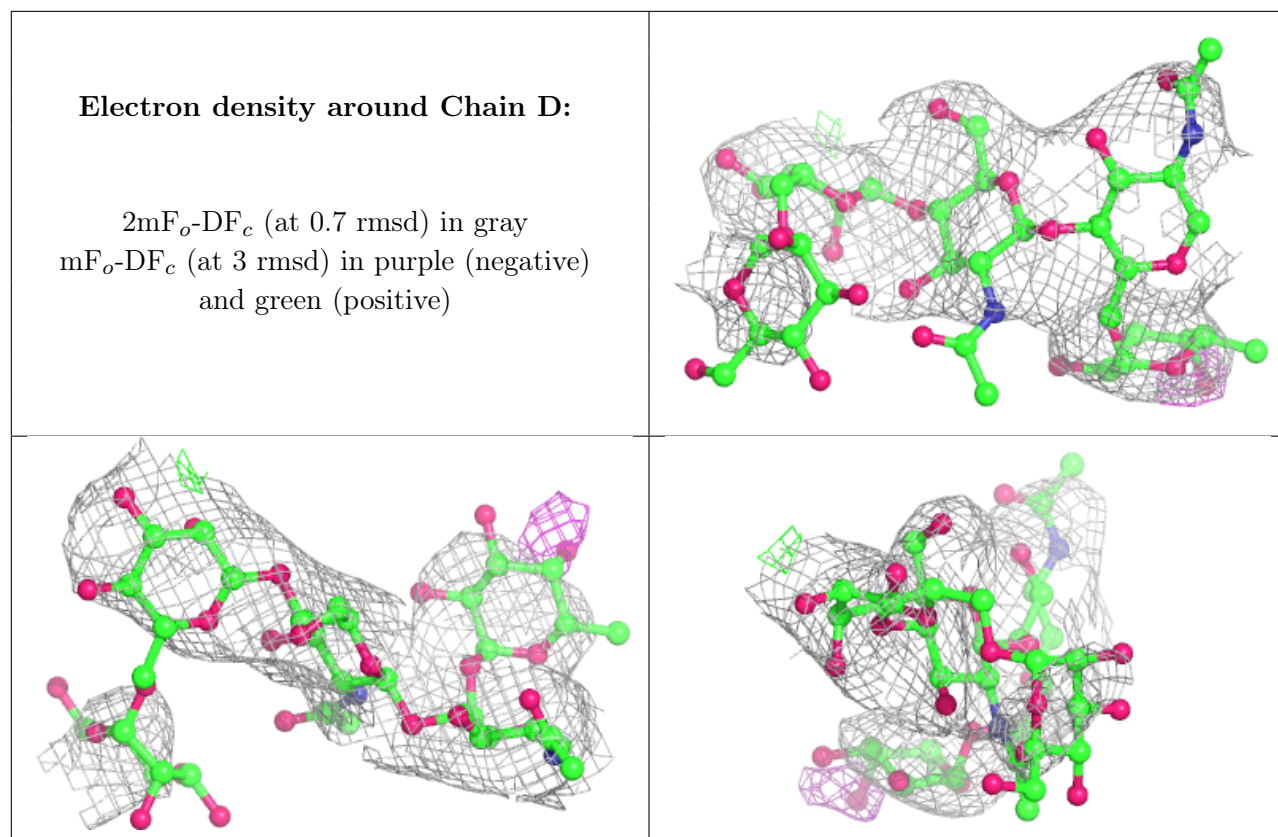
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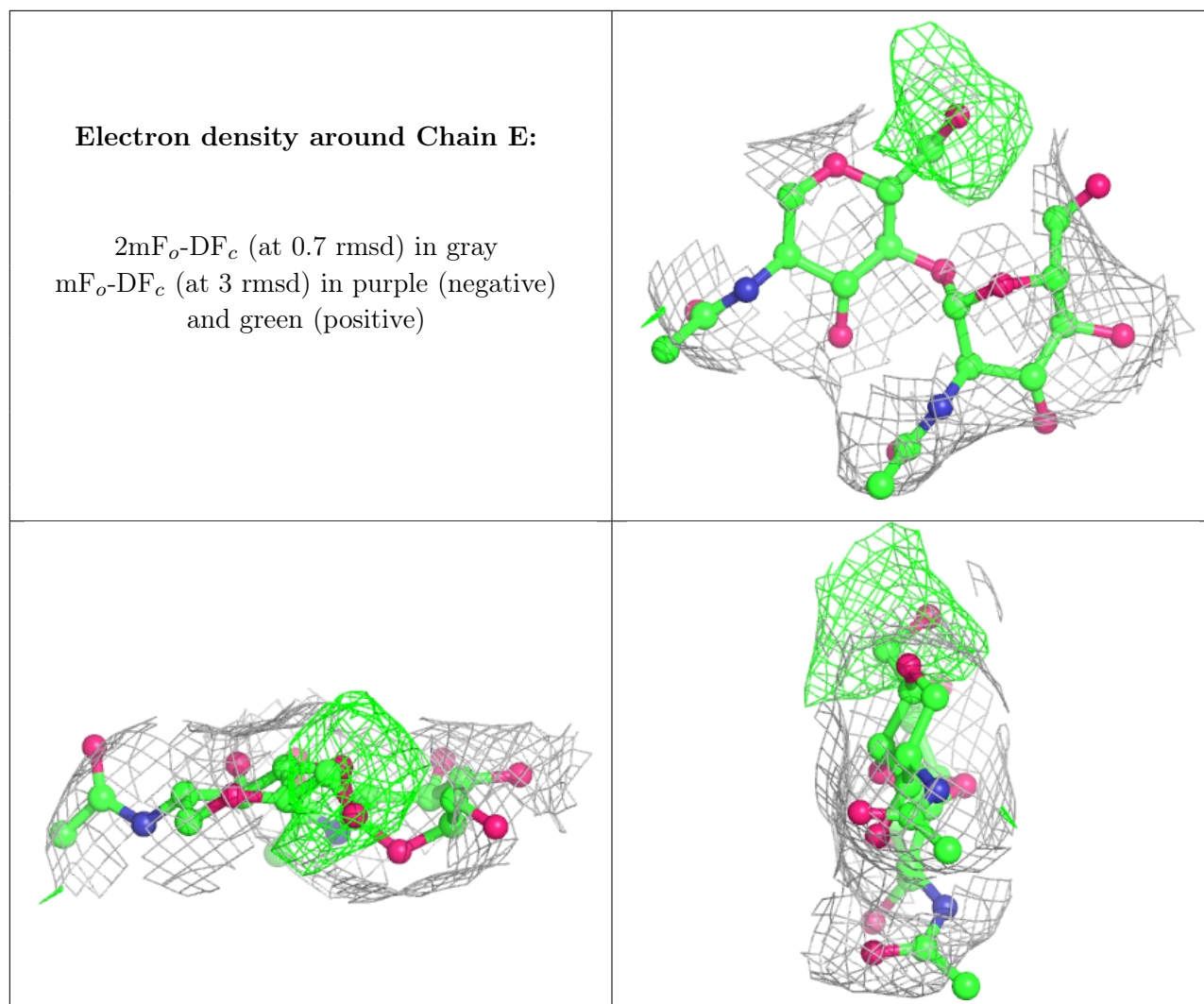
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
3	NAG	E	1	14/15	0.77	0.16	89,106,112,114	0
2	NAG	D	2	14/15	0.78	0.27	103,116,125,131	0
2	FUC	D	5	10/11	0.85	0.37	74,95,100,105	0
3	NAG	E	2	14/15	0.87	0.17	91,108,116,116	0
2	NAG	C	2	14/15	0.88	0.13	120,137,148,148	0
2	NAG	C	1	14/15	0.92	0.14	81,108,121,137	0
2	NAG	D	1	14/15	0.95	0.16	88,96,112,113	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(Å ²)	Q<0.9
4	MAN	B	504	11/12	0.81	0.24	86,98,111,112	0
5	CA	B	511	1/1	0.82	0.28	63,63,63,63	0
4	MAN	B	503	11/12	0.85	0.33	79,98,109,114	0
4	MAN	A	511	11/12	0.90	0.34	70,89,114,119	0
5	CA	A	518	1/1	0.91	0.27	62,62,62,62	0
