Full wwPDB X-ray Structure Validation Report (i)

Oct 20, 2025 – 10:12 AM EDT

PDB ID	:	9OMJ / pdb_00009omj
Title	:	WrtF fucosyltransferase - GDP-beta-L-fucose
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Deposited on	:	2025-05-14
Resolution	:	1.60 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 (i) 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 (i)) were used in the production of this report:

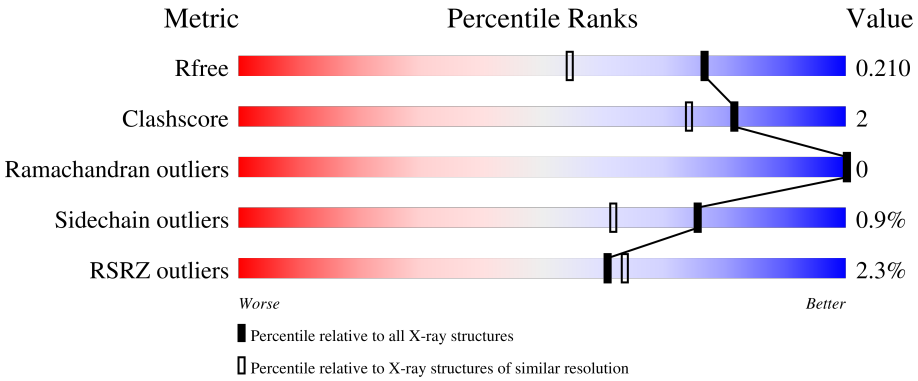
MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.46

1 Overall quality at a glance (i)

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

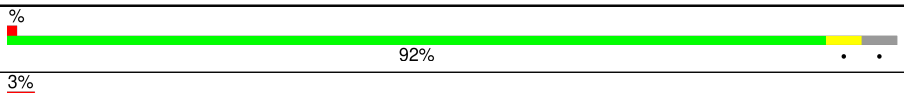
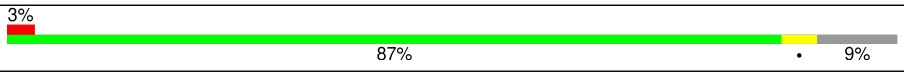
The reported resolution of this entry is 1.60 Å.

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	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	164625	4274 (1.60-1.60)
Clashscore	180529	4682 (1.60-1.60)
Ramachandran outliers	177936	4583 (1.60-1.60)
Sidechain outliers	177891	4582 (1.60-1.60)
RSRZ outliers	164620	4272 (1.60-1.60)

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	279	
1	B	279	

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	GOL	B	301	-	X	-	-

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 8556 atoms, of which 4081 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 Glycosyltransferase.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	268	Total	C	H	N	O	S	0	1	0
			4134	1317	2058	357	396	6			
1	B	254	Total	C	H	N	O	S	0	0	0
			3918	1247	1961	330	374	6			

There are 28 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	0	MET	-	expression tag	UNP A0A6P1C6J0
A	1	GLY	-	expression tag	UNP A0A6P1C6J0
A	3	ALA	GLU	conflict	UNP A0A6P1C6J0
A	268	ALA	-	expression tag	UNP A0A6P1C6J0
A	269	ALA	-	expression tag	UNP A0A6P1C6J0
A	270	ALA	-	expression tag	UNP A0A6P1C6J0
A	271	LEU	-	expression tag	UNP A0A6P1C6J0
A	272	GLU	-	expression tag	UNP A0A6P1C6J0
A	273	HIS	-	expression tag	UNP A0A6P1C6J0
A	274	HIS	-	expression tag	UNP A0A6P1C6J0
A	275	HIS	-	expression tag	UNP A0A6P1C6J0
A	276	HIS	-	expression tag	UNP A0A6P1C6J0
A	277	HIS	-	expression tag	UNP A0A6P1C6J0
A	278	HIS	-	expression tag	UNP A0A6P1C6J0
B	0	MET	-	expression tag	UNP A0A6P1C6J0
B	1	GLY	-	expression tag	UNP A0A6P1C6J0
B	3	ALA	GLU	conflict	UNP A0A6P1C6J0
B	268	ALA	-	expression tag	UNP A0A6P1C6J0
B	269	ALA	-	expression tag	UNP A0A6P1C6J0
B	270	ALA	-	expression tag	UNP A0A6P1C6J0
B	271	LEU	-	expression tag	UNP A0A6P1C6J0
B	272	GLU	-	expression tag	UNP A0A6P1C6J0
B	273	HIS	-	expression tag	UNP A0A6P1C6J0
B	274	HIS	-	expression tag	UNP A0A6P1C6J0
B	275	HIS	-	expression tag	UNP A0A6P1C6J0

