



# Full wwPDB X-ray Structure Validation Report ⓘ

Oct 19, 2024 – 02:47 PM EDT

PDB ID : 5VCM  
Title : Alpha-1,6-mannosyl-glycoprotein 2-beta-N-acetylglucosaminyltransferase  
with bound UDP and Manganese  
Authors : Sanders, J.H.; Kadirvelraj, R.; Wood, Z.A.  
Deposited on : 2017-03-31  
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](mailto:validation@mail.wwpdb.org)

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

MolProbity : 4.02b-467  
Mogul : 2022.3.0, CSD as543be (2022)  
Xtriage (Phenix) : 1.20.1  
EDS : 3.0  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)  
CCP4 : 9.0.003 (Gargrove)  
Density-Fitness : 1.0.11  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.39

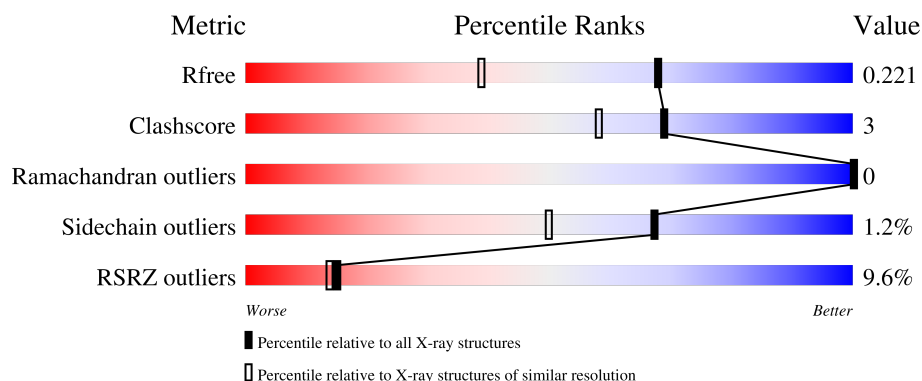
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

## *X-RAY DIFFRACTION*

The reported resolution of this entry is 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  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions  $\leq 5\%$ . The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	419	
1	B	419	

## 2 Entry composition [i](#)

There are 7 unique types of molecules in this entry. The entry contains 6598 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.

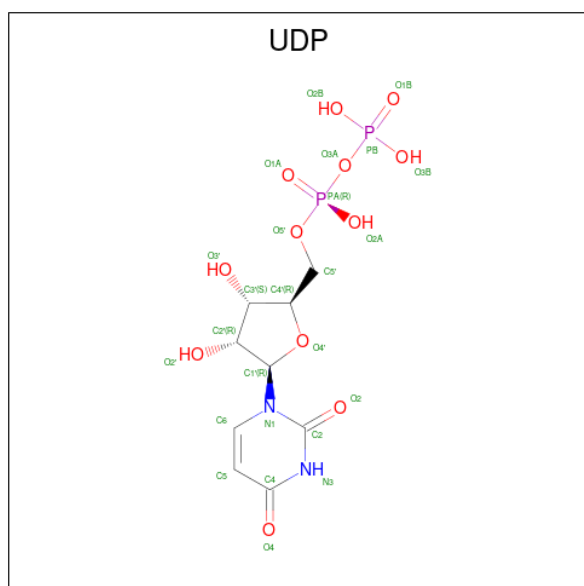
- Molecule 1 is a protein called Alpha-1,6-mannosyl-glycoprotein 2-beta-N-acetylglucosaminyltransferase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	351	Total	C	N	O	S	0	11	0
			2972	1929	502	526	15			
1	B	358	Total	C	N	O	S	0	9	0
			3005	1945	514	529	17			

- Molecule 2 is MANGANESE (II) ION (three-letter code: MN) (formula: Mn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	1	Total	Mn	0	0
			1	1		
2	B	1	Total	Mn	0	0
			1	1		

- Molecule 3 is URIDINE-5'-DIPHOSPHATE (three-letter code: UDP) (formula: C<sub>9</sub>H<sub>14</sub>N<sub>2</sub>O<sub>12</sub>P<sub>2</sub>).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	A	1	Total	C	N	O	P	0	0
			25	9	2	12	2		

- Molecule 4 is DIMETHYL SULFOXIDE (three-letter code: DMS) (formula:  $C_2H_6OS$ ).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
4	A	1	Total	C	O	S	0	0
			4	2	1	1		
4	A	1	Total	C	O	S	0	0
			4	2	1	1		
4	A	1	Total	C	O	S	0	0
			4	2	1	1		
4	B	1	Total	C	O	S	0	0
			4	2	1	1		
4	B	1	Total	C	O	S	0	0
			4	2	1	1		
4	B	1	Total	C	O	S	0	0
			4	2	1	1		
4	B	1	Total	C	O	S	0	0
			4	2	1	1		

- Molecule 5 is 1,2-ETHANEDIOL (three-letter code: EDO) (formula:  $C_2H_6O_2$ ).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	A	1	Total	C	O	0	0
			4	2	2		

- Molecule 6 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula:  $C_8H_{15}NO_6$ ).