5	CA	B	507	1/1	0.94	0.19	57,57,57,57	0
5	CA	A	514	1/1	0.96	0.29	36,36,36,36	0
5	CA	B	506	1/1	0.98	0.25	37,37,37,37	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
5	CA	A	517	1/1	0.98	0.20	52,52,52,52	0
5	CA	B	508	1/1	0.98	0.19	56,56,56,56	0
5	CA	B	509	1/1	0.98	0.21	38,38,38,38	0
5	CA	A	516	1/1	0.98	0.23	39,39,39,39	0
5	CA	B	512	1/1	0.98	0.25	22,22,22,22	0
5	CA	A	513	1/1	0.99	0.27	39,39,39,39	0
5	CA	A	512	1/1	0.99	0.24	63,63,63,63	0
5	CA	A	515	1/1	0.99	0.18	47,47,47,47	0
5	CA	A	519	1/1	0.99	0.20	27,27,27,27	0
5	CA	B	510	1/1	0.99	0.18	55,55,55,55	0
5	CA	A	520	1/1	0.99	0.27	41,41,41,41	0
5	CA	B	505	1/1	0.99	0.22	53,53,53,53	0
5	CA	B	513	1/1	0.99	0.25	27,27,27,27	0

6.5 Other polymers [i](#)

There are no such residues in this entry.