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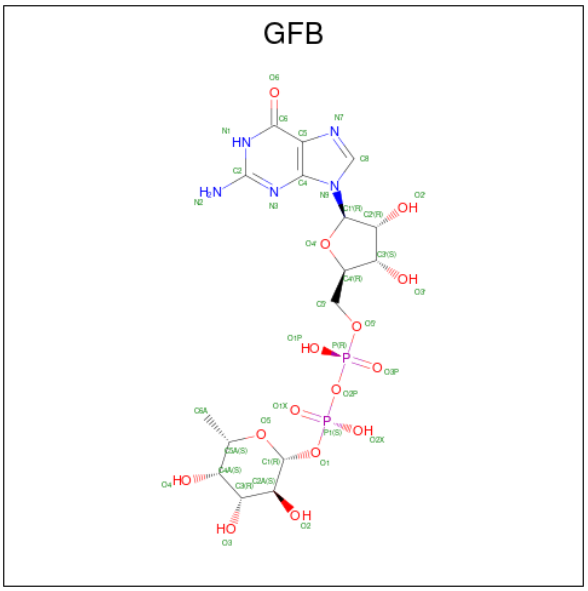
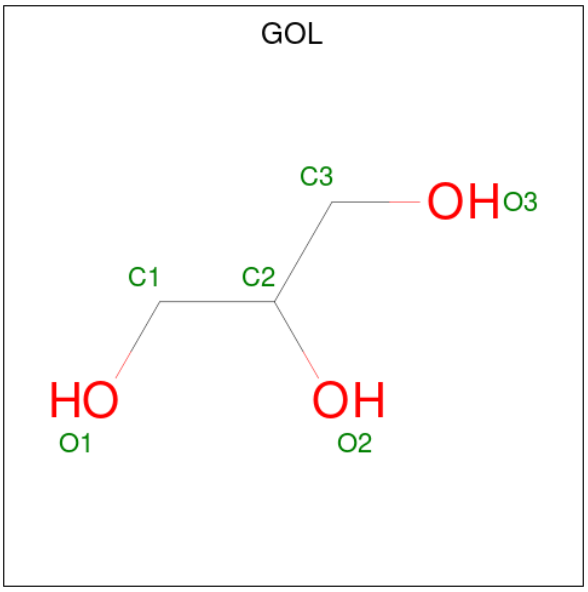
Chain	Residue	Modelled	Actual	Comment	Reference
B	276	HIS	-	expression tag	UNP A0A6P1C6J0
B	277	HIS	-	expression tag	UNP A0A6P1C6J0
B	278	HIS	-	expression tag	UNP A0A6P1C6J0

- Molecule 2 is GUANOSINE-5'-DIPHOSPHATE-BETA-L-FUCOPYRANOSE (CCD ID: GFB) (formula: $C_{16}H_{25}N_5O_{15}P_2$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
2	A	1	Total	C	H	N	O	P	0	0
			61	16	23	5	15	2		
2	B	1	Total	C	H	N	O	P	0	0
			61	16	23	5	15	2		

- Molecule 3 is GLYCEROL (CCD ID: GOL) (formula: $C_3H_8O_3$).



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

- Molecule 4 is water.

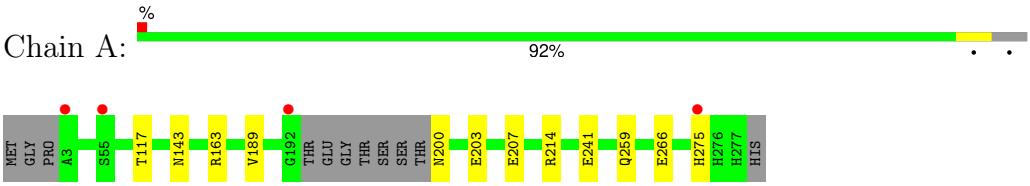
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	202	Total O 202 202	0	0
4	B	152	Total O 152 152	0	0

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.

