Full wwPDB X-ray Structure Validation Report ⓘ

Apr 27, 2021 – 10:44 AM JST

PDB ID	:	7E9K
Title	:	Crystal Structure of POMGNT2 in complex with UDP and mono-mannosyl peptide (379Man long peptide)
Authors	:	Kuwabara, N.
Deposited on	:	2021-03-04
Resolution	:	2.05 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 following versions of software and data (see references ⓘ) were used in the production of this report:

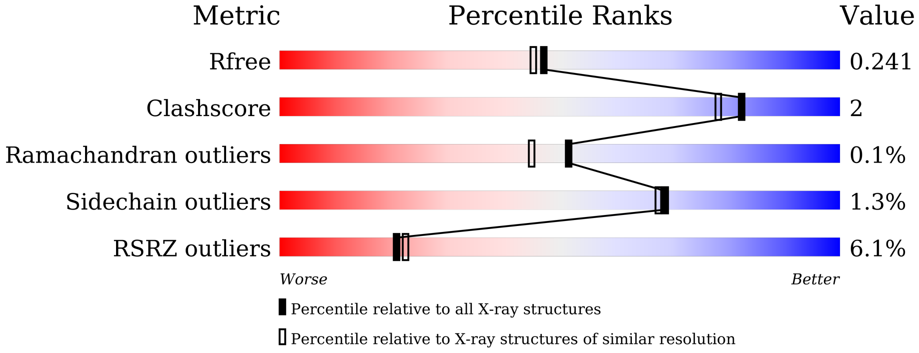
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.18
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.18

1 Overall quality at a glance ⓘ

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

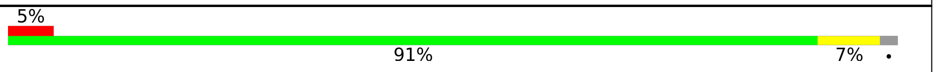
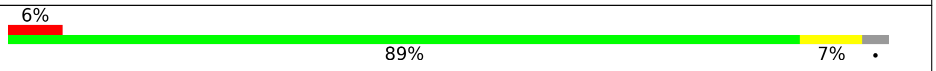
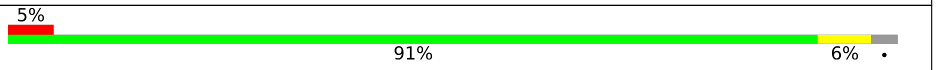
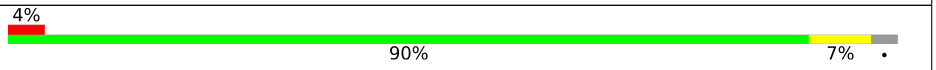
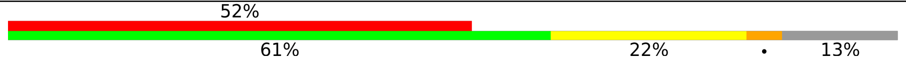
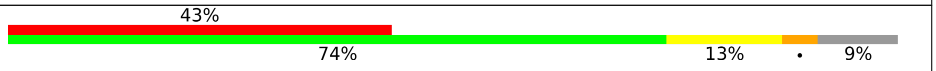
The reported resolution of this entry is 2.05 Å.

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	1692 (2.04-2.04)
Clashscore	141614	1773 (2.04-2.04)
Ramachandran outliers	138981	1752 (2.04-2.04)
Sidechain outliers	138945	1752 (2.04-2.04)
RSRZ outliers	127900	1672 (2.04-2.04)

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 <=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	
1	B	539	
1	D	539	
1	E	539	
2	C	23	
2	F	23	

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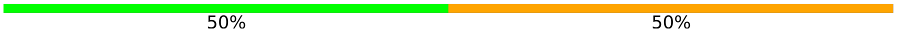
Mol	Chain	Length	Quality of chain
3	G	2	

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

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
3	NAG	G	1	-	-	-	X
3	NAG	G	2	-	-	-	X
4	NAG	A	603	-	-	-	X
4	NAG	B	603	-	-	-	X
4	NAG	E	602	-	-	-	X

2 Entry composition (i)

There are 8 unique types of molecules in this entry. The entry contains 18493 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 O-linked-mannose beta-1,4-N-acetylglucosaminyltransferase 2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	527	Total 4228	C 2741	N 722	O 744	S 21	0	2	0
1	B	521	Total 4170	C 2701	N 713	O 735	S 21	0	0	0
1	D	525	Total 4219	C 2735	N 721	O 742	S 21	0	1	0
1	E	524	Total 4206	C 2728	N 720	O 737	S 21	0	0	0

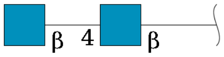
There are 12 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	42	GLY	-	expression tag	UNP Q5NDF2
A	43	ALA	-	expression tag	UNP Q5NDF2
A	44	PRO	-	expression tag	UNP Q5NDF2
B	42	GLY	-	expression tag	UNP Q5NDF2
B	43	ALA	-	expression tag	UNP Q5NDF2
B	44	PRO	-	expression tag	UNP Q5NDF2
D	42	GLY	-	expression tag	UNP Q5NDF2
D	43	ALA	-	expression tag	UNP Q5NDF2
D	44	PRO	-	expression tag	UNP Q5NDF2
E	42	GLY	-	expression tag	UNP Q5NDF2
E	43	ALA	-	expression tag	UNP Q5NDF2
E	44	PRO	-	expression tag	UNP Q5NDF2

- Molecule 2 is a protein called mono-mannosyl peptide (379Man long peptide).

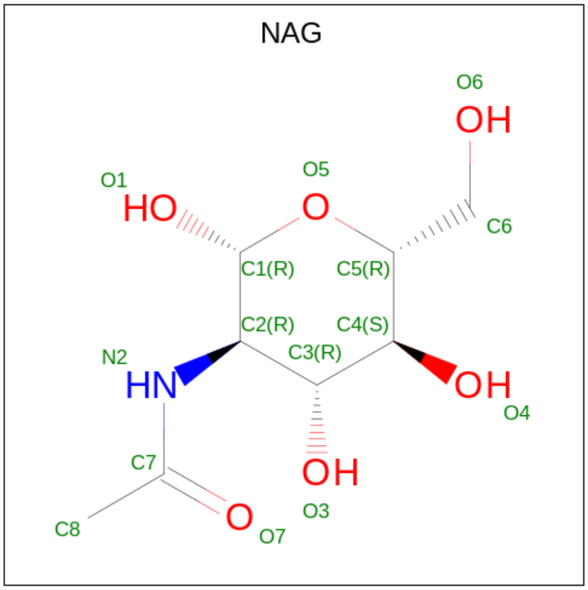
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
2	C	20	Total 195	C 121	N 39	O 35	0	20	1
2	F	21	Total 211	C 133	N 41	O 37	0	21	1

- 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	G	2	28	16	2	10	0	0	0

- Molecule 4 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)
N2
HN
OH
O4
C7
OH
O3
C8
O
O7

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

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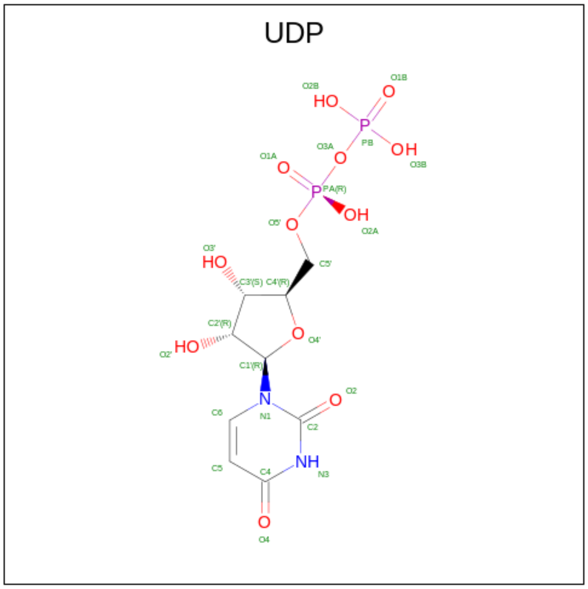
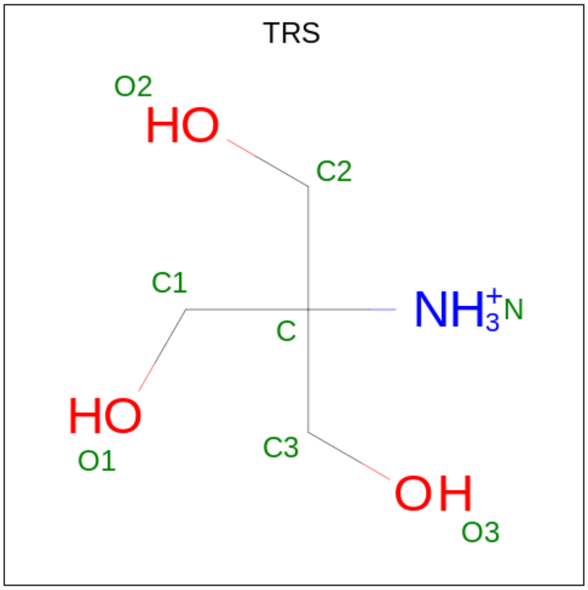
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	D	1	Total C N O 14 8 1 5	0	0
4	D	1	Total C N O 14 8 1 5	0	0
4	E	1	Total C N O 14 8 1 5	0	0
4	E	1	Total C N O 14 8 1 5	0	0
4	E	1	Total C N O 14 8 1 5	0	0

- Molecule 5 is URIDINE-5'-DIPHOSPHATE (three-letter code: UDP) (formula: $C_9H_{14}N_2O_{12}P_2$) (labeled as "Ligand of Interest" by depositor).


UDP
O2B
HO
O1B
O
P
PB
OH
O3B
O3A
O
O1A
O
P
PA(R)
OH
O2A
O5'
O
C5'
O3'
HO
C3'(S)
C4'(R)
C2'(R)
O
O4'
O2'
HO
C1'(R)
N
N1
O
O2
C6
C2
C5
C4
NH
N3
O
O4

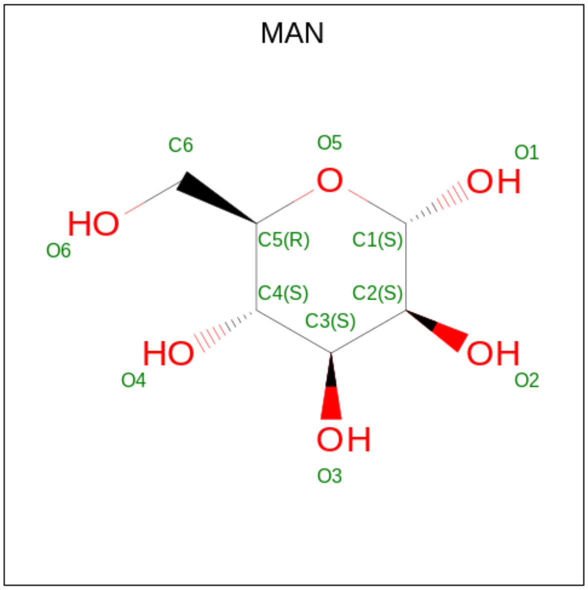
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	1	Total C N O P 25 9 2 12 2	0	0
5	B	1	Total C N O P 25 9 2 12 2	0	0
5	D	1	Total C N O P 25 9 2 12 2	0	0
5	E	1	Total C N O P 25 9 2 12 2	0	0

- Molecule 6 is 2-AMINO-2-HYDROXYMETHYL-PROPANE-1,3-DIOL (three-letter code: TRS) (formula: $C_4H_{12}NO_3$) (labeled as "Ligand of Interest" by depositor).


TRS
O2
HO
C2
C1
C
NH3+
N
HO
O1
C3
OH
O3

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
6	A	1	8	4	1	3	0	0
6	D	1	8	4	1	3	0	0

- Molecule 7 is alpha-D-mannopyranose (three-letter code: MAN) (formula: $C_6H_{12}O_6$) (labeled as "Ligand of Interest" by depositor).


MAN
C6
O5
O1
O
OH
HO
O6
C5(R)
C1(S)
C4(S)
C2(S)
C3(S)
HO
O4
OH
O2
OH
O3

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
			Total	C	O		
7	C	1	22	12	10	0	1

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	F	1	Total C O 22 12 10	0	1

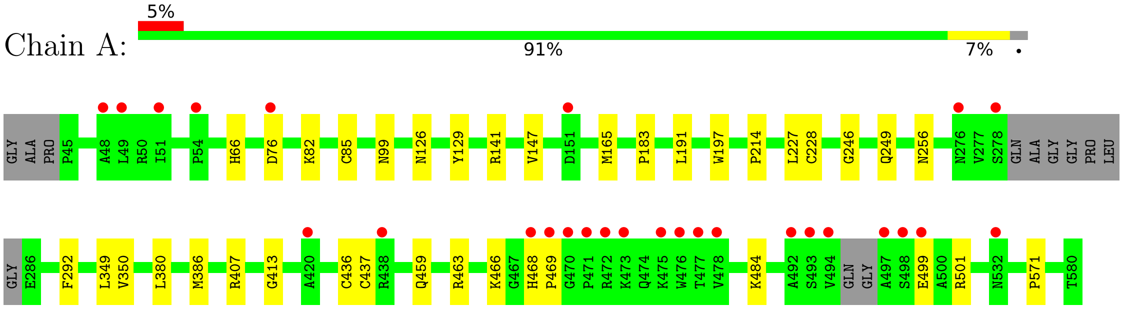
- Molecule 8 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
8	A	222	Total O 222 222	0	0
8	B	199	Total O 199 199	0	0
8	D	227	Total O 227 227	0	0
8	E	258	Total O 258 258	0	0
8	C	1	Total O 1 1	0	0
8	F	1	Total O 1 1	0	0

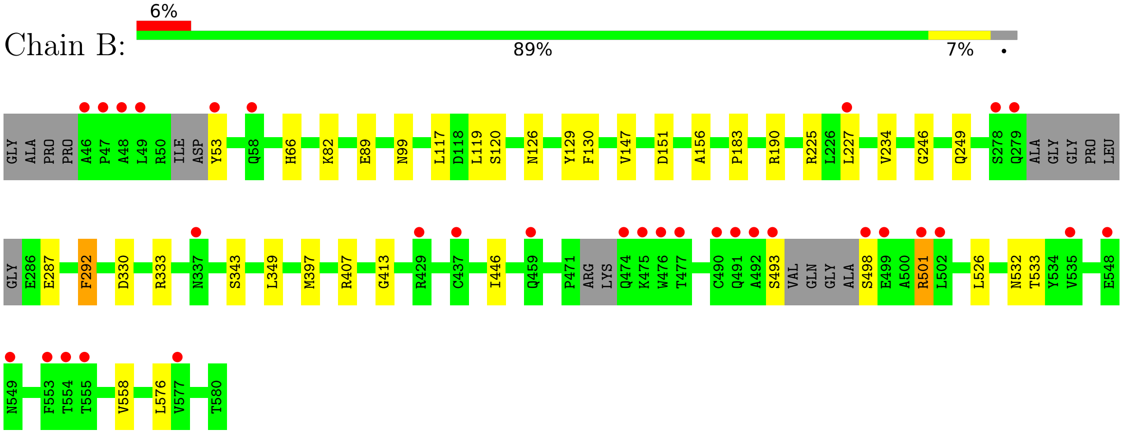
3 Residue-property plots ⓘ

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density (RSRZ > 2). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

