wwPDB X-ray Structure Validation Summary Report ⓘ

Aug 10, 2020 – 09:47 AM BST

PDB ID	:	5DZV
Title	:	Protocadherin alpha 7 extracellular cadherin domains 1-5
Authors	:	Goodman, K.M.; Bahna, F.; Honig, B.; Shapiro, L.
Deposited on	:	2015-09-26
Resolution	:	3.60 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*
A user guide is available at
https://www.wwpdb.org/validation/2017/XrayValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

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

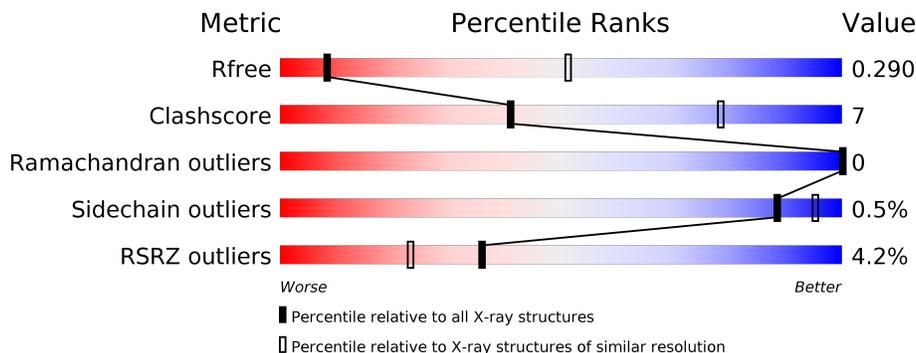|		
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.13.1
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.13.1

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 3.60 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	Percentile Ranks	Value
Rfree		0.290
Clashscore		7
Ramachandran outliers		0
Sidechain outliers		0.5%
RSRZ outliers		4.2%

Worse   *Better*

■ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1257 (3.70-3.50)
Clashscore	141614	1353 (3.70-3.50)
Ramachandran outliers	138981	1307 (3.70-3.50)
Sidechain outliers	138945	1307 (3.70-3.50)
RSRZ outliers	127900	1161 (3.70-3.50)

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 on 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 <=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	539	6% — 81% green, 16% yellow, · grey
1	B	539	2% — 77% green, 19% yellow, · grey
2	C	2	50% green, 50% yellow
2	D	2	50% green, 50% yellow
3	E	6	50% green, 50% yellow
4	F	3	67% yellow, 33% orange

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
4	BMA	F	3	-	-	-	X
5	CA	B	606	-	-	-	X

2   Entry composition (i)

There are 8 unique types of molecules in this entry. The entry contains 7876 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 Protein Pcdha7.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	521	Total 3735	C 2324	N 635	O 769	S 7	0	1	0
1	B	522	Total 3867	C 2435	N 648	O 776	S 8	0	1	0

There are 16 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	532	HIS	-	expression tag	UNP Q91Y13
A	533	HIS	-	expression tag	UNP Q91Y13
A	534	HIS	-	expression tag	UNP Q91Y13
A	535	HIS	-	expression tag	UNP Q91Y13
A	536	HIS	-	expression tag	UNP Q91Y13
A	537	HIS	-	expression tag	UNP Q91Y13
A	538	HIS	-	expression tag	UNP Q91Y13
A	539	HIS	-	expression tag	UNP Q91Y13
B	532	HIS	-	expression tag	UNP Q91Y13
B	533	HIS	-	expression tag	UNP Q91Y13
B	534	HIS	-	expression tag	UNP Q91Y13
B	535	HIS	-	expression tag	UNP Q91Y13
B	536	HIS	-	expression tag	UNP Q91Y13
B	537	HIS	-	expression tag	UNP Q91Y13
B	538	HIS	-	expression tag	UNP Q91Y13
B	539	HIS	-	expression tag	UNP Q91Y13

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

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
2	C	2	Total 24	C 14	N 1	O 9	0	0	0
2	D	2	Total 24	C 14	N 1	O 9	0	0	0

- Molecule 3 is an oligosaccharide called alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyran ose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[al pha-L-fucopyranose-(1-6)]2-acetamido-2-deoxy-beta-D-glucopyranose.
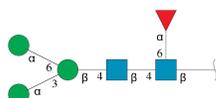
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
3	E	6	Total 71	C 40	N 2	O 29	0	0	0