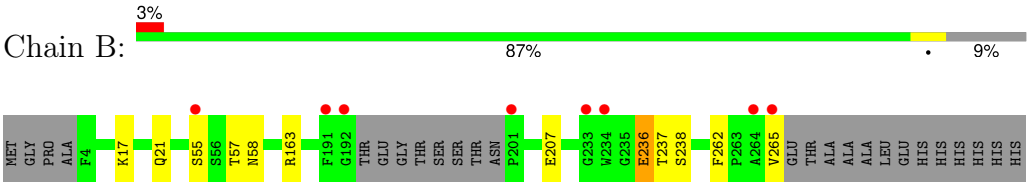
- Molecule 1: Glycosyltransferase

Chain A:



- Molecule 1: Glycosyltransferase

Chain B:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	64.91Å 65.64Å 124.12Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	46.15 – 1.60 46.15 – 1.60	Depositor EDS
% Data completeness (in resolution range)	99.9 (46.15-1.60) 90.6 (46.15-1.60)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	0.23 (at 1.48Å)	Xtriage
Refinement program	PHENIX 1.20.1-4487	Depositor
R, R_{free}	0.174 , 0.210 0.174 , 0.210	Depositor DCC
R_{free} test set	4356 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å^2)	18.3	Xtriage
Anisotropy	0.425	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.44 , 43.1	EDS
L-test for twinning[2]	$< \|L\| > = 0.48$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	0.009 for k,h,-l	Xtriage
F_o,F_c correlation	0.97	EDS
Total number of atoms	8556	wwPDB-VP
Average B, all atoms (Å^2)	37.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 12.57% of the height of the origin peak. No significant pseudotranslation is detected.*

[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

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: GFB, GOL

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	0.68	0/2115	0.80	0/2867
1	B	0.64	0/1991	0.74	0/2696
All	All	0.66	0/4106	0.77	0/5563

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2076	2058	2056	12	0
1	B	1957	1961	1961	12	0
2	A	38	23	21	0	0
2	B	38	23	21	0	0
3	A	6	8	8	0	0
3	B	6	8	7	0	0
4	A	202	0	0	3	1
4	B	152	0	0	3	0
All	All	4475	4081	4074	20	1

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 2.

All (20) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:143[A]:ASN:O	1:A:189:VAL:HG11	1.67	0.94
1:B:236:GLU:OE2	1:B:238:SER:OG	1.93	0.86
1:A:143[B]:ASN:ND2	4:A:401:HOH:O	2.12	0.82
1:A:207:GLU:OE2	1:B:163:ARG:NH2	2.13	0.81
1:A:163:ARG:NH1	1:B:207:GLU:OE2	2.18	0.76
1:B:262:PHE:O	1:B:265:VAL:HG22	2.08	0.53
1:A:241:GLU:OE2	4:A:402:HOH:O	2.19	0.53
1:B:57:THR:HG23	1:B:58:ASN:OD1	2.10	0.52
1:B:236:GLU:HG2	1:B:237:THR:N	2.25	0.52
1:B:21:GLN:HG3	4:B:490:HOH:O	2.12	0.50
1:A:117:THR:HG23	1:A:189:VAL:HG23	1.95	0.48
1:A:163:ARG:HG3	1:B:163:ARG:HD2	1.95	0.48
1:A:163:ARG:NE	1:B:163:ARG:HD2	2.31	0.45
1:A:275:HIS:CE1	4:A:519:HOH:O	2.70	0.44
1:B:236:GLU:HG2	1:B:237:THR:H	1.82	0.43
1:B:21:GLN:CG	4:B:490:HOH:O	2.66	0.42
1:A:200:ASN:HB3	1:A:203:GLU:HG3	2.02	0.42
1:B:163:ARG:HG3	4:B:509:HOH:O	2.19	0.42
1:A:259:GLN:NE2	1:A:266:GLU:OE1	2.49	0.40
1:A:200:ASN:C	1:A:200:ASN:OD1	2.64	0.40

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:601:HOH:O	4:A:602:HOH:O[1_455]	2.16	0.04