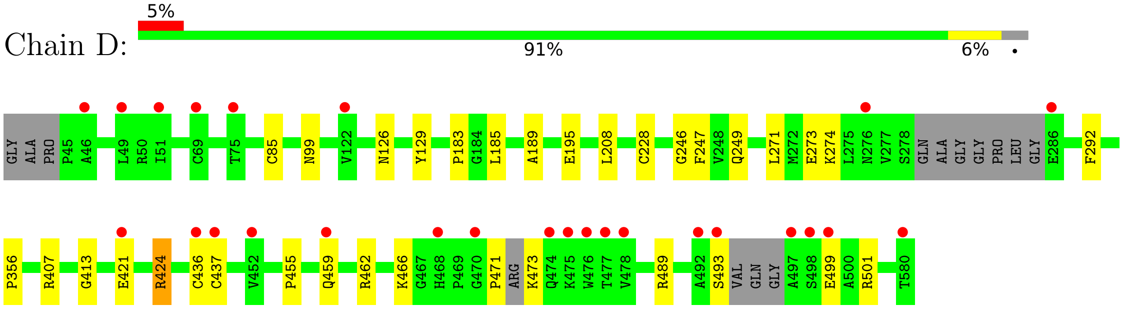
- Molecule 1: Protein O-linked-mannose beta-1,4-N-acetylglucosaminyltransferase 2



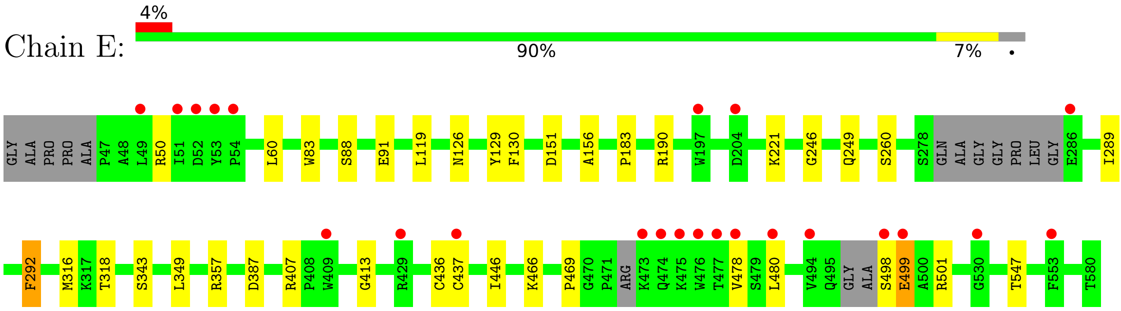
- Molecule 1: Protein O-linked-mannose beta-1,4-N-acetylglucosaminyltransferase 2



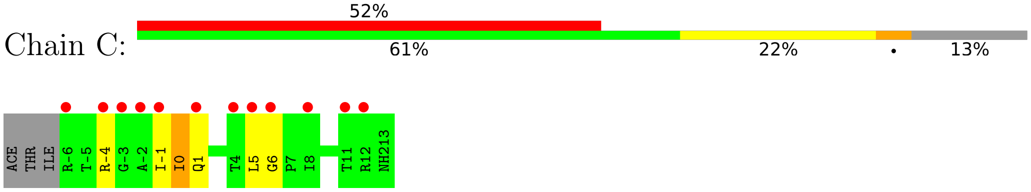
- Molecule 1: Protein O-linked-mannose beta-1,4-N-acetylglucosaminyltransferase 2



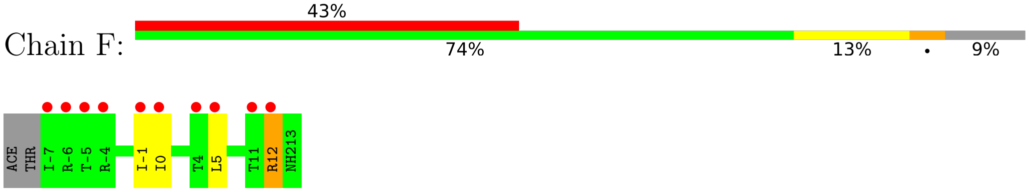
- Molecule 1: Protein O-linked-mannose beta-1,4-N-acetylglucosaminyltransferase 2



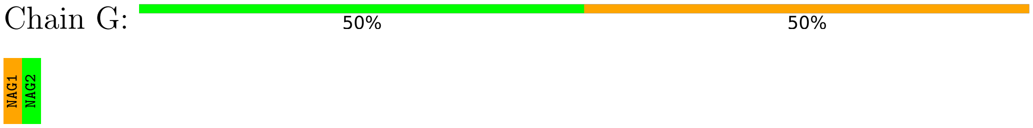
- Molecule 2: mono-mannosyl peptide (379Man long peptide)



- Molecule 2: mono-mannosyl peptide (379Man long peptide)



- Molecule 3: 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	86.15Å 104.40Å 148.64Å 90.00° 90.10° 90.00°	Depositor
Resolution (Å)	49.55 – 2.05 49.55 – 2.05	Depositor EDS
% Data completeness (in resolution range)	98.8 (49.55-2.05) 98.8 (49.55-2.05)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.88 (at 2.05Å)	Xtriage
Refinement program	PHENIX 1.17.1_3660	Depositor
R, R_{free}	0.202 , 0.241 0.202 , 0.241	Depositor DCC
R_{free} test set	7922 reflections (4.87%)	wwPDB-VP
Wilson B-factor (Å^2)	33.3	Xtriage
Anisotropy	0.626	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.34 , 43.5	EDS
L-test for twinning[2]	$< \|L\| > = 0.51$, $< L^2 > = 0.34$	Xtriage
Estimated twinning fraction	0.015 for h,-k,-l	Xtriage
F_o,F_c correlation	0.96	EDS
Total number of atoms	18493	wwPDB-VP
Average B, all atoms (Å^2)	40.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 49.10 % 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 7.8240e-05. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

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[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ 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: NAG, NH2, MAN, UDP, TRS

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\#\|Z\| > 5$	RMSZ	$\#\|Z\| > 5$
1	A	0.26	0/4354	0.43	0/5935
1	B	0.25	0/4286	0.42	0/5840
1	D	0.25	0/4341	0.43	0/5913
1	E	0.25	0/4324	0.43	0/5889
2	C	0.24	0/197	0.55	0/269
2	F	0.23	0/213	0.47	0/291
All	All	0.25	0/17715	0.43	0/24137

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	4228	0	4150	19	0
1	B	4170	0	4081	25	0
1	D	4219	0	4149	18	0
1	E	4206	0	4137	22	0
2	C	195	0	208	5	0
2	F	211	0	230	3	0
3	G	28	0	25	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	A	42	0	39	1	0
4	B	56	0	52	1	0
4	D	28	0	26	0	0
4	E	42	0	39	0	0
5	A	25	0	11	0	0
5	B	25	0	11	0	0
5	D	25	0	11	0	0
5	E	25	0	11	0	0
6	A	8	0	12	0	0
6	D	8	0	12	0	0
7	C	22	0	20	0	0
7	F	22	0	20	0	0
8	A	222	0	0	1	0
8	B	199	0	0	1	0
8	C	1	0	0	0	0
8	D	227	0	0	0	0
8	E	258	0	0	0	0
8	F	1	0	0	0	0
All	All	18493	0	17244	86	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 2.

All (86) 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:E:119:LEU:HG	1:E:130:PHE:HB2	1.65	0.78
1:B:119:LEU:HG	1:B:130:PHE:HB2	1.68	0.73
1:E:91:GLU:OE2	1:E:221:LYS:NZ	2.23	0.71
1:B:330:ASP:OD1	1:B:333:ARG:NH1	2.31	0.64
1:B:147:VAL:HG13	1:B:227:LEU:HD12	1.82	0.61
1:A:141:ARG:NH1	8:A:702:HOH:O	2.33	0.61
1:D:462:ARG:O	1:D:466:LYS:HD3	2.01	0.60
1:E:151:ASP:OD2	1:E:190:ARG:NH1	2.33	0.59
1:B:66:HIS:HB3	1:B:82:LYS:HB2	1.84	0.58
2:C:-1[B]:ILE:O	2:C:0[B]:ILE:HB	2.03	0.57
1:B:533:THR:OG1	2:C:6[B]:GLY:O	2.20	0.56
1:A:126:ASN:ND2	2:C:-1[B]:ILE:HG22	2.22	0.54
1:E:246:GLY:HA2	1:E:249:GLN:O	2.07	0.54
1:A:246:GLY:HA2	1:A:249:GLN:O	2.08	0.53
1:B:493:SER:HB3	1:B:501:ARG:HB3	1.90	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:558:VAL:HB	1:B:576:LEU:HB3	1.89	0.53
1:A:165:MET:HG2	1:A:350:VAL:HB	1.91	0.53
1:B:287:GLU:OE2	4:B:603:NAG:H4	2.09	0.52
1:D:455:PRO:O	1:D:459:GLN:HG3	2.09	0.52
1:B:151:ASP:OD2	1:B:190:ARG:NH1	2.42	0.52
1:B:532:ASN:HB3	2:C:5[B]:LEU:HD12	1.91	0.52
1:D:246:GLY:HA2	1:D:249:GLN:O	2.10	0.52
1:E:316:MET:HE1	1:E:469:PRO:HG2	1.93	0.51
2:F:-1[B]:ILE:HG12	2:F:0[B]:ILE:H	1.77	0.50
1:A:468:HIS:HD2	1:A:469:PRO:O	1.94	0.49
1:B:246:GLY:HA2	1:B:249:GLN:O	2.11	0.49
1:E:292:PHE:HB3	1:E:343:SER:HB2	1.94	0.49
1:E:478:VAL:HG13	1:E:480:LEU:HD13	1.94	0.49
1:B:407:ARG:O	1:B:413:GLY:HA3	2.13	0.49
1:D:183:PRO:HD2	1:E:183:PRO:HD2	1.95	0.48
1:A:499:GLU:OE2	1:A:501:ARG:NH2	2.46	0.48
1:E:357:ARG:NH2	1:E:387:ASP:OD2	2.45	0.48
1:E:119:LEU:HD22	1:E:156:ALA:HA	1.95	0.48
1:A:66:HIS:HB3	1:A:82:LYS:HB2	1.95	0.47
1:E:249:GLN:NE2	1:E:249:GLN:H	2.12	0.47
1:D:421:GLU:OE2	1:D:424:ARG:HD3	2.14	0.47
1:E:498:SER:OG	1:E:499:GLU:N	2.47	0.47
1:B:190:ARG:NH2	8:B:712:HOH:O	2.47	0.47
1:D:85:CYS:HA	1:D:228:CYS:HA	1.97	0.47
1:E:88:SER:OG	1:E:221:LYS:HA	2.15	0.47
1:E:289:ILE:HB	1:E:318:THR:HG22	1.97	0.47
1:B:126:ASN:HA	1:B:129:TYR:CE2	2.50	0.46
1:E:501:ARG:HG2	1:E:547:THR:HG22	1.96	0.46
1:D:436:CYS:HA	1:D:437:CYS:HA	1.78	0.46
1:D:471:PRO:HB2	1:D:473:LYS:HA	1.96	0.46
1:D:499:GLU:H	1:D:499:GLU:CD	2.20	0.46
1:D:126:ASN:HA	1:D:129:TYR:CE2	2.50	0.46
1:E:126:ASN:HA	1:E:129:TYR:CE2	2.52	0.45
1:B:292:PHE:HB3	1:B:343:SER:HB2	1.99	0.45
1:D:499:GLU:OE2	1:D:501:ARG:NH2	2.49	0.45
1:A:147:VAL:HB	1:A:227:LEU:HD23	2.00	0.44
1:A:407:ARG:O	1:A:413:GLY:HA3	2.17	0.44
1:A:436:CYS:HA	1:A:437:CYS:HA	1.72	0.44
1:E:349:LEU:HD23	1:E:349:LEU:HA	1.87	0.44
1:E:407:ARG:O	1:E:413:GLY:HA3	2.17	0.44
1:B:119:LEU:HD23	1:B:119:LEU:HA	1.84	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:183:PRO:HD2	1:B:183:PRO:HD2	2.00	0.44
1:A:459:GLN:O	1:A:463:ARG:HG3	2.18	0.44
1:D:208:LEU:HD22	1:D:274:LYS:HB3	2.00	0.44
1:E:60:LEU:HD13	1:E:83:TRP:HB3	1.98	0.44
1:D:493:SER:HA	1:D:501:ARG:HB2	2.00	0.44
1:D:407:ARG:O	1:D:413:GLY:HA3	2.18	0.43
1:A:197:TRP:CH2	2:C:1[A]:GLN:HG3	2.52	0.43
1:E:446:ILE:HD12	1:E:446:ILE:HA	1.88	0.43
1:B:89:GLU:OE2	1:B:225:ARG:NH1	2.51	0.43
1:B:119:LEU:HD22	1:B:156:ALA:HA	2.00	0.43
4:A:603:NAG:O3	4:A:603:NAG:H82	2.18	0.43
1:B:446:ILE:HD12	1:B:446:ILE:HA	1.88	0.43
1:D:185:LEU:HD22	1:D:189:ALA:HB2	2.00	0.43
1:D:247:PHE:HB3	2:F:5[A]:LEU:HD11	2.01	0.43
1:B:89:GLU:CD	1:B:225:ARG:HD2	2.39	0.43
1:A:126:ASN:HA	1:A:129:TYR:CE2	2.55	0.42
1:A:191:LEU:HB2	1:A:214:PRO:HB3	2.00	0.42
1:A:349:LEU:HD23	1:A:349:LEU:HA	1.93	0.42
1:B:397:MET:HB2	1:B:397:MET:HE2	1.78	0.42
1:B:526:LEU:HD12	1:B:526:LEU:HA	1.89	0.41
1:A:484:LYS:HG3	1:A:571:PRO:HG2	2.02	0.41
1:A:380:LEU:O	1:A:386:MET:HG3	2.20	0.41
1:B:349:LEU:HD23	1:B:349:LEU:HA	1.94	0.41
1:B:117:LEU:HD11	1:B:234:VAL:HG12	2.02	0.41
1:D:271:LEU:HD12	1:D:271:LEU:HA	1.94	0.41
1:E:436:CYS:HA	1:E:437:CYS:HA	1.68	0.41
1:E:50:ARG:HD2	1:E:50:ARG:HA	1.82	0.41
2:F:0[B]:ILE:H	2:F:0[B]:ILE:HG12	1.72	0.41
1:A:85:CYS:HA	1:A:228:CYS:HA	2.03	0.40
1:D:356:PRO:HG3	3:G:1:NAG:H82	2.03	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	523/539 (97%)	512 (98%)	11 (2%)	0	100	100
1	B	511/539 (95%)	502 (98%)	9 (2%)	0	100	100
1	D	518/539 (96%)	509 (98%)	9 (2%)	0	100	100
1	E	516/539 (96%)	507 (98%)	9 (2%)	0	100	100
2	C	25/23 (109%)	22 (88%)	2 (8%)	1 (4%)	3	0
2	F	27/23 (117%)	25 (93%)	1 (4%)	1 (4%)	3	0
All	All	2120/2202 (96%)	2077 (98%)	41 (2%)	2 (0%)	51	45

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	C	0[B]	ILE
2	F	12[A]	ARG

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	452/467 (97%)	446 (99%)	6 (1%)	69	67
1	B	445/467 (95%)	439 (99%)	6 (1%)	69	67
1	D	452/467 (97%)	446 (99%)	6 (1%)	69	67
1	E	450/467 (96%)	446 (99%)	4 (1%)	78	79
2	C	22/18 (122%)	21 (96%)	1 (4%)	27	20
2	F	24/18 (133%)	23 (96%)	1 (4%)	30	22
All	All	1845/1904 (97%)	1821 (99%)	24 (1%)	69	67

All (24) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	76	ASP
1	A	99	ASN
1	A	256[A]	ASN
1	A	256[B]	ASN
1	A	292	PHE
1	A	466	LYS
1	B	53	TYR
1	B	99	ASN
1	B	120	SER
1	B	292	PHE
1	B	498	SER
1	B	501	ARG
1	D	99	ASN
1	D	195	GLU
1	D	273	GLU
1	D	292	PHE
1	D	424	ARG
1	D	489	ARG
1	E	260	SER
1	E	292	PHE
1	E	466	LYS
1	E	499	GLU
2	C	-4[B]	ARG
2	F	12[A]	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (4) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	113	GLN
1	A	468	HIS
1	E	249	GLN
1	E	256	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 ⓘ

2 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	$\#\|Z\| > 2$
3	NAG	G	1	3,1	14,14,15	0.63	0	17,19,21	0.82	1 (5%)
3	NAG	G	2	3	14,14,15	0.28	0	17,19,21	0.46	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	G	1	3,1	-	3/6/23/26	0/1/1/1
3	NAG	G	2	3	-	4/6/23/26	0/1/1/1

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	**Chain**	**Res**	**Type**	**Atoms**	**Z**	**Observed(^{o})**	**Ideal(^{o})**
3	G	1	NAG	C1-O5-C5	2.82	116.02	112.19

There are no chirality outliers.