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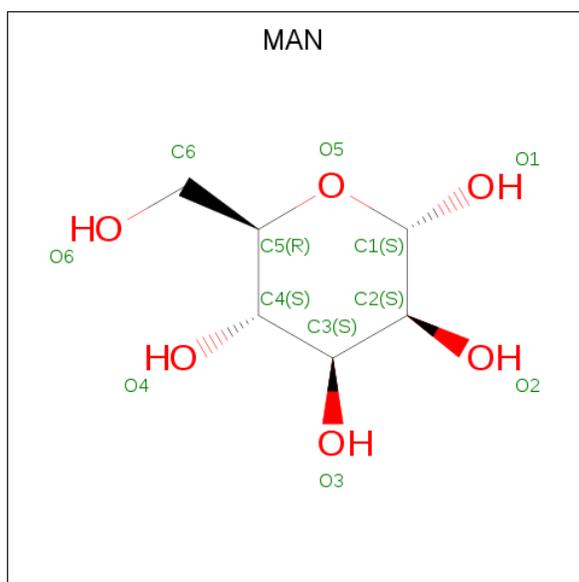

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
4	F	3	Total 39	C 22	N 2	O 15	0	0	0

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

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	B	12	Total 12	Ca 12	0	0
5	A	12	Total 12	Ca 12	0	0

- Molecule 6 is alpha-D-mannopyranose (three-letter code: MAN) (formula: $C_6H_{12}O_6$).

MAN

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

- Molecule 7 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: $C_8H_{15}NO_6$).

NAG

O6
OH

O1
HO
O5
O

C6

C1(R)
C5(R)

C2(R)
C4(S)
C3(R)

OH
O4

N2
HN

OH

C7

OH
O3

C8
O
O7
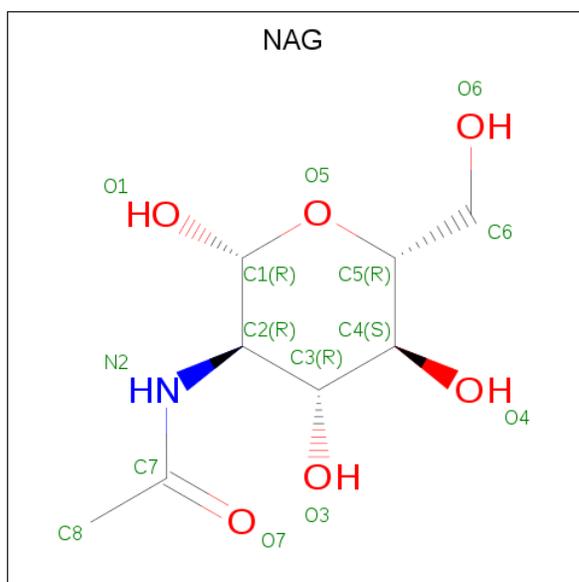
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
7	B	1	14	8	1	5	0	0

- Molecule 8 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	O		
8	A	8	8	8	0	0
			Total	O		
8	B	4	4	4	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: Protein Pcdha7

• Molecule 1: Protein Pcdha7

• Molecule 2: alpha-L-fucopyranose-(1-6)-2-acetamido-2-deoxy-beta-D-glucopyranose

NAG1 FUC2

● Molecule 2: alpha-L-fucopyranose-(1-6)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain D:

50%   50%

NAG1 FUC2

● Molecule 3: alpha-D-mannopyranose-(1-3)-[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 E:

50%   50%

NAG1 NAG2 BMA3 MAN4 MAN5 FUC6

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

Chain F:

67%   33%

NAG1 NAG2 BMA3

4   Data and refinement statistics (i)

Property	Value	Source
Space group	I 2 2 2	Depositor
Cell constants a, b, c, α, β, γ	60.44Å 106.45Å 558.83Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	43.31 – 3.60 43.31 – 3.50	Depositor EDS
% Data completeness (in resolution range)	97.1 (43.31-3.60) 95.7 (43.31-3.50)	Depositor EDS
R_{merge}	0.19	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.15 (at 3.48Å)	Xtriage
Refinement program	PHENIX 1.9_1692	Depositor
R, R_{free}	0.254 , 0.290 0.255 , 0.290	Depositor DCC
R_{free} test set	1184 reflections (5.25%)	wwPDB-VP
Wilson B-factor (Å^2)	92.4	Xtriage
Anisotropy	0.214	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.19 , 51.8	EDS
L-test for twinning[2]	$< \lvert L \rvert > = 0.38, < L^2 > = 0.21$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.89	EDS
Total number of atoms	7876	wwPDB-VP
Average B, all atoms (Å^2)	159.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.57% of the height of the origin peak. No significant pseudotranslation is detected.*

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[1]Intensities estimated from amplitudes.