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	265/279 (95%)	260 (98%)	5 (2%)	0	100	100
1	B	250/279 (90%)	246 (98%)	4 (2%)	0	100	100
All	All	515/558 (92%)	506 (98%)	9 (2%)	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	221/229 (96%)	220 (100%)	1 (0%)	86	78
1	B	210/229 (92%)	207 (99%)	3 (1%)	62	43
All	All	431/458 (94%)	427 (99%)	4 (1%)	75	62

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

Mol	Chain	Res	Type
1	A	214	ARG
1	B	17	LYS
1	B	55	SER
1	B	236	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (5) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	58	ASN
1	A	186	GLN
1	A	242	GLN
1	A	275	HIS
1	B	81	GLN

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

There are no oligosaccharides in this entry.

5.6 Ligand geometry

4 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	$\#\|Z\| > 2$
2	GFB	A	300	-	36,41,41	2.80	13 (36%)	46,64,64	1.85	13 (28%)
2	GFB	B	300	-	36,41,41	3.36	17 (47%)	46,64,64	1.86	16 (34%)
3	GOL	A	301	-	5,5,5	1.06	0	5,5,5	1.75	1 (20%)
3	GOL	B	301	-	5,5,5	1.70	1 (20%)	5,5,5	1.95	3 (60%)

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	GFB	A	300	-	-	1/17/57/57	0/4/4/4
2	GFB	B	300	-	-	0/17/57/57	0/4/4/4
3	GOL	A	301	-	-	2/4/4/4	-
3	GOL	B	301	-	-	2/4/4/4	-

All (31) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	300	GFB	C2'-C3'	-9.56	1.27	1.53
2	B	300	GFB	P1-O2P	8.71	1.68	1.59
2	B	300	GFB	P-O2P	8.66	1.68	1.59
2	A	300	GFB	C2'-C3'	-8.28	1.30	1.53
2	A	300	GFB	P1-O2P	7.69	1.67	1.59
2	A	300	GFB	P-O2P	5.45	1.65	1.59
2	B	300	GFB	C5'-C4'	-4.36	1.38	1.51
2	A	300	GFB	C5'-C4'	-4.29	1.38	1.51
2	B	300	GFB	O4'-C4'	3.79	1.53	1.45
2	B	300	GFB	O5-C1	3.68	1.51	1.41
2	B	300	GFB	C2-N2	3.53	1.42	1.34
2	A	300	GFB	O3'-C3'	3.49	1.51	1.43
2	A	300	GFB	C2-N1	3.47	1.46	1.37
2	A	300	GFB	P1-O1	3.41	1.69	1.59
2	B	300	GFB	P1-O1	3.28	1.69	1.59
2	B	300	GFB	C2-N3	3.23	1.41	1.33
2	B	300	GFB	C4-N3	3.13	1.44	1.37
2	A	300	GFB	O5-C1	2.98	1.49	1.41
2	B	300	GFB	C1'-N9	-2.95	1.42	1.50
2	B	300	GFB	O2'-C2'	2.91	1.50	1.43
3	B	301	GOL	O2-C2	-2.88	1.35	1.43
2	A	300	GFB	C3'-C4'	2.84	1.60	1.53
2	B	300	GFB	C2-N1	2.84	1.44	1.37
2	B	300	GFB	C3'-C4'	2.82	1.60	1.53
2	A	300	GFB	C4-N3	2.81	1.44	1.37
2	A	300	GFB	C2-N2	2.55	1.40	1.34
2	B	300	GFB	O3'-C3'	2.47	1.49	1.43
2	A	300	GFB	O4'-C4'	2.33	1.50	1.45
2	B	300	GFB	C5-C4	-2.08	1.38	1.43
2	B	300	GFB	P-O5'	2.05	1.67	1.59
2	A	300	GFB	C5-C4	-2.00	1.38	1.43

All (33) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	300	GFB	O5-C1-O1	-4.54	105.43	111.36
2	B	300	GFB	O4'-C1'-N9	-3.94	103.53	108.75
2	B	300	GFB	O3'-C3'-C4'	-3.83	100.07	111.08
2	A	300	GFB	C2'-C3'-C4'	3.71	109.78	102.61
2	B	300	GFB	C2'-C3'-C4'	3.68	109.72	102.61
2	B	300	GFB	C6A-C5A-C4A	-3.51	106.67	113.08
2	A	300	GFB	O3'-C3'-C4'	-3.42	101.25	111.08