All (7) torsion outliers are listed below:

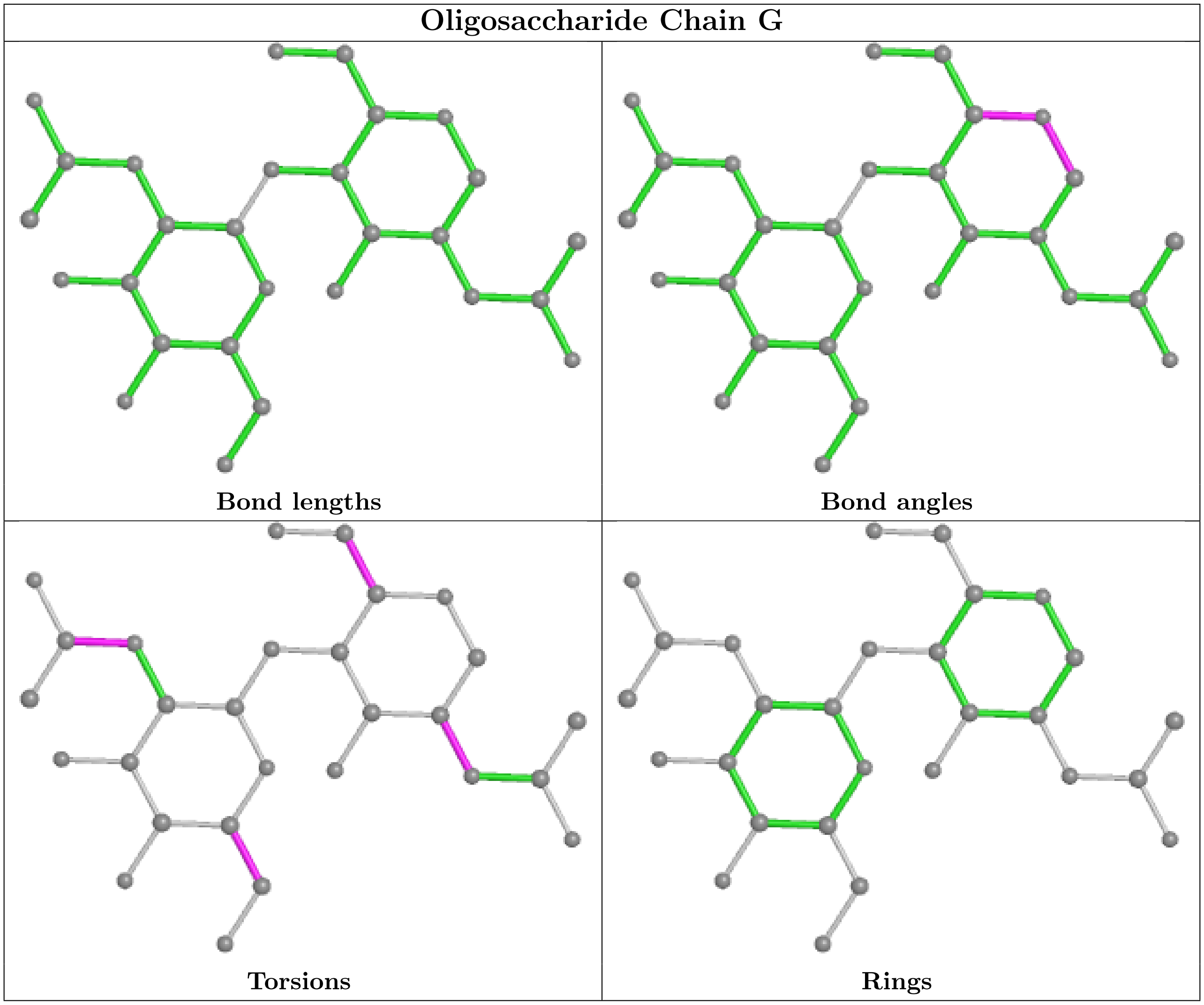
Mol	**Chain**	**Res**	**Type**	**Atoms**
3	G	2	NAG	O5-C5-C6-O6
3	G	2	NAG	C4-C5-C6-O6
3	G	1	NAG	O5-C5-C6-O6
3	G	2	NAG	C8-C7-N2-C2
3	G	2	NAG	O7-C7-N2-C2
3	G	1	NAG	C4-C5-C6-O6
3	G	1	NAG	C1-C2-N2-C7

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	G	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 G

Bond lengths

Bond angles

Torsions

Rings

5.6 Ligand geometry (i)

22 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
4	NAG	E	602	1	14,14,15	0.29	0	17,19,21	0.37	0
5	UDP	D	603	-	20,26,26	0.92	1 (5%)	25,40,40	0.99	2 (8%)
4	NAG	B	603	1	14,14,15	0.60	0	17,19,21	0.42	0
4	NAG	B	602	1	14,14,15	1.40	1 (7%)	17,19,21	1.20	1 (5%)
4	NAG	A	603	1	14,14,15	1.46	1 (7%)	17,19,21	1.59	1 (5%)
4	NAG	E	603	1	14,14,15	0.28	0	17,19,21	0.43	0
6	TRS	A	605	-	7,7,7	0.32	0	9,9,9	0.36	0
7	MAN	F	101[B]	2	11,11,12	0.68	0	15,15,17	1.04	2 (13%)
5	UDP	B	605	-	20,26,26	0.97	1 (5%)	25,40,40	0.99	2 (8%)
4	NAG	D	601	1	14,14,15	0.16	0	17,19,21	0.59	0
7	MAN	C	101[B]	2	11,11,12	0.98	0	15,15,17	1.17	2 (13%)
4	NAG	B	601	1	14,14,15	0.19	0	17,19,21	0.61	0
4	NAG	A	601	1	14,14,15	0.18	0	17,19,21	0.60	0
5	UDP	E	604	-	20,26,26	0.99	1 (5%)	25,40,40	1.16	3 (12%)
4	NAG	A	602	1	14,14,15	0.96	1 (7%)	17,19,21	1.17	1 (5%)
6	TRS	D	604	-	7,7,7	0.32	0	9,9,9	0.38	0
7	MAN	F	101[A]	2	11,11,12	0.67	0	15,15,17	0.97	2 (13%)
5	UDP	A	604	-	20,26,26	1.03	1 (5%)	25,40,40	1.14	2 (8%)
4	NAG	B	604	1	14,14,15	0.21	0	17,19,21	0.45	0
4	NAG	D	602	1	14,14,15	0.27	0	17,19,21	0.45	0
4	NAG	E	601	1	14,14,15	0.57	0	17,19,21	1.95	3 (17%)
7	MAN	C	101[A]	2	11,11,12	0.77	0	15,15,17	0.92	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	NAG	E	602	1	-	1/6/23/26	0/1/1/1
5	UDP	D	603	-	-	2/14/32/32	0/2/2/2
4	NAG	B	603	1	-	4/6/23/26	0/1/1/1
4	NAG	B	602	1	-	2/6/23/26	0/1/1/1
4	NAG	A	603	1	-	4/6/23/26	0/1/1/1
4	NAG	E	603	1	-	0/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
6	TRS	A	605	-	-	3/9/9/9	-
7	MAN	F	101[B]	2	-	0/2/19/22	0/1/1/1
5	UDP	B	605	-	-	1/14/32/32	0/2/2/2
4	NAG	D	601	1	-	2/6/23/26	0/1/1/1
7	MAN	C	101[B]	2	-	0/2/19/22	0/1/1/1
4	NAG	B	601	1	-	4/6/23/26	0/1/1/1
4	NAG	A	601	1	-	2/6/23/26	0/1/1/1
5	UDP	E	604	-	-	1/14/32/32	0/2/2/2
4	NAG	A	602	1	-	1/6/23/26	0/1/1/1
6	TRS	D	604	-	-	0/9/9/9	-
7	MAN	F	101[A]	2	-	0/2/19/22	0/1/1/1
5	UDP	A	604	-	-	2/14/32/32	0/2/2/2
4	NAG	B	604	1	-	1/6/23/26	0/1/1/1
4	NAG	D	602	1	-	0/6/23/26	0/1/1/1
4	NAG	E	601	1	-	4/6/23/26	0/1/1/1
7	MAN	C	101[A]	2	-	0/2/19/22	0/1/1/1

All (7) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	A	603	NAG	O5-C1	5.16	1.52	1.43
4	B	602	NAG	O5-C1	-4.85	1.36	1.43
4	A	602	NAG	O5-C1	3.33	1.49	1.43
5	A	604	UDP	C4-N3	3.19	1.38	1.33
5	D	603	UDP	C4-N3	3.19	1.38	1.33
5	E	604	UDP	C4-N3	3.19	1.38	1.33
5	B	605	UDP	C4-N3	3.18	1.38	1.33

All (22) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	E	601	NAG	C1-O5-C5	6.89	121.53	112.19
4	A	603	NAG	C1-O5-C5	6.03	120.36	112.19
4	A	602	NAG	C1-O5-C5	4.63	118.46	112.19
4	B	602	NAG	C3-C4-C5	4.13	117.61	110.24
5	D	603	UDP	C5-C4-N3	-3.88	114.78	123.31
5	B	605	UDP	C5-C4-N3	-3.88	114.78	123.31
5	A	604	UDP	C5-C4-N3	-3.88	114.78	123.31
5	E	604	UDP	C5-C4-N3	-3.87	114.79	123.31
4	E	601	NAG	C3-C4-C5	2.82	115.27	110.24
7	F	101[B]	MAN	C1-O5-C5	2.60	115.71	112.19

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
7	C	101[B]	MAN	C1-O5-C5	2.57	115.67	112.19
7	C	101[B]	MAN	O2-C2-C3	-2.42	105.28	110.14
7	F	101[A]	MAN	O2-C2-C3	-2.34	105.44	110.14
4	E	601	NAG	O5-C5-C4	2.32	116.47	110.83
7	C	101[A]	MAN	O2-C2-C3	-2.31	105.51	110.14
5	A	604	UDP	O3B-PB-O3A	2.24	112.16	104.64
5	E	604	UDP	O3B-PB-O3A	2.24	112.15	104.64
7	F	101[B]	MAN	O2-C2-C3	-2.24	105.66	110.14
7	F	101[A]	MAN	C1-O5-C5	2.23	115.22	112.19
5	B	605	UDP	PA-O3A-PB	-2.21	125.25	132.83
5	E	604	UDP	PA-O3A-PB	-2.14	125.48	132.83
5	D	603	UDP	PA-O3A-PB	-2.02	125.91	132.83

There are no chirality outliers.

All (34) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	A	604	UDP	O4'-C1'-N1-C6
4	E	601	NAG	O5-C5-C6-O6
4	B	603	NAG	C4-C5-C6-O6
4	B	602	NAG	C4-C5-C6-O6
4	E	601	NAG	C4-C5-C6-O6
4	A	603	NAG	C8-C7-N2-C2
4	A	603	NAG	O7-C7-N2-C2
4	B	603	NAG	C8-C7-N2-C2
4	B	603	NAG	O7-C7-N2-C2
4	A	603	NAG	C4-C5-C6-O6
4	B	601	NAG	O5-C5-C6-O6
4	B	602	NAG	O5-C5-C6-O6
4	B	601	NAG	C4-C5-C6-O6
4	B	603	NAG	O5-C5-C6-O6
4	E	602	NAG	O5-C5-C6-O6
4	A	603	NAG	O5-C5-C6-O6
4	A	602	NAG	O5-C5-C6-O6
5	A	604	UDP	PB-O3A-PA-O1A
5	B	605	UDP	PB-O3A-PA-O1A
5	E	604	UDP	PB-O3A-PA-O2A
6	A	605	TRS	N-C-C2-O2
6	A	605	TRS	C1-C-C2-O2
6	A	605	TRS	C3-C-C2-O2
4	B	604	NAG	O5-C5-C6-O6
5	D	603	UDP	PB-O3A-PA-O1A

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Mol	Chain	Res	Type	Atoms
5	D	603	UDP	PB-O3A-PA-O2A
4	A	601	NAG	C3-C2-N2-C7
4	B	601	NAG	C3-C2-N2-C7
4	D	601	NAG	C3-C2-N2-C7
4	E	601	NAG	C3-C2-N2-C7
4	D	601	NAG	C1-C2-N2-C7
4	E	601	NAG	C1-C2-N2-C7
4	A	601	NAG	C1-C2-N2-C7
4	B	601	NAG	C1-C2-N2-C7

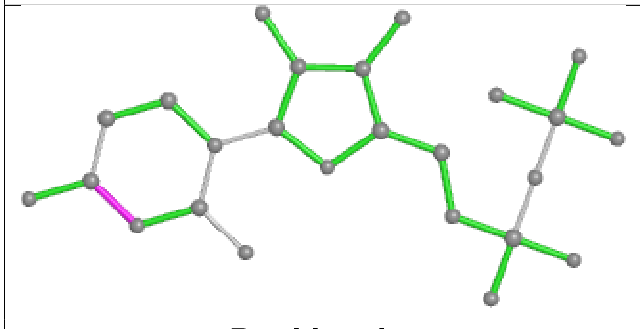
There are no ring outliers.