[2]Theoretical values of $< \lvert L \rvert >$, $< L^2 >$ 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: MAN, CA, BMA, NAG, 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	0.20	0/3800	0.40	0/5207
1	B	0.21	0/3942	0.41	0/5391
All	All	0.21	0/7742	0.40	0/10598

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	3735	0	3420	47	0
1	B	3867	0	3676	60	0
2	C	24	0	22	0	0
2	D	24	0	22	0	0
3	E	71	0	61	0	0
4	F	39	0	34	1	0
5	A	12	0	0	0	0
5	B	12	0	0	0	0
6	A	22	0	20	1	0
6	B	44	0	40	1	0
7	B	14	0	13	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
8	A	8	0	0	2	0
8	B	4	0	0	0	0
All	All	7876	0	7308	107	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 107 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:519:ASN:H	1:B:519:ASN:HD22	1.33	0.75
1:B:263:LYS:HD3	1:B:279:ILE:HG22	1.71	0.71
1:A:332:GLU:OE2	8:A:701:HOH:O	2.09	0.70
1:B:236:ASN:OD1	4:F:1:NAG:N2	2.27	0.68
1:B:380:LEU:HD11	1:B:384:LEU:HD11	1.77	0.66

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	518/539 (96%)	490 (95%)	28 (5%)	0	100	100
1	B	517/539 (96%)	488 (94%)	29 (6%)	0	100	100
All	All	1035/1078 (96%)	978 (94%)	57 (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	383/473 (81%)	382 (100%)	1 (0%)	92	97
1	B	418/473 (88%)	415 (99%)	3 (1%)	84	93
All	All	801/946 (85%)	797 (100%)	4 (0%)	88	95

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

Mol	Chain	Res	Type
1	A	147	GLU
1	B	478	TYR
1	B	513	VAL
1	B	519	ASN

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

Mol	Chain	Res	Type
1	A	315	ASN
1	B	422	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

13 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	0.47	0	17,19,21	0.41	0
2	FUC	C	2	2	10,10,11	0.58	0	14,14,16	1.03	1 (7%)
2	NAG	D	1	1,2	14,14,15	0.27	0	17,19,21	0.36	0
2	FUC	D	2	2	10,10,11	1.22	1 (10%)	14,14,16	1.03	1 (7%)
3	NAG	E	1	1,3	14,14,15	0.18	0	17,19,21	0.48	0
3	NAG	E	2	3	14,14,15	0.22	0	17,19,21	0.50	0
3	BMA	E	3	3	11,11,12	0.82	0	15,15,17	0.97	0
3	MAN	E	4	3	11,11,12	0.73	0	15,15,17	1.01	2 (13%)
3	MAN	E	5	3	11,11,12	1.04	1 (9%)	15,15,17	2.11	5 (33%)
3	FUC	E	6	3	10,10,11	0.65	0	14,14,16	0.99	1 (7%)
4	NAG	F	1	1,4	14,14,15	0.60	1 (7%)	17,19,21	0.62	0
4	NAG	F	2	4	14,14,15	0.39	0	17,19,21	0.66	1 (5%)
4	BMA	F	3	4	11,11,12	0.54	0	15,15,17	0.85	1 (6%)

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

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

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	2	FUC	O5-C1	-3.14	1.38	1.43
4	F	1	NAG	O5-C1	-2.13	1.40	1.43
3	E	5	MAN	C1-C2	2.09	1.57	1.52

The worst 5 of 12 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	E	5	MAN	C1-O5-C5	4.73	118.61	112.19
3	E	5	MAN	C1-C2-C3	3.62	114.12	109.67
3	E	5	MAN	O5-C1-C2	3.30	115.86	110.77
3	E	5	MAN	O2-C2-C3	-3.15	103.83	110.14
4	F	2	NAG	C1-O5-C5	2.38	115.42	112.19

There are no chirality outliers.

5 of 16 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	E	1	NAG	O5-C5-C6-O6
3	E	2	NAG	O5-C5-C6-O6
3	E	1	NAG	C4-C5-C6-O6
3	E	3	BMA	C4-C5-C6-O6
2	D	1	NAG	C8-C7-N2-C2

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	F	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.