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	300	GFB	O4-C4A-C5A	-3.20	102.67	109.74
2	A	300	GFB	O5-C1-C2A	-2.99	104.22	110.37
2	A	300	GFB	C2-N1-C6	-2.99	119.64	125.11
2	A	300	GFB	O2P-P1-O1X	-2.97	101.78	110.70
2	A	300	GFB	O4'-C4'-C3'	-2.93	99.34	105.15
2	B	300	GFB	C8-N7-C5	2.89	107.47	102.55
2	B	300	GFB	C1-O5-C5A	2.76	118.35	113.63
2	A	300	GFB	O1-C1-C2A	2.73	113.38	108.38
3	A	301	GOL	C3-C2-C1	-2.71	101.84	111.80
2	A	300	GFB	O3-C3-C2A	-2.67	104.07	110.38
2	A	300	GFB	C8-N7-C5	2.66	107.07	102.55
2	B	300	GFB	C3-C4A-C5A	2.62	113.80	109.81
3	B	301	GOL	O3-C3-C2	-2.61	98.65	110.38
3	B	301	GOL	O2-C2-C1	2.48	119.46	109.18
2	A	300	GFB	C1-C2A-C3	2.46	115.19	110.01
2	A	300	GFB	O4'-C1'-N9	-2.44	105.51	108.75
2	A	300	GFB	O6-C6-N1	-2.41	117.76	120.62
3	B	301	GOL	O1-C1-C2	-2.31	99.96	110.38
2	B	300	GFB	N1-C2-N3	-2.28	119.14	123.32
2	B	300	GFB	C5-C6-N1	2.18	118.24	114.07
2	B	300	GFB	O5-C1-O1	-2.18	108.51	111.36
2	B	300	GFB	O2P-P-O3P	2.15	117.17	110.70
2	B	300	GFB	O6-C6-N1	-2.14	118.08	120.62
2	B	300	GFB	C4'-O4'-C1'	-2.10	108.00	109.92
2	B	300	GFB	O4-C4A-C3	-2.06	105.52	110.38
2	B	300	GFB	O1P-P-O2P	2.05	112.81	107.27

There are no chirality outliers.

All (5) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	B	301	GOL	C1-C2-C3-O3
3	A	301	GOL	C1-C2-C3-O3
3	B	301	GOL	O2-C2-C3-O3
3	A	301	GOL	O2-C2-C3-O3
2	A	300	GFB	C1-O1-P1-O2X

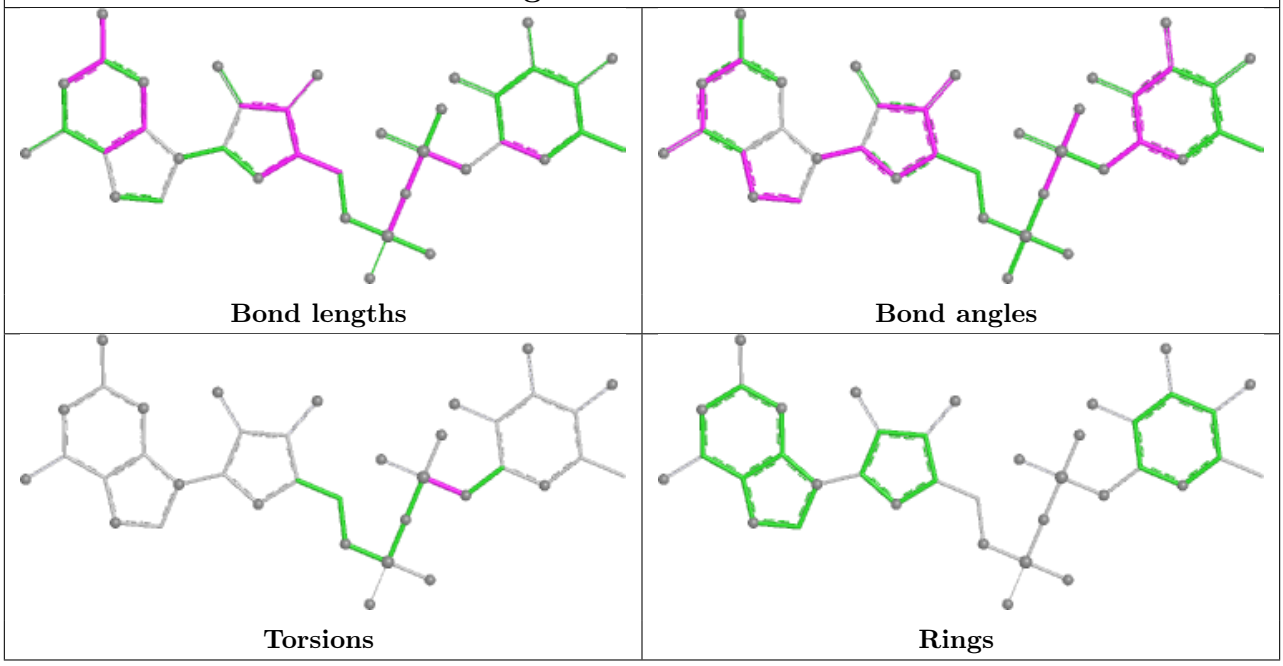
There are no ring outliers.