2 monomers are involved in 2 short contacts:

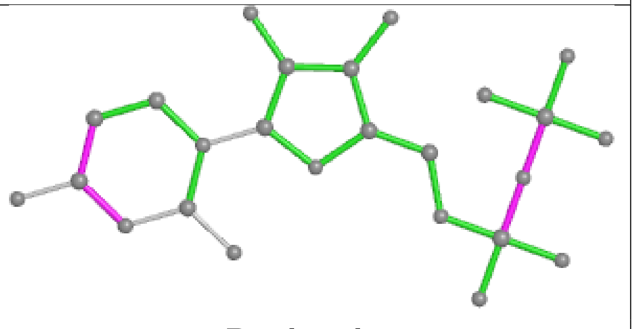
Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	B	603	NAG	1	0
4	A	603	NAG	1	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

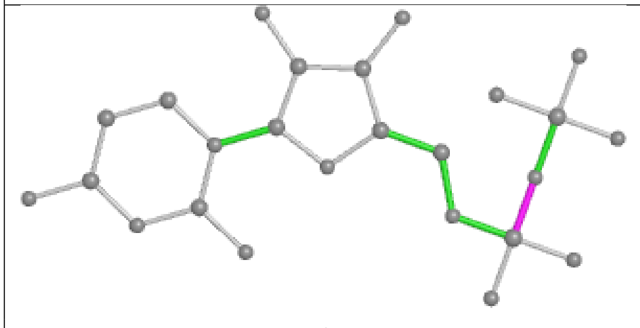
Ligand UDP D 603



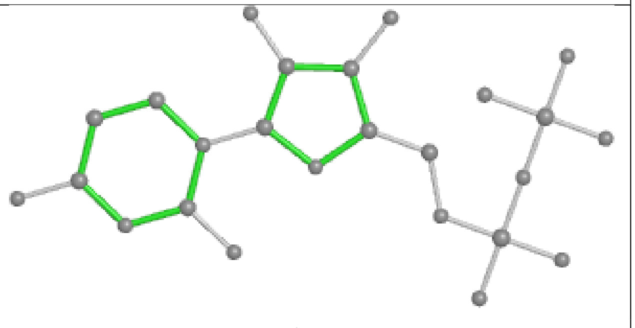
Bond lengths



Bond angles

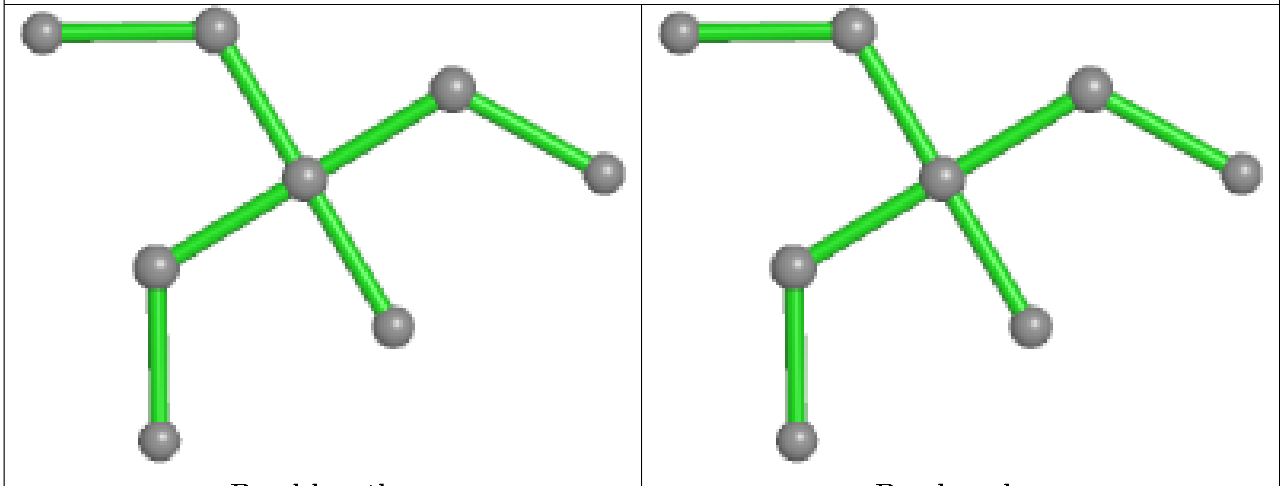


Torsions



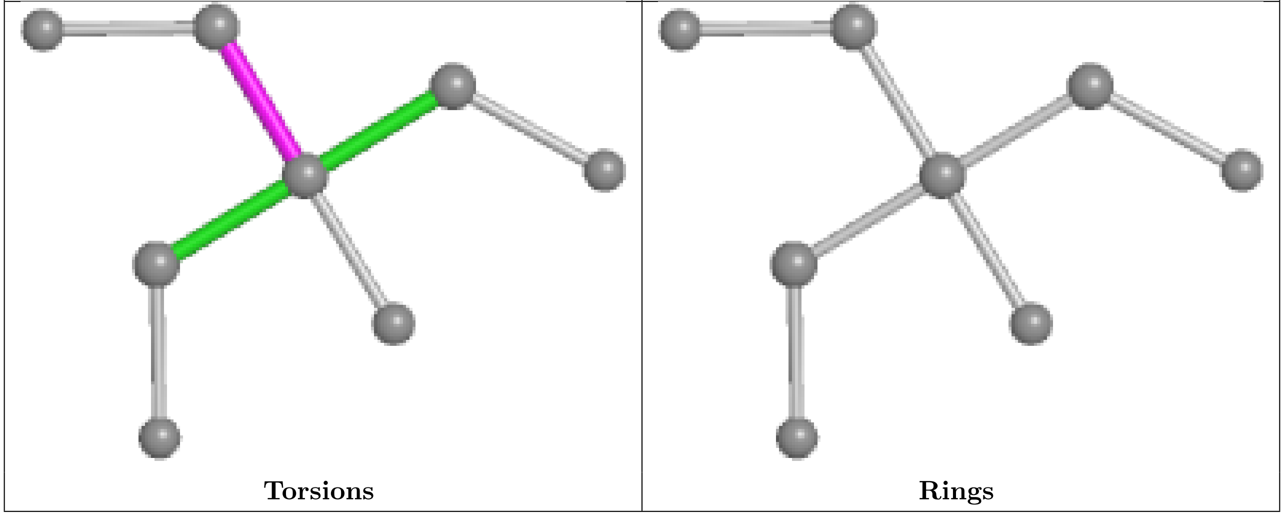
Rings

Ligand TRS A 605



Bond lengths

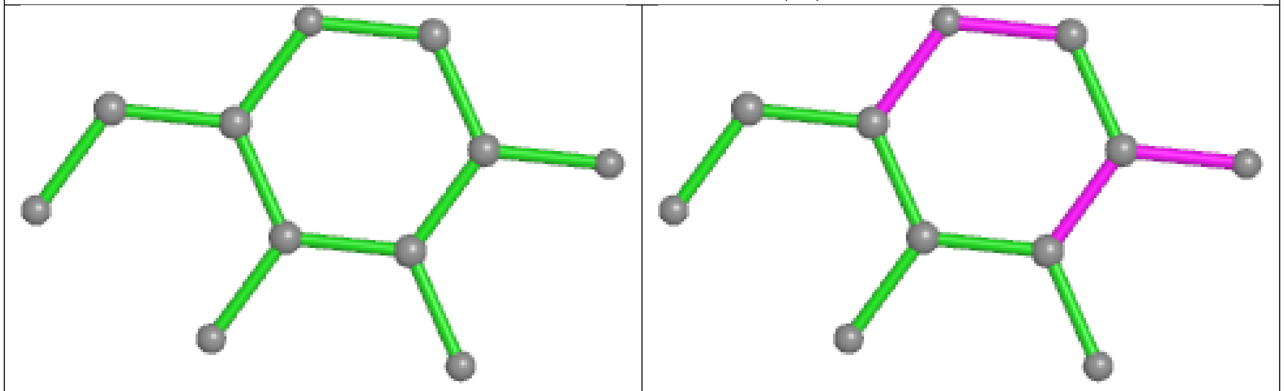
Bond angles



Torsions

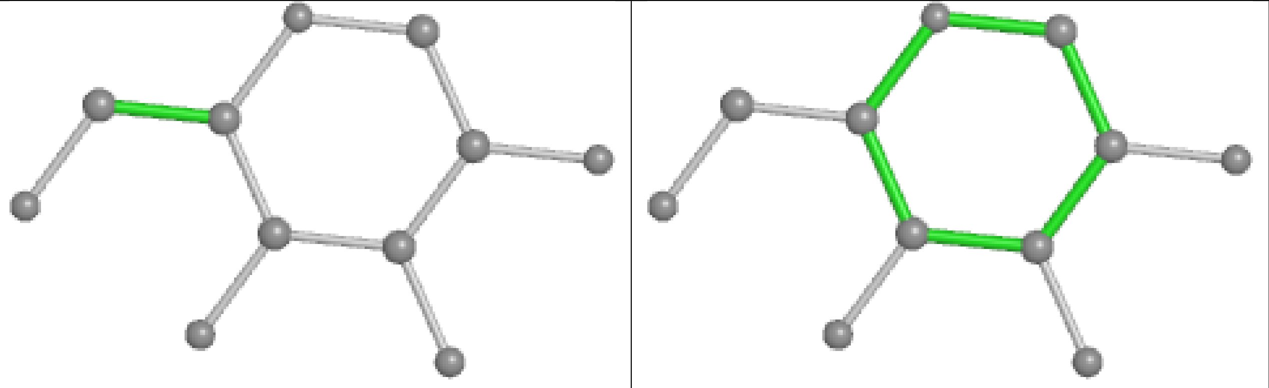
Rings

Ligand MAN F 101 (B)



Bond lengths

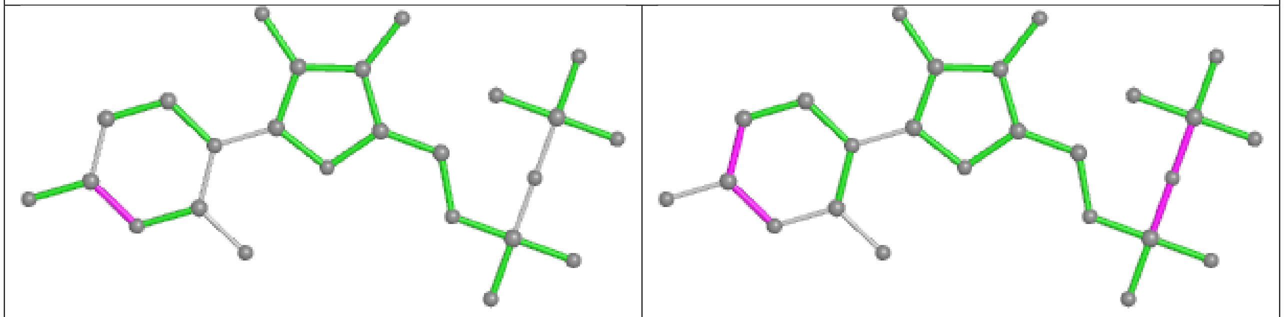
Bond angles



Torsions

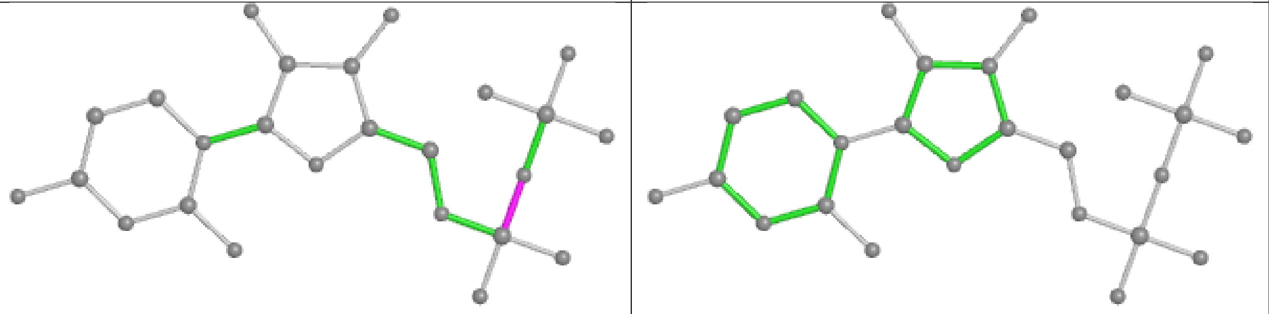
Rings

Ligand UDP B 605



Bond lengths

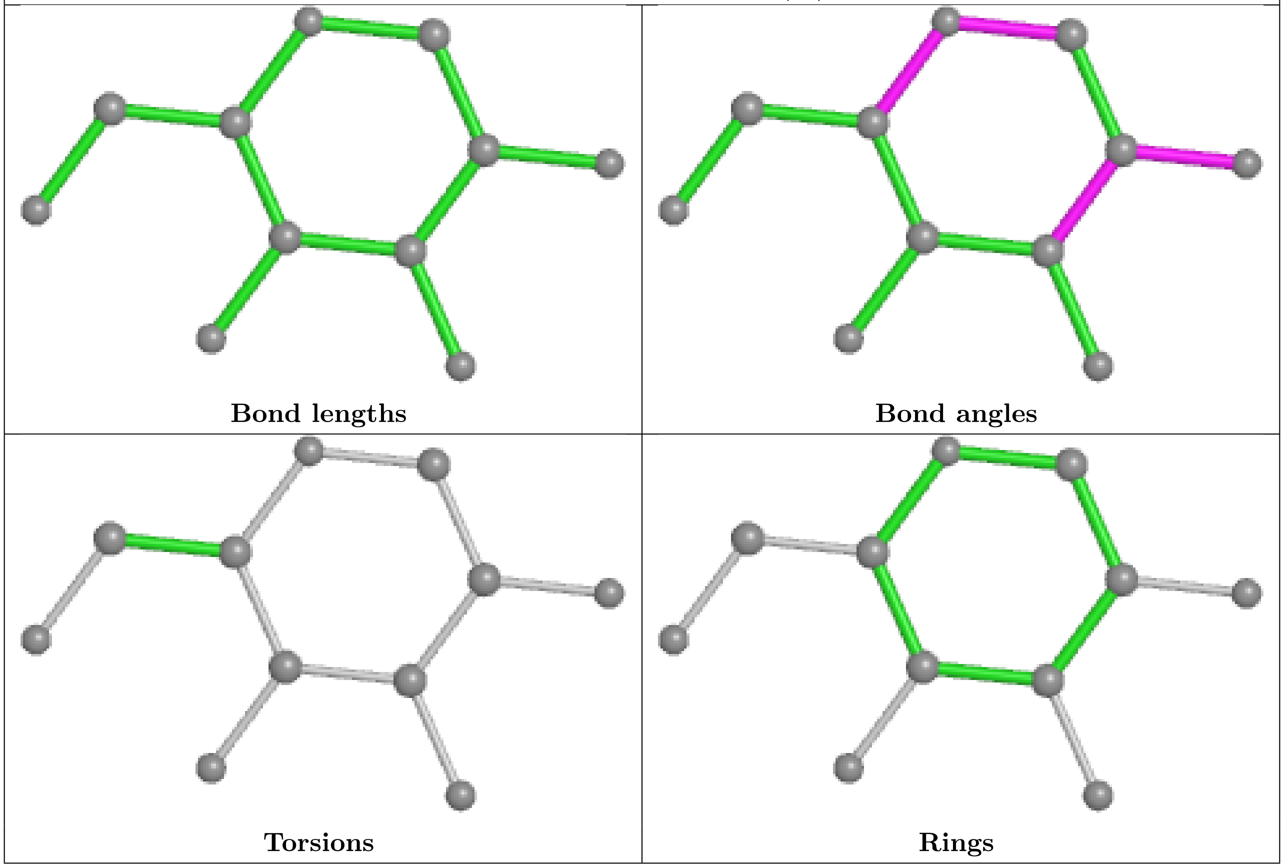
Bond angles



Torsions

Rings

Ligand MAN C 101 (B)