Oligosaccharide Chain C

Bond lengths

Bond angles

Torsions

Rings

Oligosaccharide Chain D

Bond lengths

Bond angles

Torsions

Rings

Oligosaccharide Chain E

Bond lengths

Bond angles

Torsions

Rings

Oligosaccharide Chain F

Bond lengths

Bond angles

Torsions

Rings
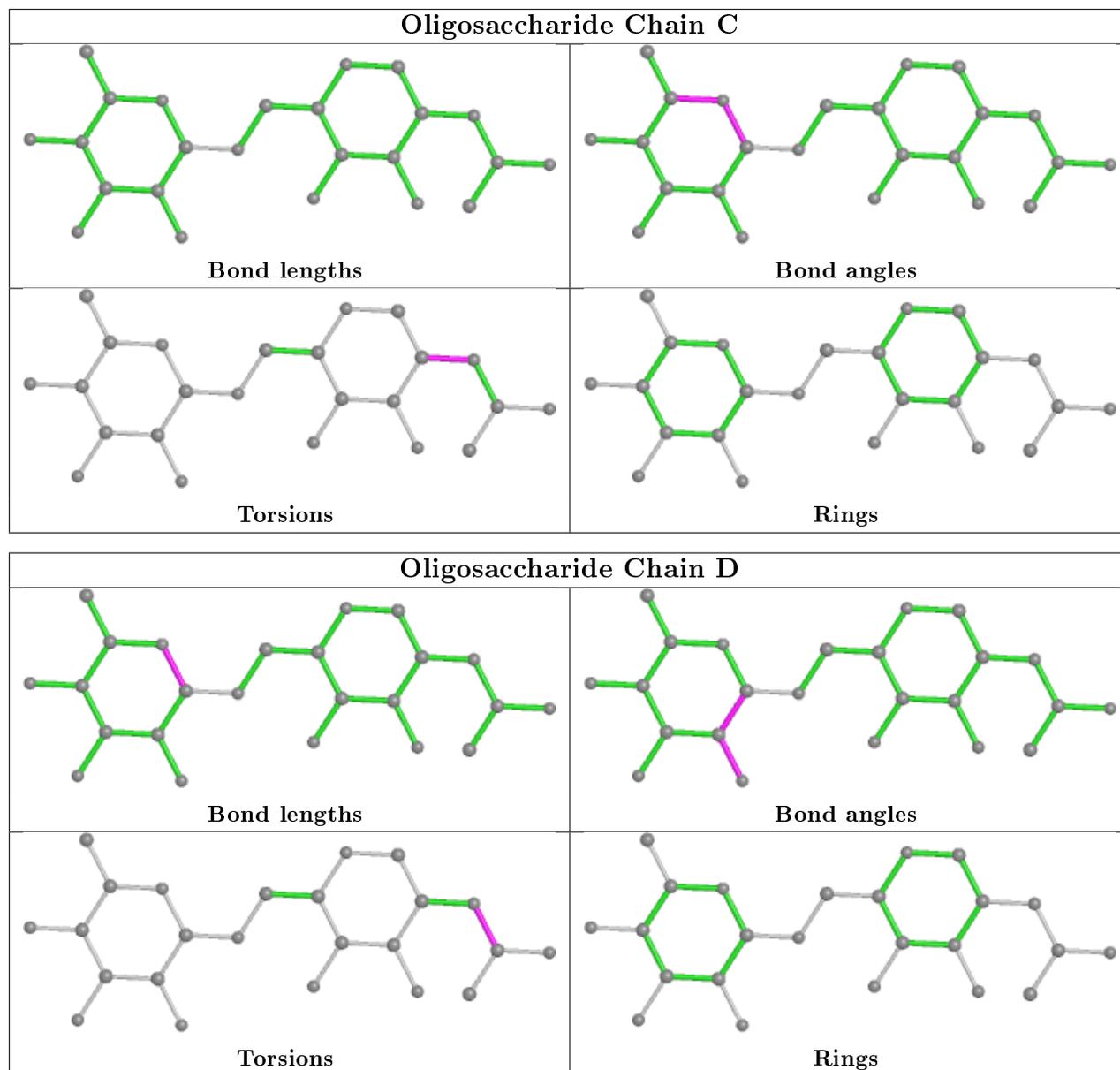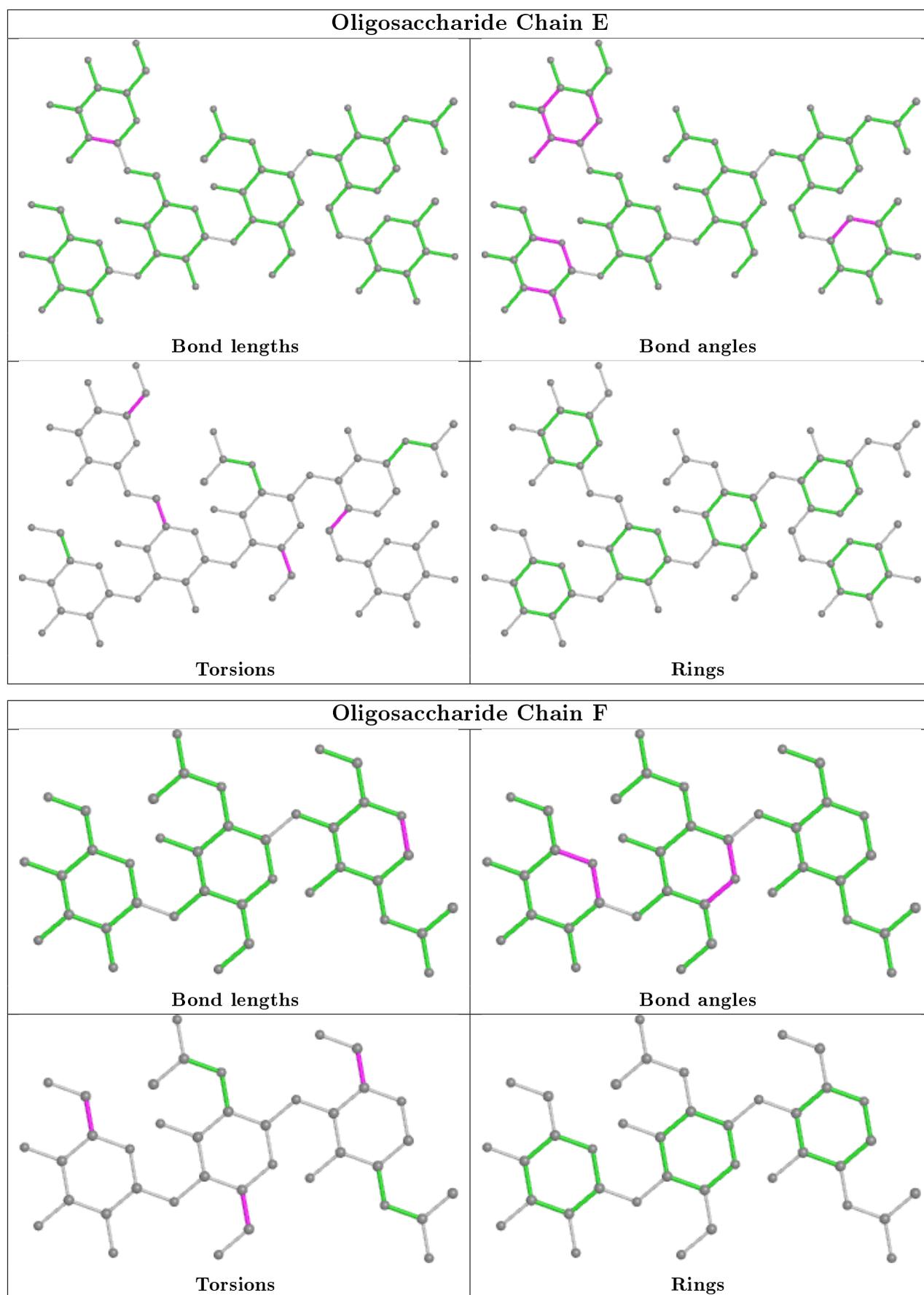
5.6 Ligand geometry (i)