No monomer is involved in short contacts.

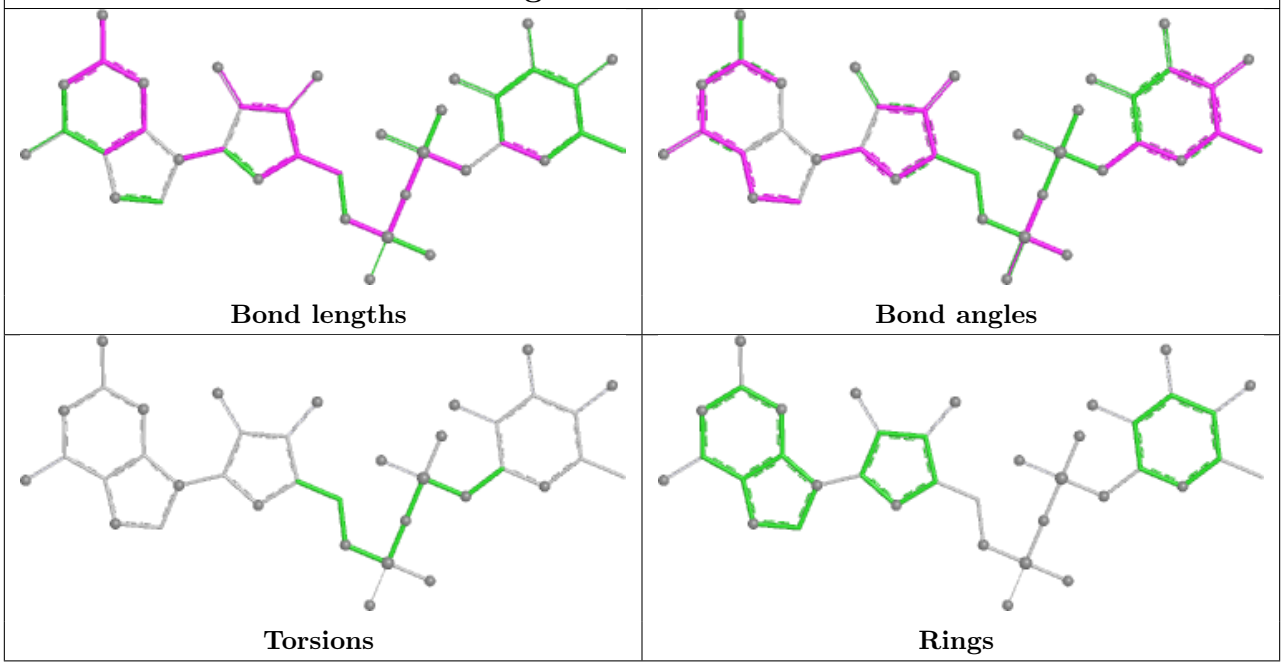
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In

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 GFB A 300



Ligand GFB B 300



5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95^{th} 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	268/279 (96%)	-0.17	4 (1%)	71	74	13, 32, 49, 70	1 (0%)
1	B	254/279 (91%)	0.05	8 (3%)	51	52	22, 37, 63, 76	0
All	All	522/558 (93%)	-0.06	12 (2%)	61	63	13, 34, 59, 76	1 (0%)

All (12) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	265	VAL	4.4
1	A	3	ALA	4.0
1	B	191	PHE	4.0
1	B	201	PRO	3.9
1	A	192	GLY	3.5
1	B	192	GLY	3.3
1	A	275	HIS	2.7
1	B	234	TRP	2.5
1	A	55	SER	2.5
1	B	55	SER	2.4
1	B	264	ALA	2.3
1	B	233	GLY	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

There are no oligosaccharides in this entry.