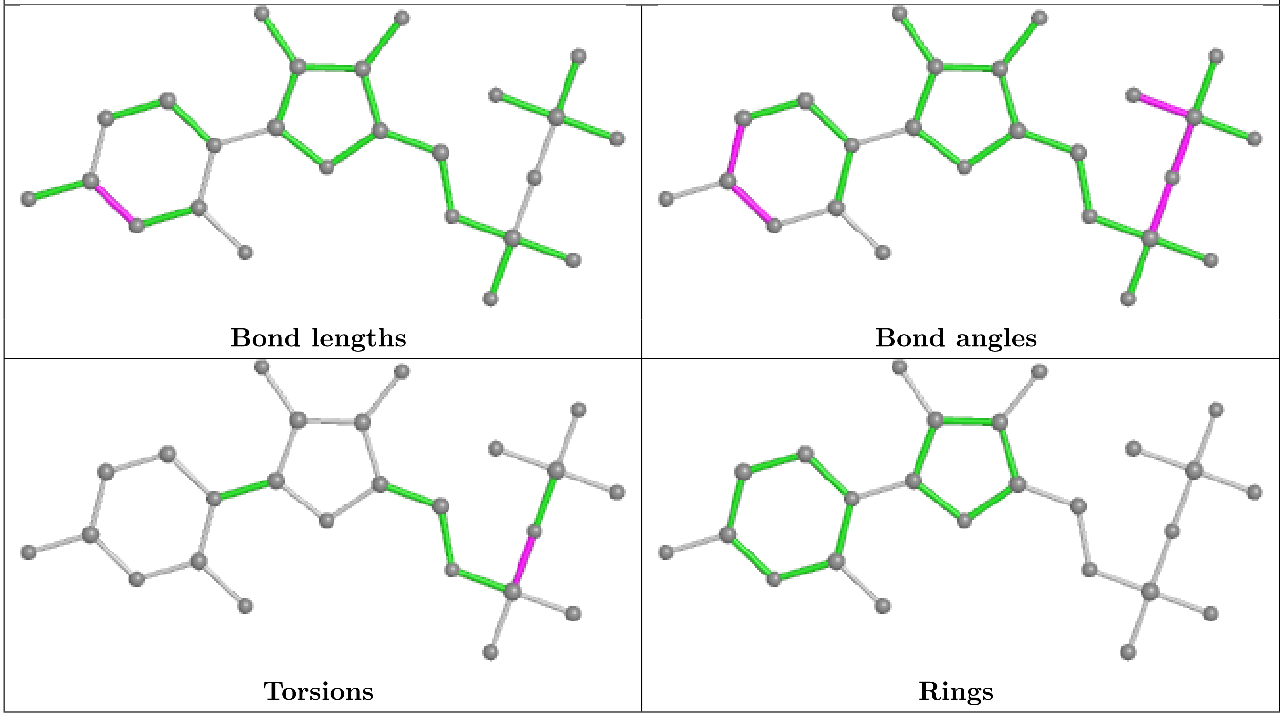
Bond lengths

Bond angles

Torsions

Rings

Ligand UDP E 604



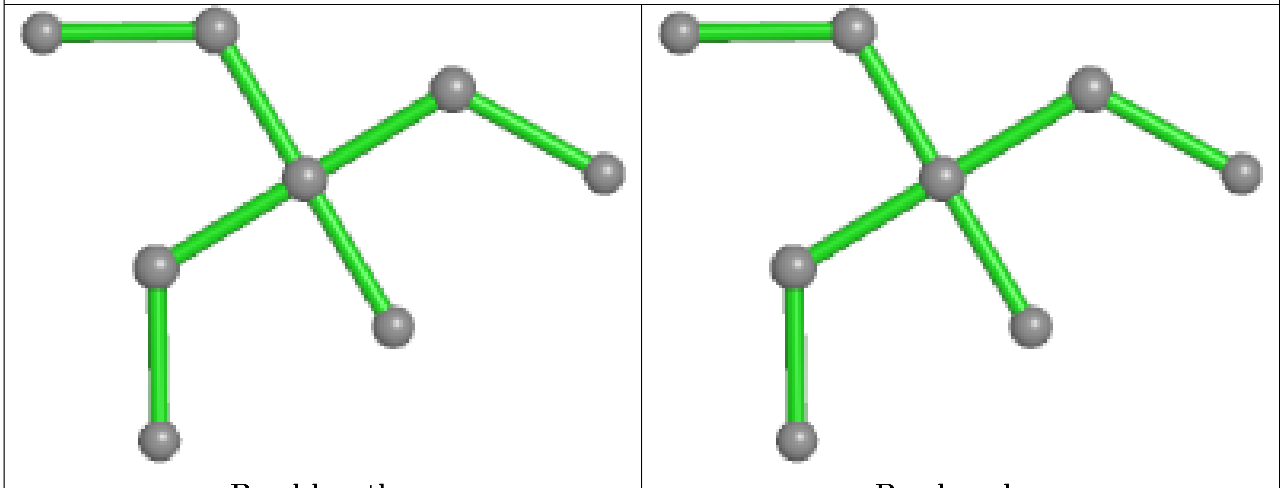
Bond lengths

Bond angles

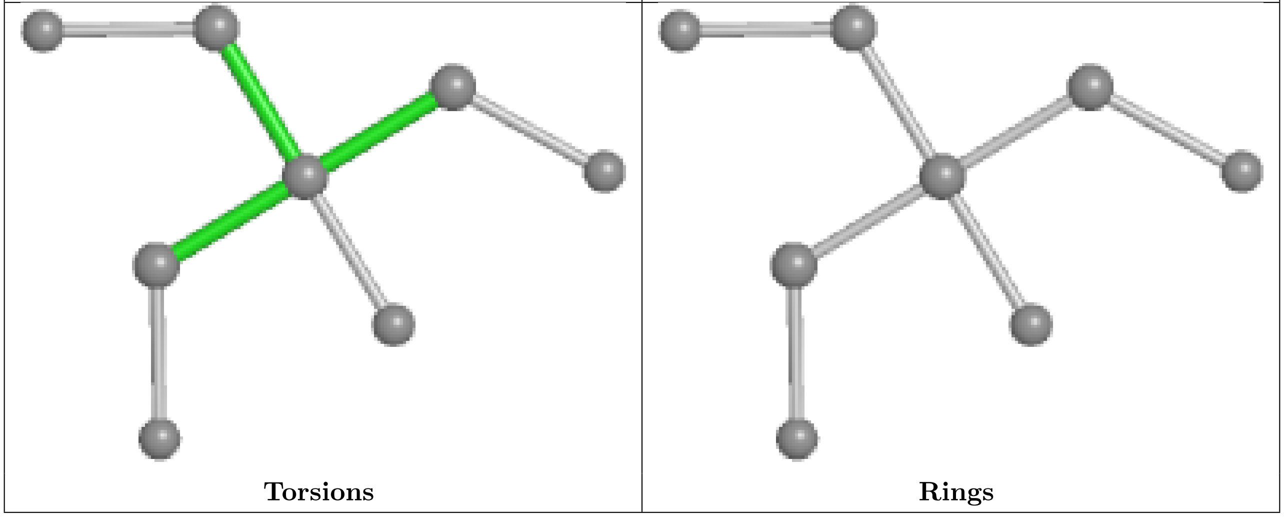
Torsions

Rings

Ligand TRS D 604

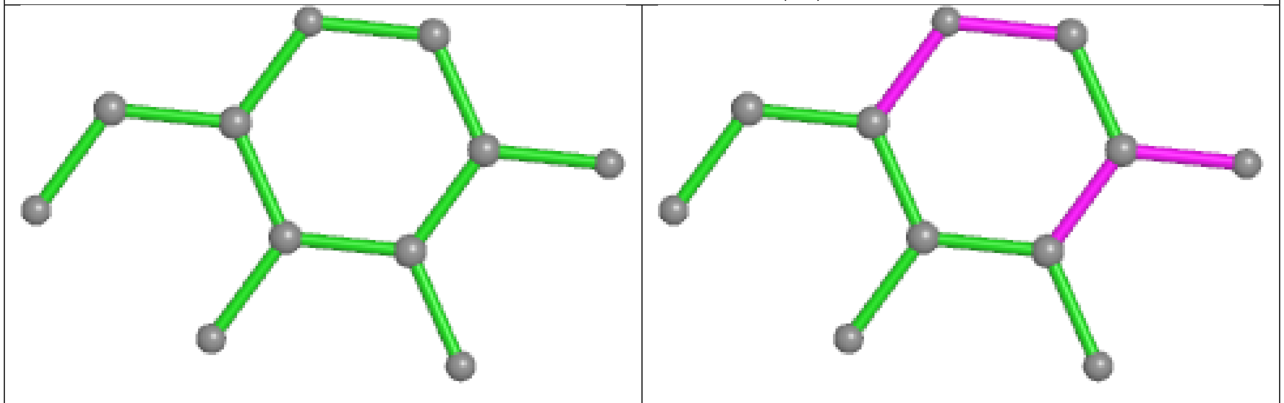


Bond lengths **Bond angles**

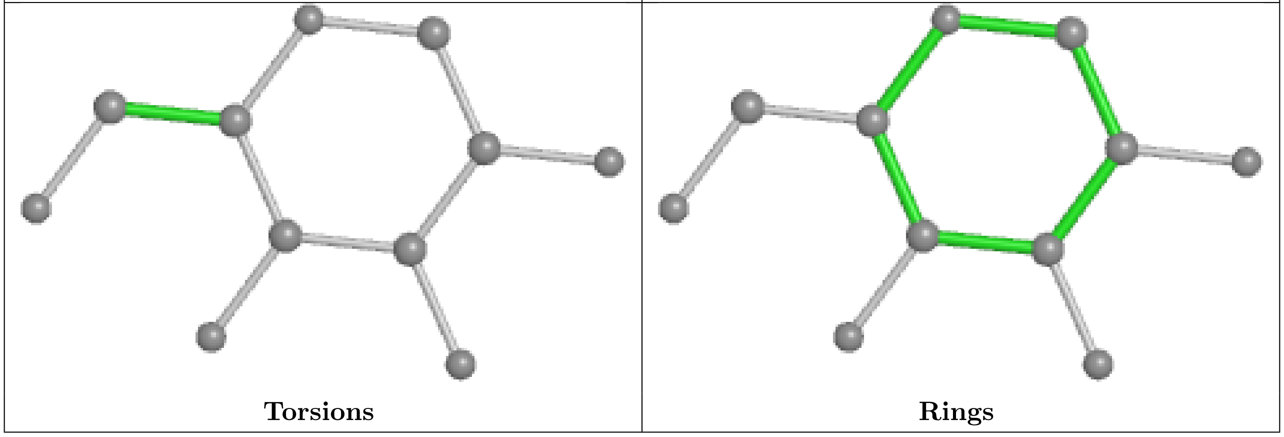


Torsions **Rings**

Ligand MAN F 101 (A)

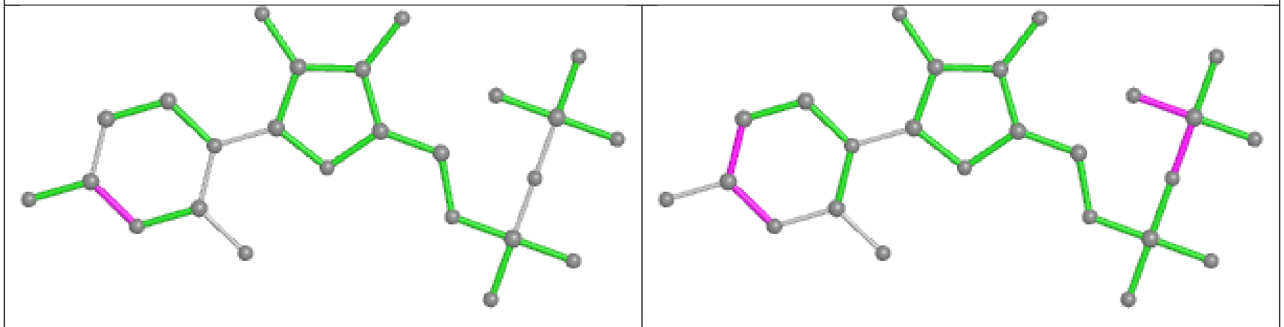


Bond lengths Bond angles

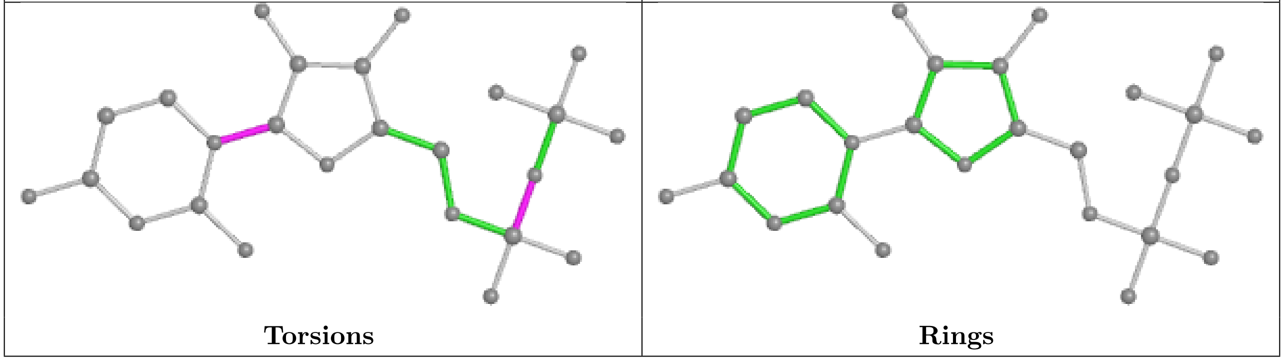


Torsions Rings

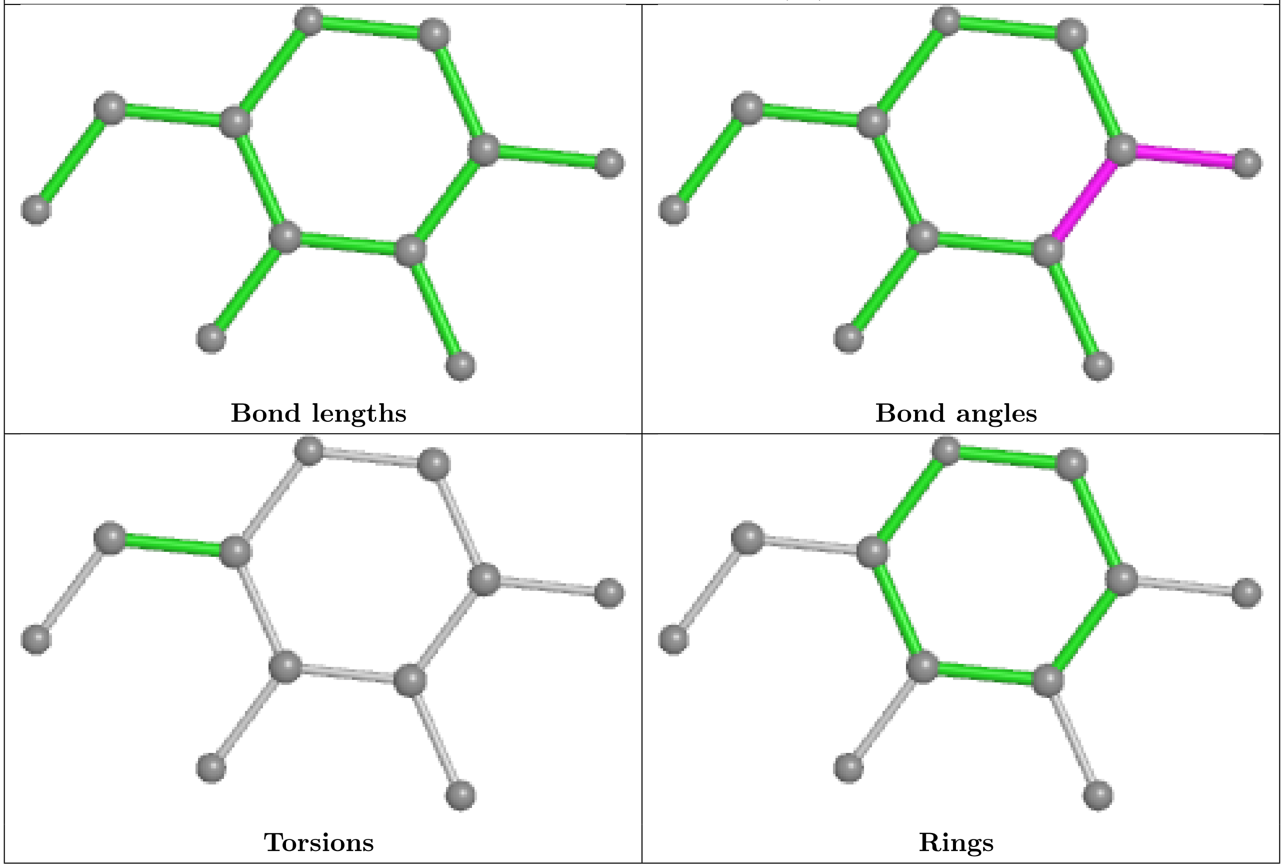
Ligand UDP A 604



Bond lengths Bond angles



Torsions Rings



Ligand MAN C 101 (A)