Of 31 ligands modelled in this entry, 24 are monoatomic - leaving 7 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	#$|Z| > 2$
6	MAN	B	613	1	11,11,12	0.62	0	15,15,17	1.30	3 (20%)
6	MAN	B	625	1	11,11,12	0.82	1 (9%)	15,15,17	0.86	1 (6%)
6	MAN	B	626	1	11,11,12	0.64	0	15,15,17	1.29	3 (20%)
6	MAN	A	613	1	11,11,12	0.92	1 (9%)	15,15,17	0.91	1 (6%)
7	NAG	B	624	1	14,14,15	0.20	0	17,19,21	0.38	0
6	MAN	B	614	1	11,11,12	0.98	0	15,15,17	1.00	0
6	MAN	A	614	1	11,11,12	0.87	1 (9%)	15,15,17	0.89	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
6	MAN	B	613	1	-	0/2/19/22	0/1/1/1
6	MAN	B	625	1	-	1/2/19/22	0/1/1/1
6	MAN	B	626	1	-	0/2/19/22	0/1/1/1
6	MAN	A	613	1	-	0/2/19/22	0/1/1/1
7	NAG	B	624	1	-	2/6/23/26	0/1/1/1
6	MAN	B	614	1	-	1/2/19/22	0/1/1/1
6	MAN	A	614	1	-	0/2/19/22	0/1/1/1

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	A	613	MAN	O5-C1	-2.18	1.40	1.43
6	B	625	MAN	O5-C1	-2.17	1.40	1.43
6	A	614	MAN	O5-C1	-2.16	1.40	1.43

The worst 5 of 8 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
6	B	613	MAN	C1-O5-C5	3.26	116.61	112.19
6	B	626	MAN	C1-O5-C5	2.91	116.13	112.19
6	B	613	MAN	O2-C2-C3	-2.74	104.64	110.14
6	A	613	MAN	O2-C2-C3	-2.26	105.61	110.14
6	B	626	MAN	O5-C1-C2	2.26	114.25	110.77

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
7	B	624	NAG	C4-C5-C6-O6
7	B	624	NAG	O5-C5-C6-O6
6	B	625	MAN	O5-C5-C6-O6
6	B	614	MAN	O5-C5-C6-O6

There are no ring outliers.