6.4 Ligands

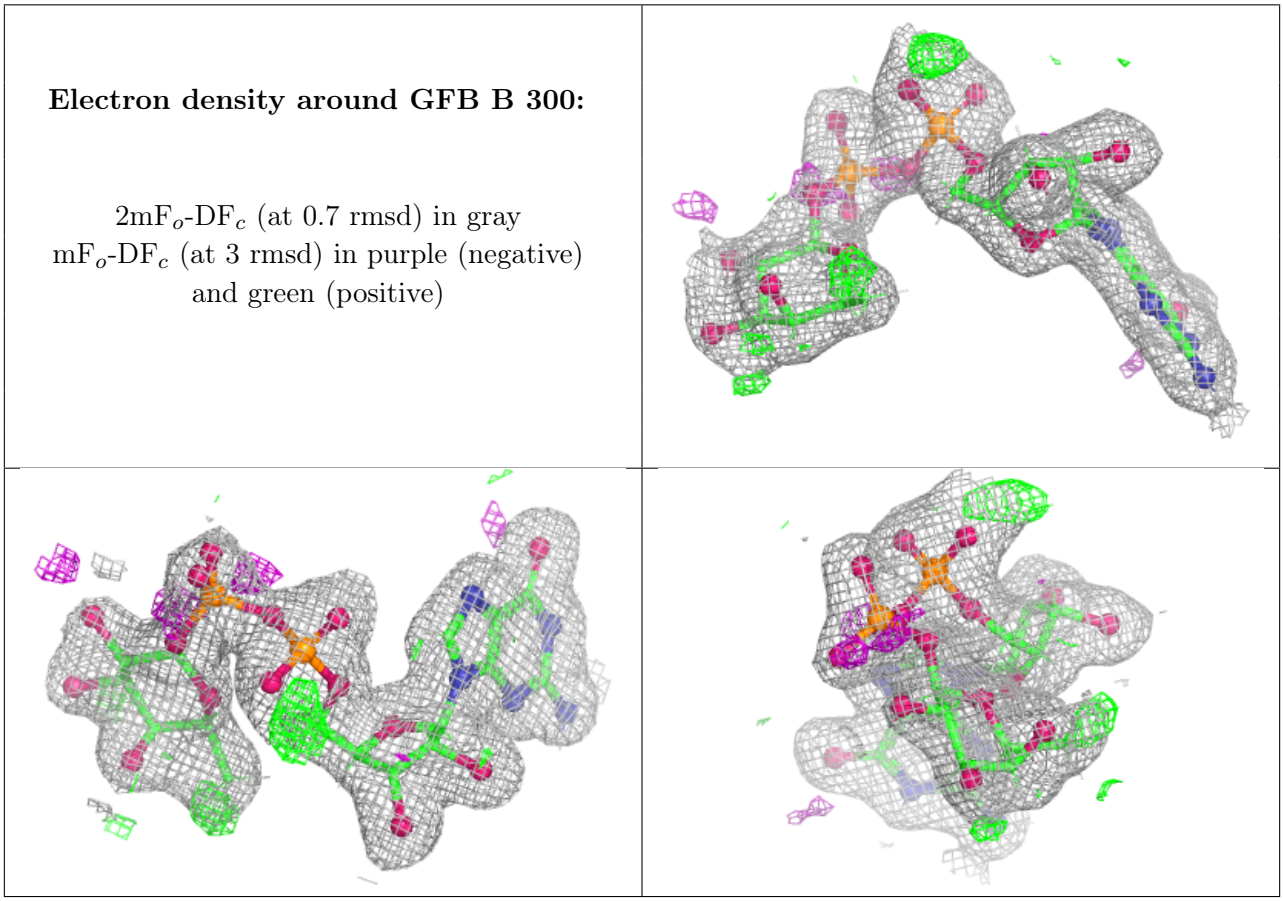
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' 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	GOL	A	301	6/6	0.83	0.18	44,53,62,75	14
2	GFB	B	300	38/38	0.93	0.10	23,38,60,73	0
2	GFB	A	300	38/38	0.94	0.08	19,31,41,45	0
3	GOL	B	301	6/6	0.94	0.09	31,40,51,51	14

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.