Bond lengths

Bond angles

Torsions

Rings

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

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	527/539 (97%)	0.37	27 (5%)	28	30	25, 36, 60, 116	0
1	B	521/539 (96%)	0.35	32 (6%)	21	22	26, 38, 73, 120	0
1	D	525/539 (97%)	0.35	26 (4%)	28	31	25, 37, 59, 103	0
1	E	524/539 (97%)	0.23	23 (4%)	34	37	24, 36, 56, 104	0
2	C	19/23 (82%)	2.92	12 (63%)	0	0	69, 74, 85, 89	12 (63%)
2	F	20/23 (86%)	2.22	10 (50%)	0	0	45, 59, 83, 89	12 (60%)
All	All	2136/2202 (97%)	0.36	130 (6%)	21	22	24, 37, 66, 120	24 (1%)

All (130) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	494	VAL	6.7
1	A	473	LYS	6.0
2	F	-7[B]	ILE	6.0
1	A	472	ARG	5.7
1	B	477	THR	5.7
2	C	5[A]	LEU	5.6
1	B	492	ALA	5.1
2	C	4[A]	THR	5.1
2	C	11[A]	THR	5.0
1	B	49	LEU	4.9
2	C	-1[B]	ILE	4.9
2	C	-6[B]	ARG	4.9
1	A	492	ALA	4.9
1	D	493	SER	4.9
1	A	470	GLY	4.8
1	A	497	ALA	4.7
2	F	-6[B]	ARG	4.6
1	B	498	SER	4.6
1	D	497	ALA	4.5

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Mol	Chain	Res	Type	RSRZ
1	E	52	ASP	4.5
1	D	49	LEU	4.4
1	E	474	GLN	4.3
1	D	421	GLU	4.3
1	D	492	ALA	4.2
1	B	53	TYR	4.2
1	A	48	ALA	4.2
1	A	49	LEU	4.1
1	B	279	GLN	4.0
1	B	493	SER	4.0
1	E	476	TRP	3.8
1	E	498	SER	3.8
2	F	-4[B]	ARG	3.8
1	B	48	ALA	3.7
1	D	436	CYS	3.7
1	A	493	SER	3.7
1	B	554	THR	3.7
1	A	76	ASP	3.6
1	E	477	THR	3.6
1	A	276	ASN	3.6
2	C	-4[B]	ARG	3.5
1	B	491	GLN	3.5
1	B	47	PRO	3.4
1	B	278	SER	3.4
2	C	1[A]	GLN	3.4
1	B	502	LEU	3.3
1	B	475	LYS	3.3
1	D	475	LYS	3.3
1	A	476	TRP	3.3
2	C	-3[B]	GLY	3.3
1	E	494	VAL	3.3
1	B	553	PHE	3.2
1	E	51	ILE	3.2
1	E	53	TYR	3.2
1	A	478	VAL	3.2
2	F	5[A]	LEU	3.2
1	A	468	HIS	3.1
1	A	498	SER	3.1
1	A	51	ILE	3.1
2	C	6[A]	GLY	3.0
1	A	499	GLU	3.0
1	E	475	LYS	2.9

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Mol	Chain	Res	Type	RSRZ
2	C	12[A]	ARG	2.9
2	F	-5[B]	THR	2.9
2	F	0[A]	ILE	2.9
1	E	499	GLU	2.9
1	D	498	SER	2.8
1	B	437	CYS	2.8
2	F	-1[B]	ILE	2.8
1	A	151	ASP	2.8
1	B	46	ALA	2.8
1	D	476	TRP	2.8
1	B	490	CYS	2.8
1	D	122	VAL	2.7
1	B	577	VAL	2.6
1	B	476	TRP	2.6
1	E	478	VAL	2.6
1	B	58	GLN	2.6
1	B	227	LEU	2.5
1	A	477	THR	2.5
1	B	474	GLN	2.5
1	B	429	ARG	2.5
1	D	46	ALA	2.5
2	C	-2[B]	ALA	2.5
2	F	12[A]	ARG	2.5
1	D	478	VAL	2.4
1	B	337	ASN	2.4
1	D	286	GLU	2.4
1	D	470	GLY	2.4
1	E	409	TRP	2.4
1	D	51	ILE	2.4
1	D	459	GLN	2.4
1	A	475	LYS	2.4
1	E	197	TRP	2.4
1	A	532	ASN	2.3
1	D	276	ASN	2.3
1	D	499	GLU	2.3
1	E	480	LEU	2.3
1	E	429	ARG	2.3
1	B	459	GLN	2.3
1	E	286	GLU	2.3
1	B	549	ASN	2.3
2	C	8[A]	ILE	2.3
1	B	555	THR	2.3

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Mol	Chain	Res	Type	RSRZ
1	A	471	PRO	2.3
1	A	469	PRO	2.3
1	E	473	LYS	2.2
1	D	474	GLN	2.2
2	F	4[A]	THR	2.2
1	B	501	ARG	2.2
1	B	535	VAL	2.2
1	E	530	GLY	2.2
1	E	54	PRO	2.2
1	D	75	THR	2.2
1	E	204	ASP	2.2
1	A	278	SER	2.2
1	E	49	LEU	2.1
1	E	553	PHE	2.1
1	D	468	HIS	2.1
1	E	437	CYS	2.1
2	F	11[A]	THR	2.1
1	D	452	VAL	2.1
1	D	437	CYS	2.1
1	A	438	ARG	2.1
1	B	499	GLU	2.1
1	D	69	CYS	2.1
1	A	420	ALA	2.1
1	D	580	THR	2.1
1	B	548	GLU	2.0
1	A	54	PRO	2.0
1	D	477	THR	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
3	NAG	G	2	14/15	0.32	0.64	105,113,117,118	0

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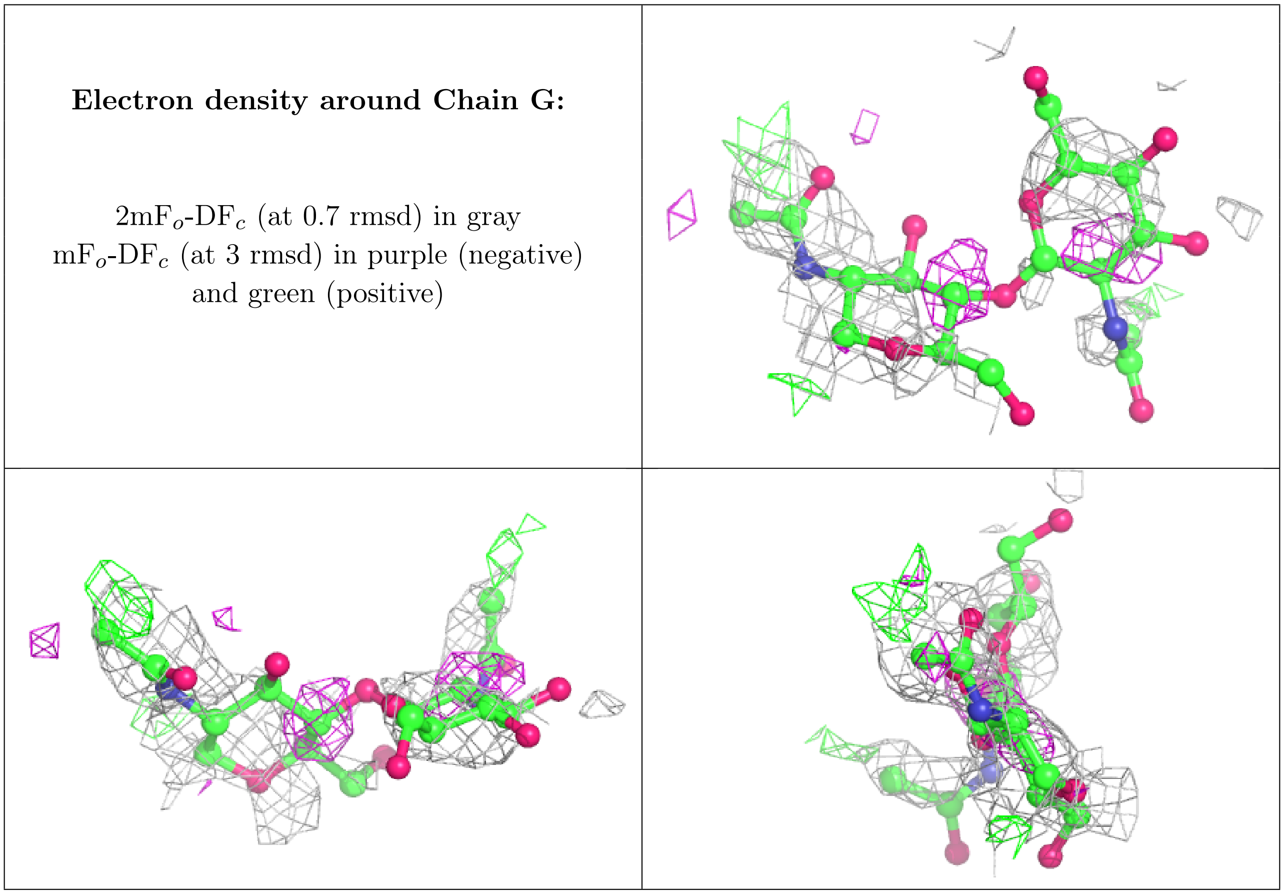
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\AA^2$)	Q<0.9
3	NAG	G	1	14/15	0.44	0.56	59,98,109,110	0

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 G:

2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative)
and green (positive)

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($\AA^2$)	Q<0.9
4	NAG	A	602	14/15	0.50	0.36	53,79,85,87	0
4	NAG	B	602	14/15	0.58	0.37	64,80,86,90	0
7	MAN	C	101[A]	11/12	0.58	0.39	51,57,70,78	11
7	MAN	C	101[B]	11/12	0.58	0.39	56,71,73,75	11
4	NAG	A	603	14/15	0.60	0.41	68,74,85,87	0
4	NAG	B	603	14/15	0.64	0.56	82,91,102,103	0

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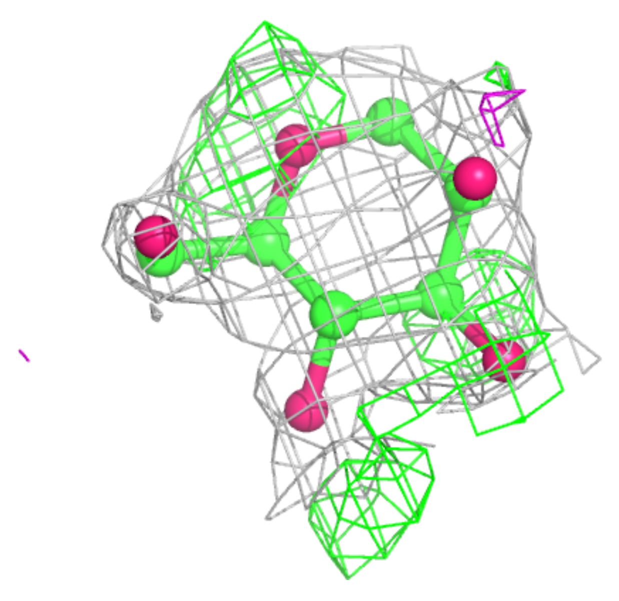
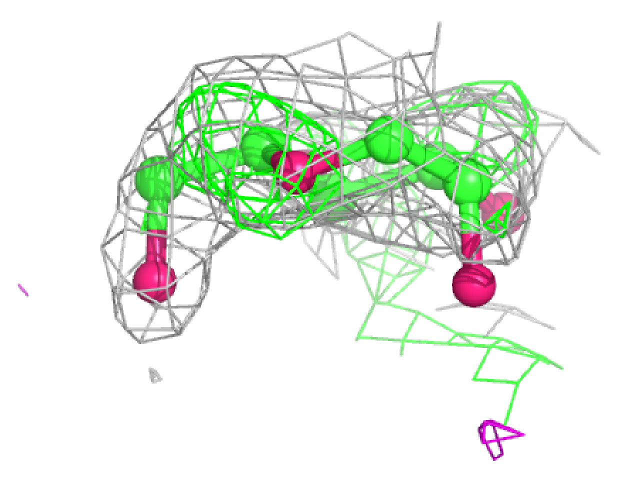
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
7	MAN	F	101[A]	11/12	0.65	0.36	44,52,61,70	11
7	MAN	F	101[B]	11/12	0.65	0.36	37,46,49,50	11
6	TRS	A	605	8/8	0.71	0.27	34,50,57,57	0
6	TRS	D	604	8/8	0.72	0.29	32,51,54,56	0
4	NAG	A	601	14/15	0.75	0.26	58,67,75,76	0
4	NAG	E	602	14/15	0.75	0.43	68,81,86,90	0
4	NAG	D	601	14/15	0.78	0.26	54,65,72,72	0
4	NAG	B	601	14/15	0.78	0.25	62,68,74,79	0
4	NAG	E	601	14/15	0.80	0.27	57,65,71,71	0
4	NAG	B	604	14/15	0.83	0.35	62,75,81,83	0
4	NAG	D	602	14/15	0.86	0.25	49,58,62,63	0
4	NAG	E	603	14/15	0.88	0.21	38,50,57,59	0
5	UDP	B	605	25/25	0.95	0.12	30,34,40,42	0
5	UDP	E	604	25/25	0.96	0.13	25,33,37,40	0
5	UDP	D	603	25/25	0.97	0.13	27,32,37,38	0
5	UDP	A	604	25/25	0.97	0.13	25,29,35,37	0

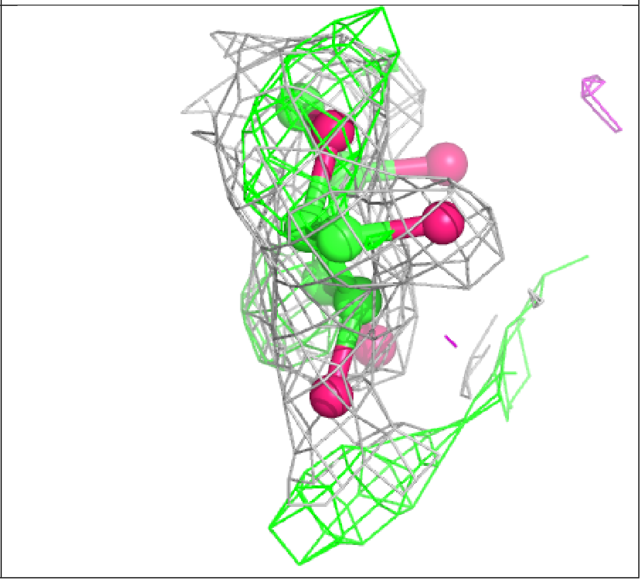
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

Electron density around MAN C 101 (A):

2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative)
and green (positive)