2 monomers are involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	B	625	MAN	1	0
6	A	614	MAN	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 (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	521/539 (96%)	-0.04	35 (6%)	17	10	63, 160, 342, 521	0
1	B	522/539 (96%)	-0.37	9 (1%)	70	55	59, 135, 247, 378	0
All	All	1043/1078 (96%)	-0.20	44 (4%)	36	23	59, 144, 309, 521	0

The worst 5 of 44 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	435	VAL	14.7
1	A	434	PHE	11.9
1	A	503	GLN	9.0
1	A	525	PHE	6.0
1	A	504	PHE	6.0

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

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

6.3 Carbohydrates (i)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 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.
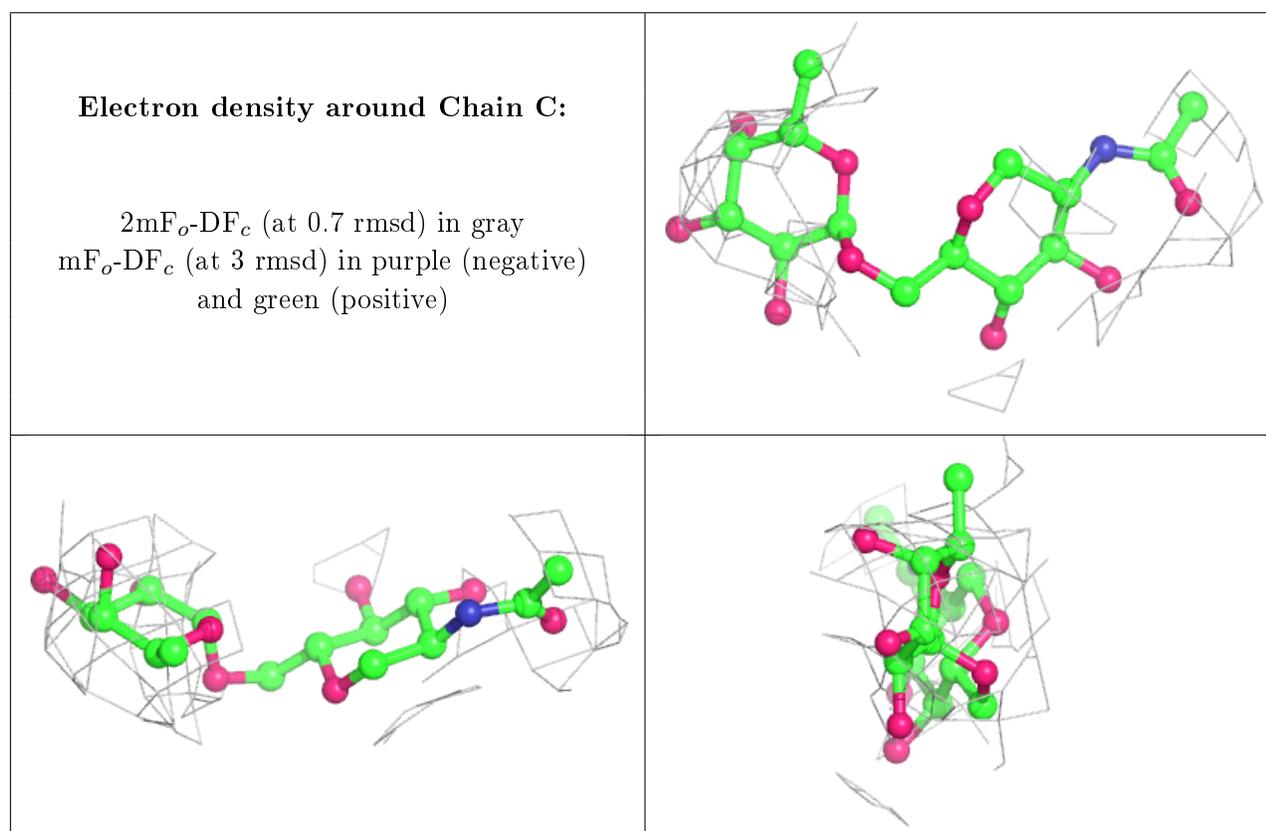
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
4	BMA	F	3	11/12	0.52	0.44	191,207,227,230	0
3	MAN	E	4	11/12	0.76	0.20	172,188,194,195	0
3	FUC	E	6	10/11	0.77	0.37	183,193,204,230	0
2	FUC	C	2	10/11	0.81	0.29	207,221,231,232	0
2	NAG	C	1	14/15	0.82	0.13	143,170,188,209	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	FUC	D	2	10/11	0.82	0.26	211,223,235,236	0
2	NAG	D	1	14/15	0.83	0.16	151,175,208,217	0
3	NAG	E	2	14/15	0.84	0.14	141,171,189,199	0
3	BMA	E	3	11/12	0.85	0.15	149,186,200,200	0
3	NAG	E	1	14/15	0.86	0.16	103,148,175,183	0
4	NAG	F	2	14/15	0.88	0.32	187,212,232,234	0
4	NAG	F	1	14/15	0.89	0.11	162,182,194,205	0
3	MAN	E	5	11/12	0.91	0.14	115,144,190,194	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.