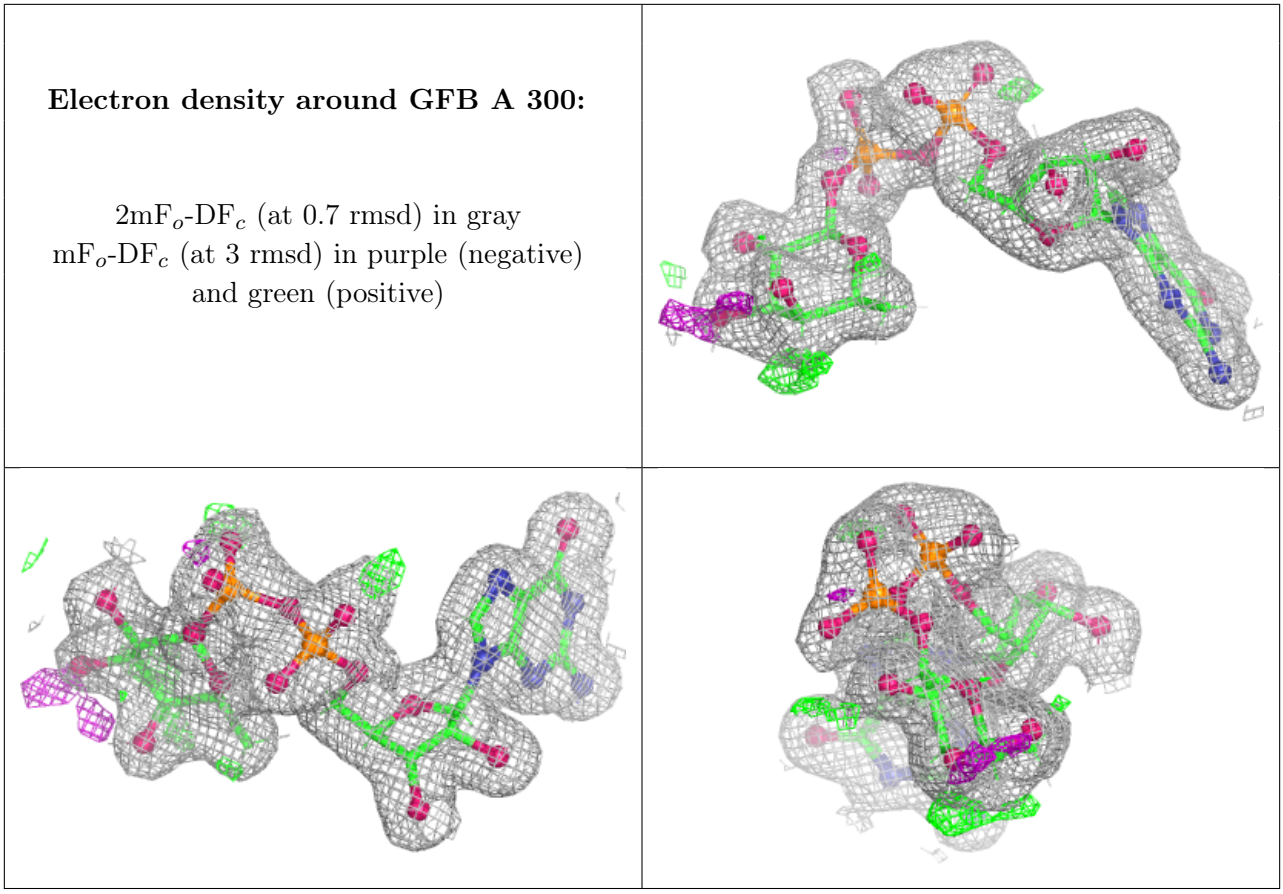
Electron density around GFB B 300:

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



Electron density around GFB A 300:

$2mF_o$-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.