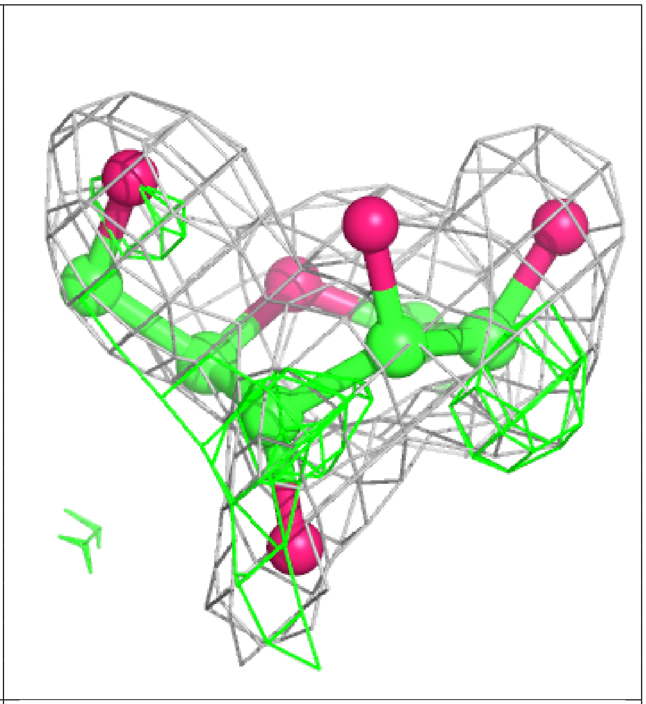


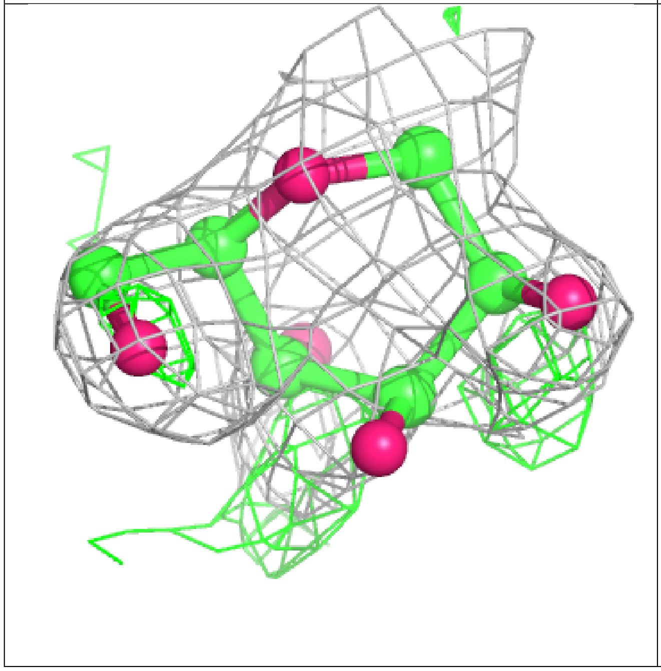


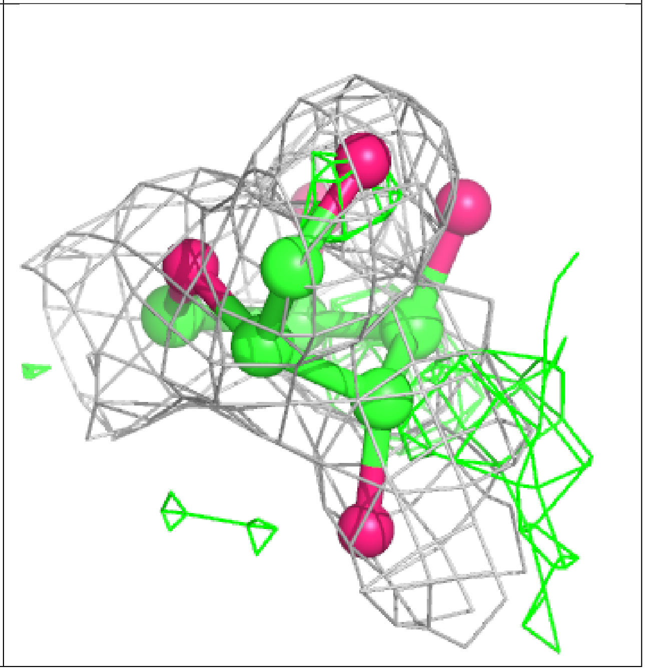


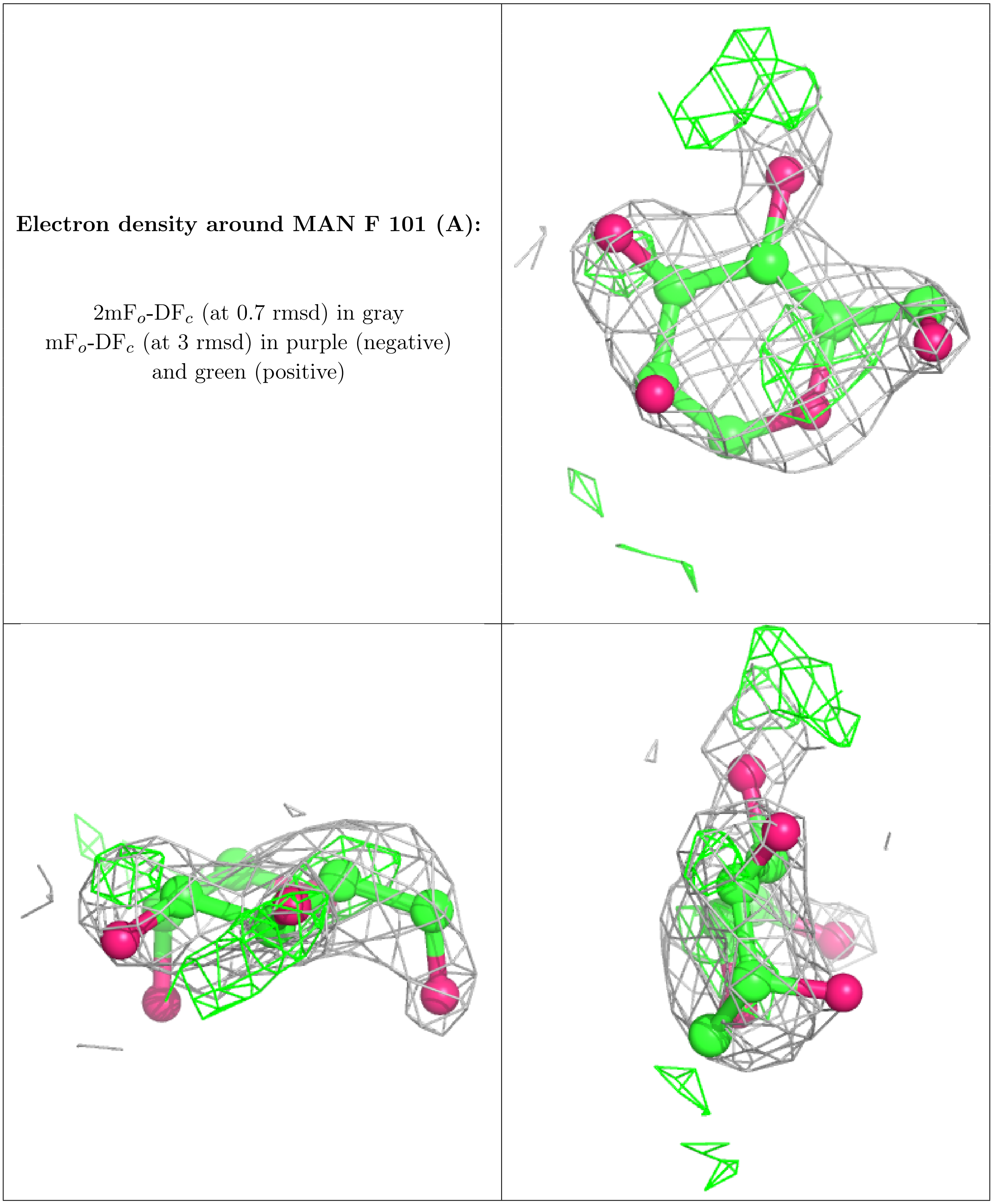
Electron density around MAN C 101 (B):

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







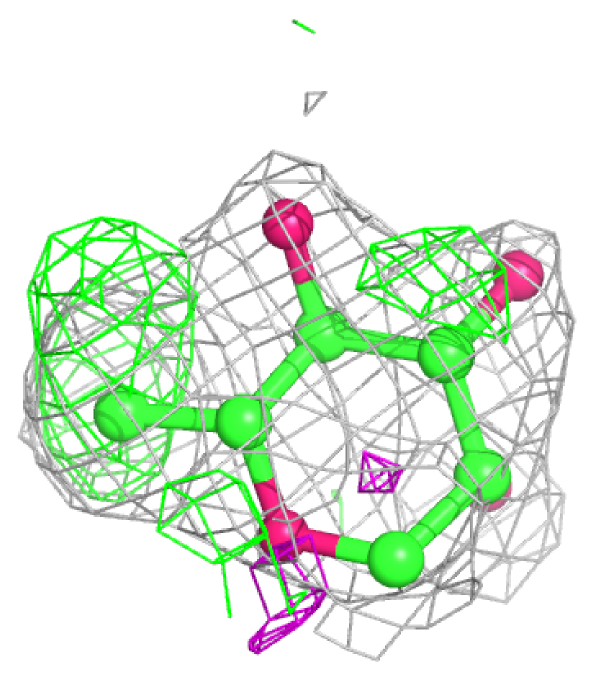


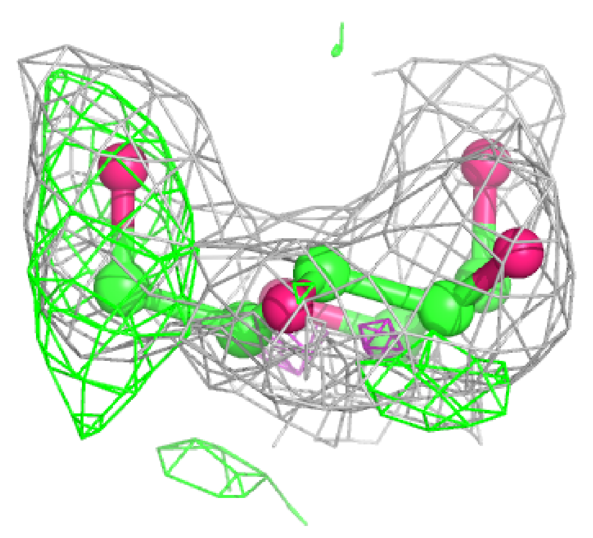
Electron density around MAN F 101 (A):

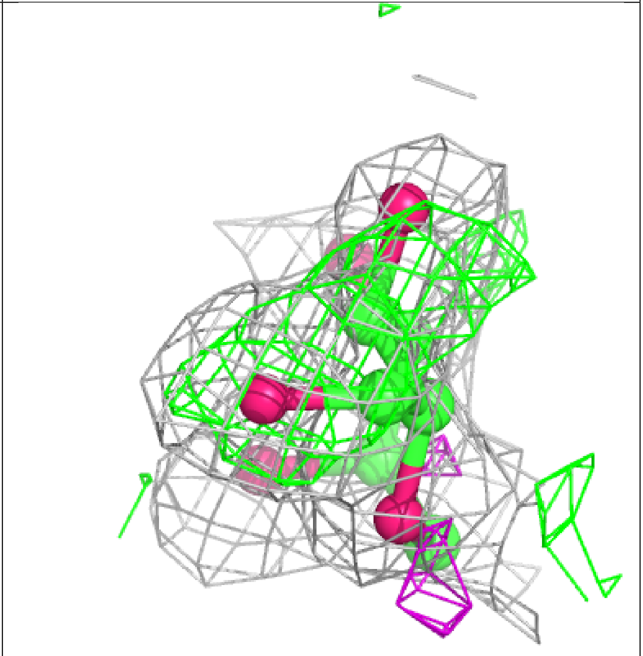
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

Electron density around MAN F 101 (B):

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

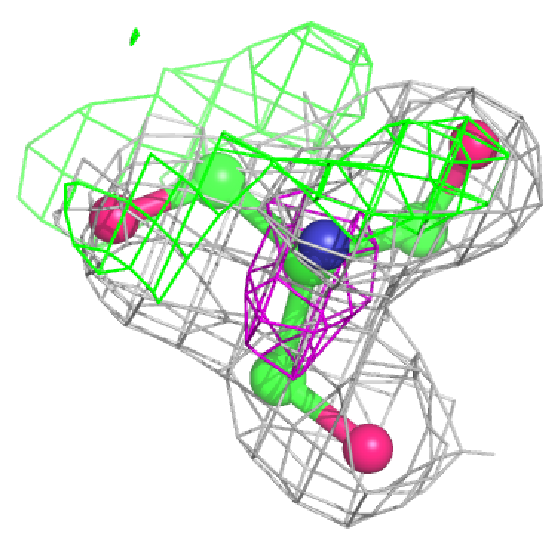


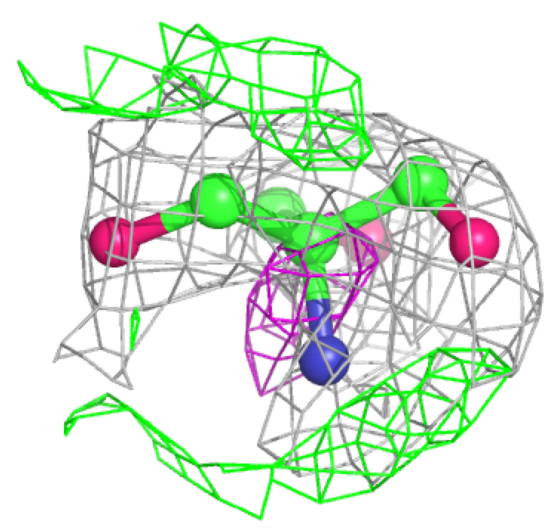


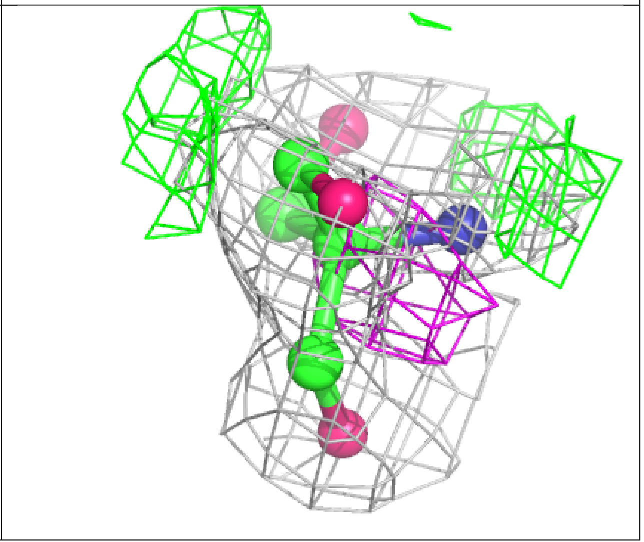


Electron density around TRS A 605:

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

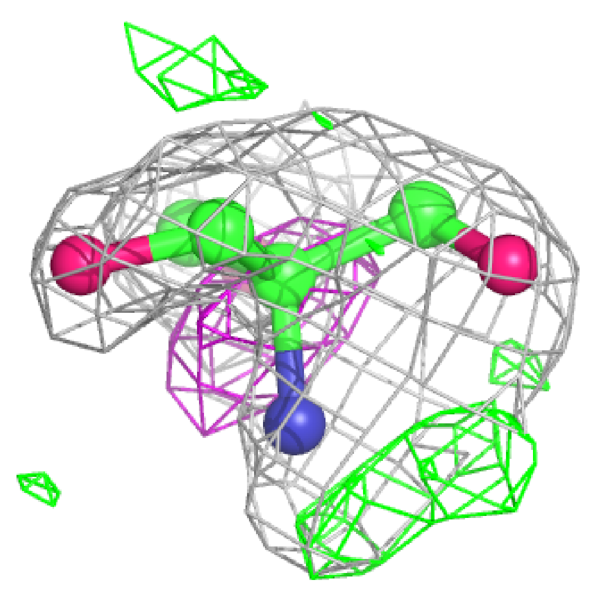


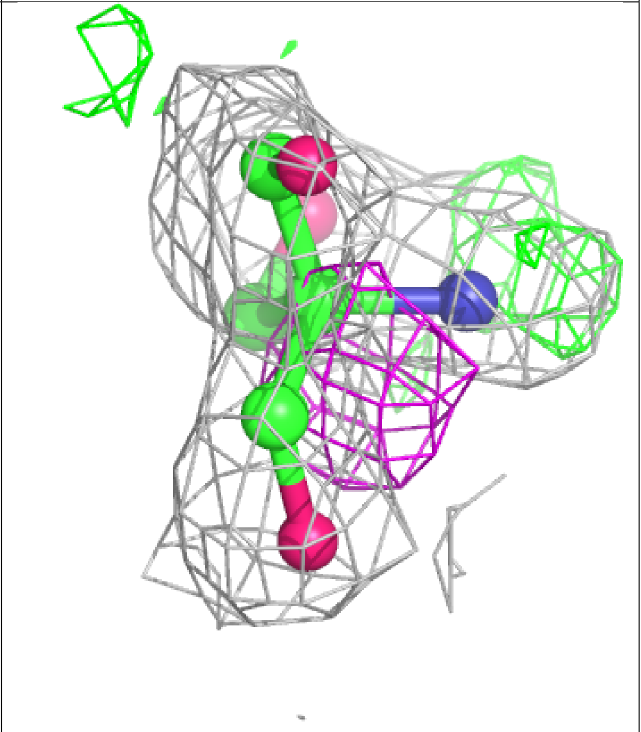




Electron density around TRS D 604:

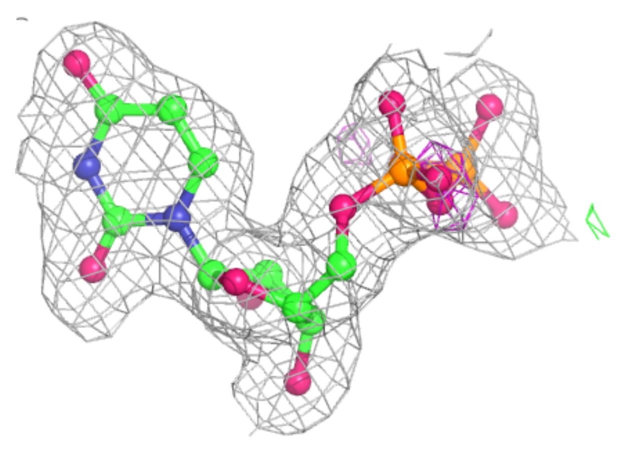
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

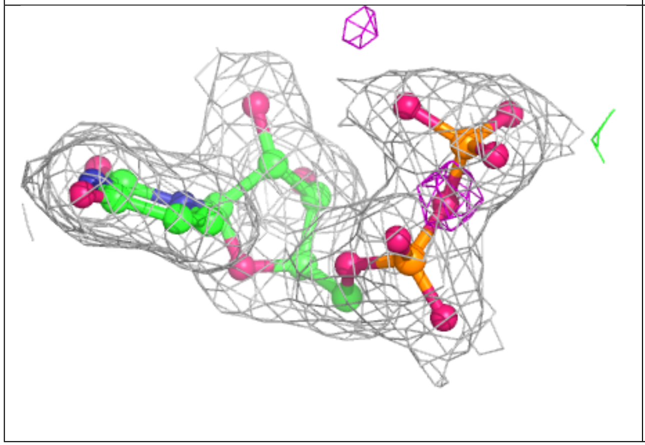


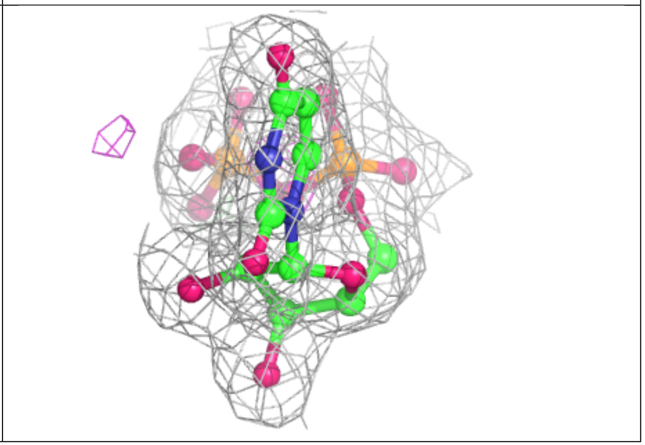


Electron density around UDP B 605:

$2\mathrm{mF}_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

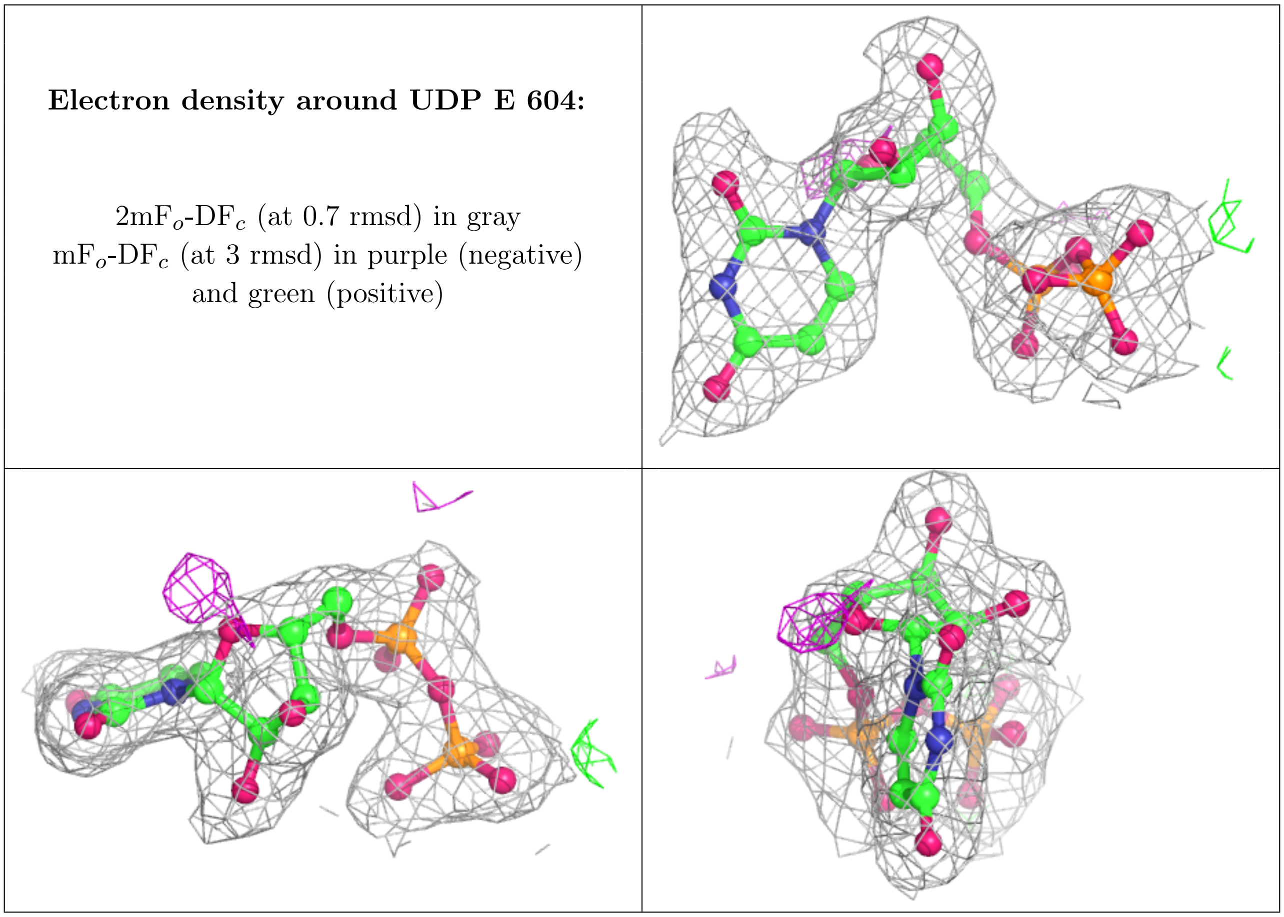


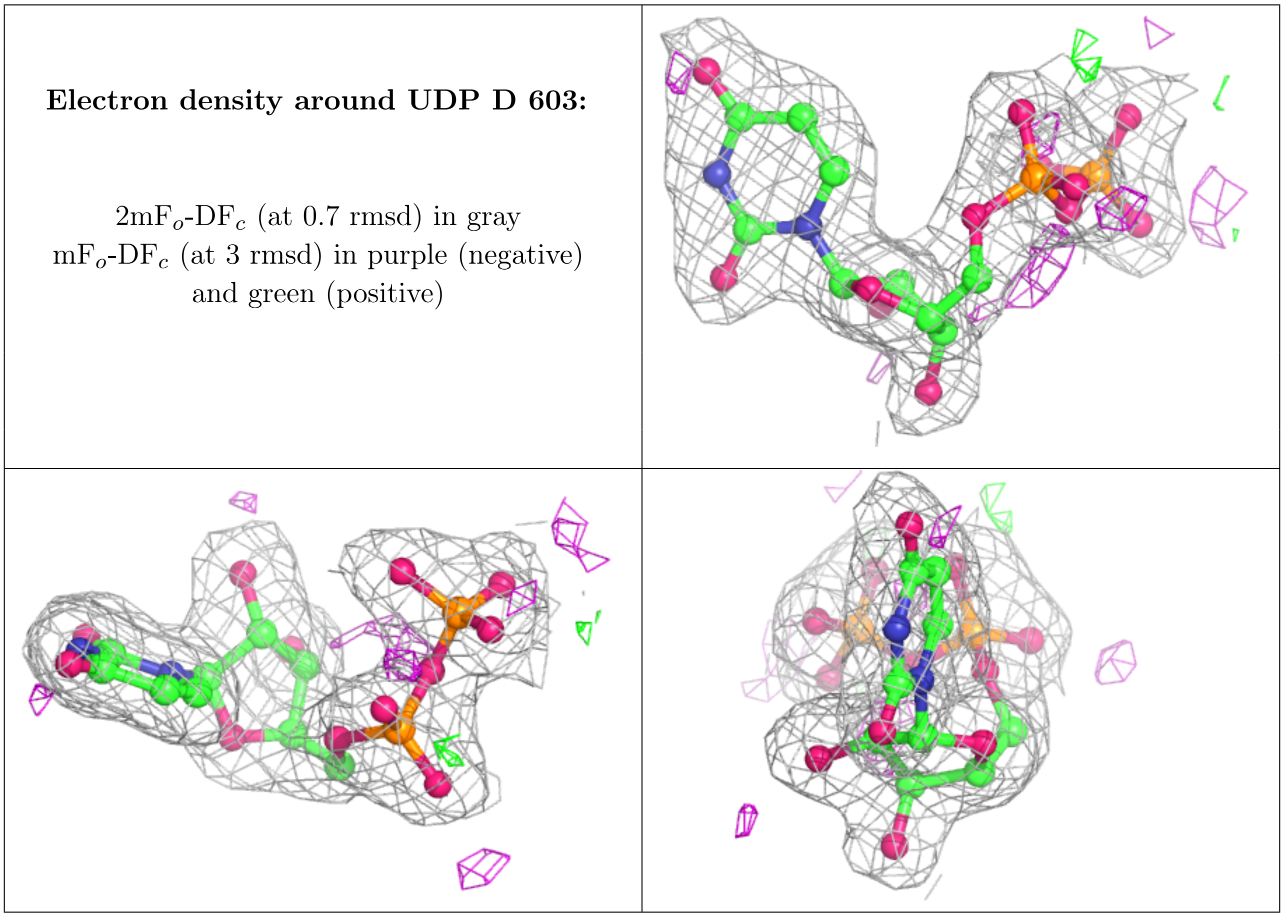




Electron density around UDP E 604:

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



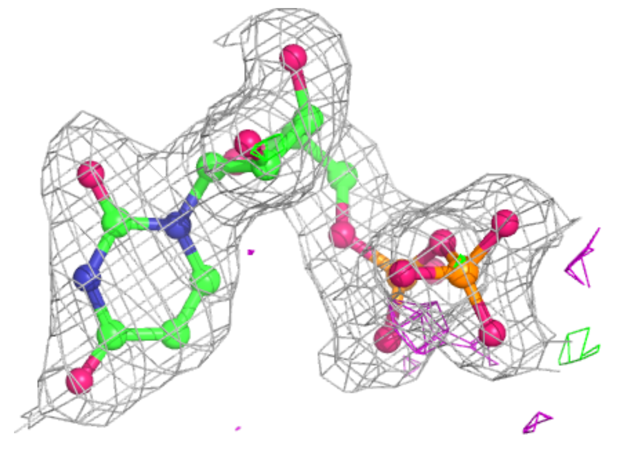


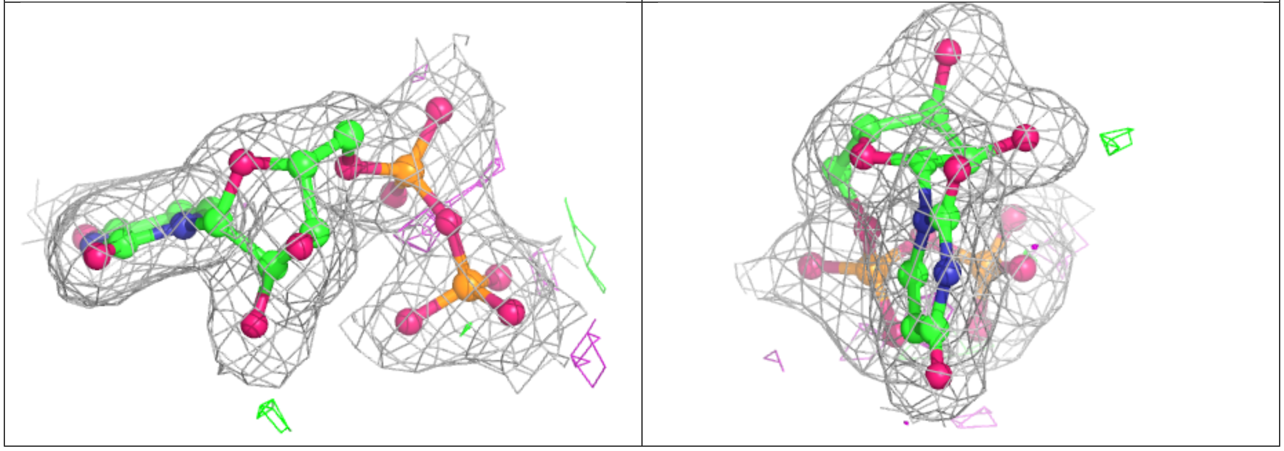
Electron density around UDP D 603:

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 UDP A 604:

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





6.5 Other polymers

There are no such residues in this entry.