Electron density around Chain C:

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

Electron density around Chain D:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
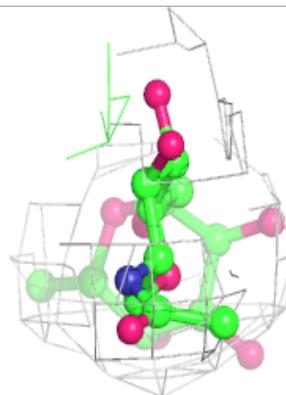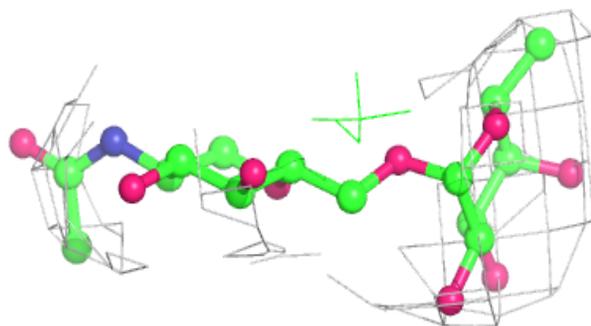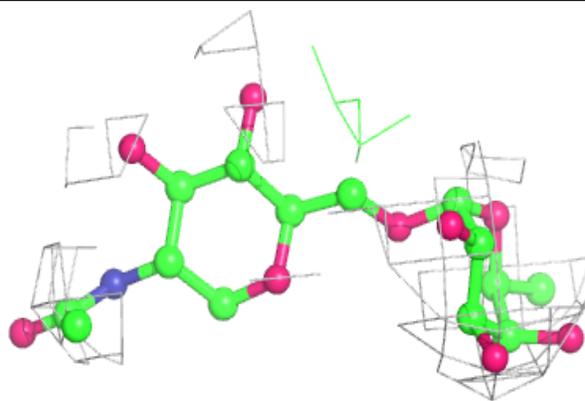
Electron density around Chain E:

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

Electron density around Chain F:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
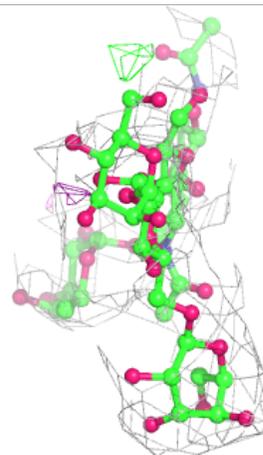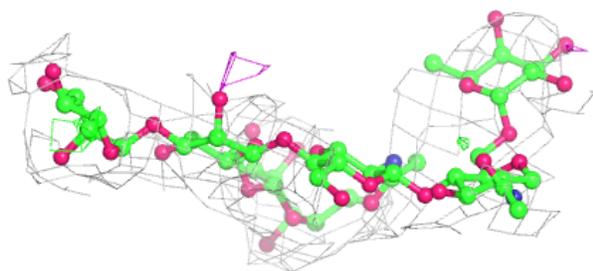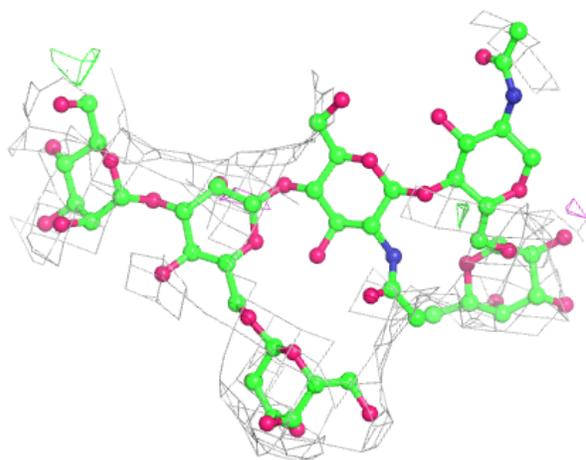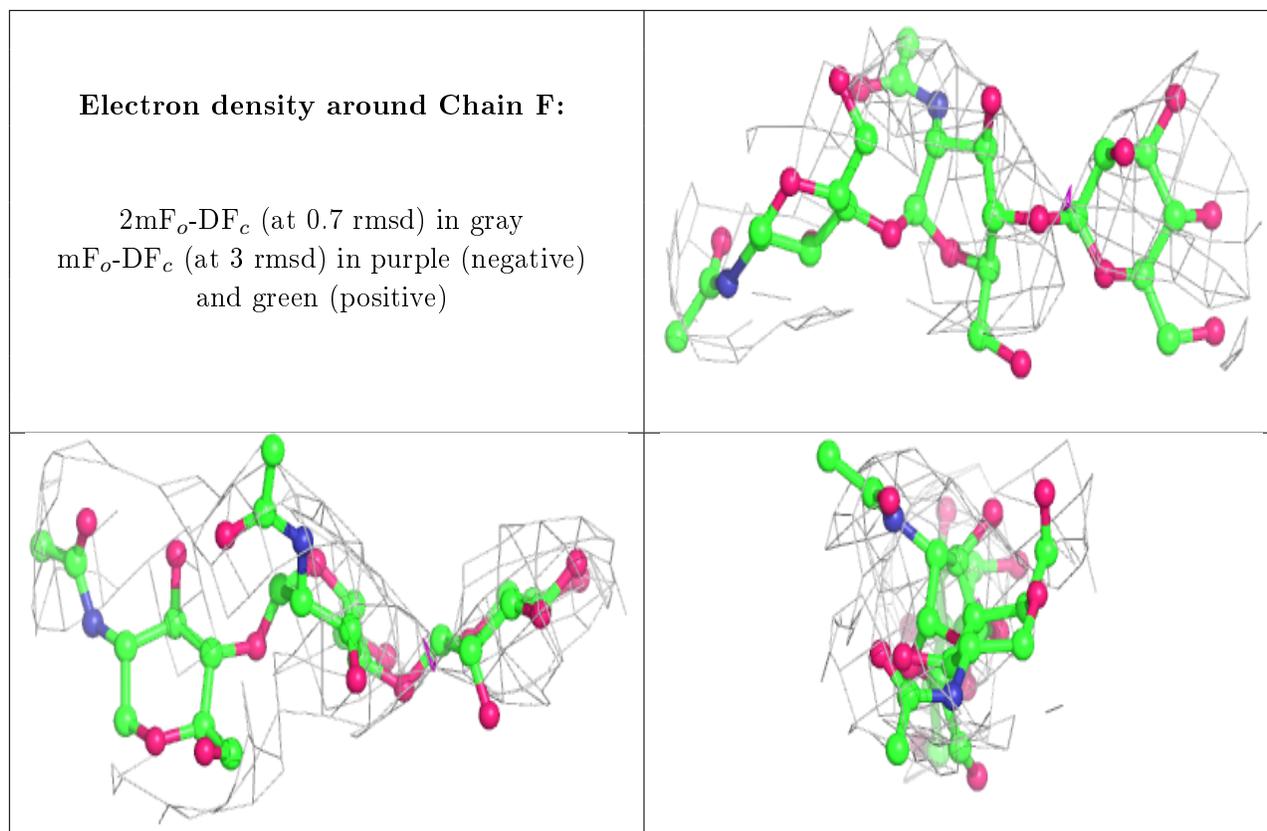
6.4 Ligands (i)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 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
5	CA	B	607	1/1	0.63	0.33	231,231,231,231	0
5	CA	B	606	1/1	0.69	0.46	290,290,290,290	0
5	CA	A	609	1/1	0.76	0.12	193,193,193,193	0
6	MAN	B	614	11/12	0.81	0.17	153,183,200,202	0
6	MAN	B	625	11/12	0.81	0.20	96,135,160,192	0
5	CA	B	604	1/1	0.85	0.22	94,94,94,94	0
7	NAG	B	624	14/15	0.85	0.13	179,211,225,237	0
6	MAN	A	613	11/12	0.86	0.21	133,153,192,208	0
6	MAN	B	626	11/12	0.86	0.18	102,132,175,179	0
5	CA	A	612	1/1	0.87	0.04	184,184,184,184	0
5	CA	A	608	1/1	0.88	0.10	205,205,205,205	0
6	MAN	B	613	11/12	0.89	0.23	115,139,150,154	0
5	CA	B	612	1/1	0.90	0.20	75,75,75,75	0
5	CA	A	610	1/1	0.90	0.08	267,267,267,267	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($Å^2$)	Q<0.9
6	MAN	A	614	11/12	0.92	0.15	76,117,145,162	0
5	CA	A	605	1/1	0.93	0.25	161,161,161,161	0
5	CA	A	611	1/1	0.93	0.06	383,383,383,383	0
5	CA	B	611	1/1	0.93	0.37	264,264,264,264	0
5	CA	A	602	1/1	0.94	0.19	95,95,95,95	0
5	CA	B	605	1/1	0.94	0.16	93,93,93,93	0
5	CA	A	601	1/1	0.95	0.14	56,56,56,56	0
5	CA	A	603	1/1	0.95	0.16	85,85,85,85	0
5	CA	A	607	1/1	0.96	0.13	108,108,108,108	0
5	CA	A	604	1/1	0.96	0.21	73,73,73,73	0
5	CA	A	606	1/1	0.98	0.20	106,106,106,106	0
5	CA	B	608	1/1	0.98	0.14	103,103,103,103	0
5	CA	B	603	1/1	0.98	0.10	156,156,156,156	0
5	CA	B	601	1/1	0.98	0.11	110,110,110,110	0
5	CA	B	609	1/1	0.98	0.11	78,78,78,78	0
5	CA	B	610	1/1	0.99	0.21	71,71,71,71	0
5	CA	B	602	1/1	1.00	0.13	136,136,136,136	0

6.5 Other polymers (i)

There are no such residues in this entry.