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

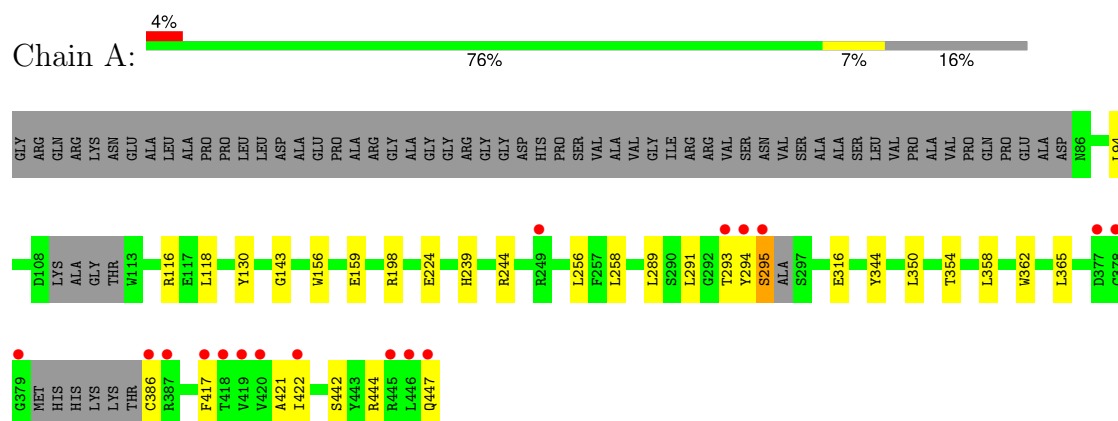
- Molecule 7 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	A	266	Total 266	O 266	0	0
7	B	278	Total 278	O 278	0	0

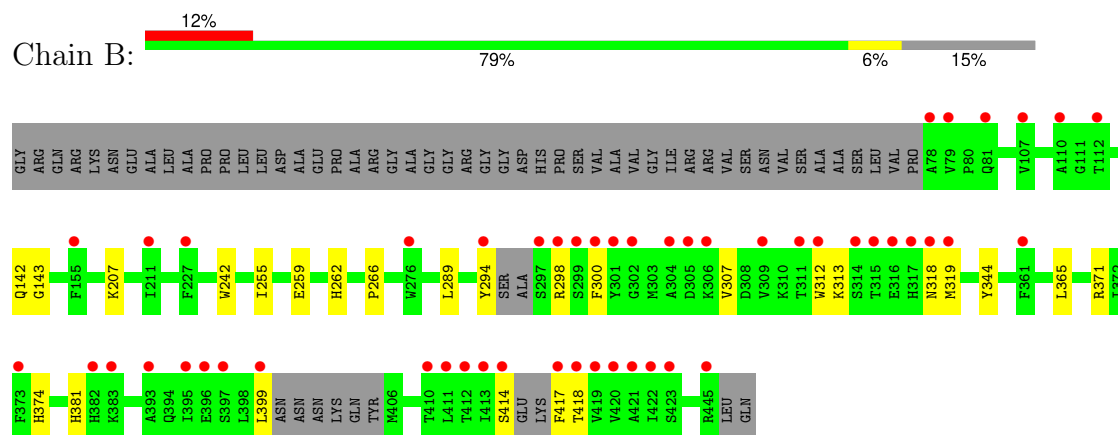
### 3 Residue-property plots

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: Alpha-1,6-mannosyl-glycoprotein 2-beta-N-acetylglucosaminyltransferase



- Molecule 1: Alpha-1,6-mannosyl-glycoprotein 2-beta-N-acetylglucosaminyltransferase



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	46.13Å 139.33Å 63.21Å 90.00° 111.08° 90.00°	Depositor
Resolution (Å)	43.04 – 1.60 43.04 – 1.60	Depositor EDS
% Data completeness (in resolution range)	99.8 (43.04-1.60) 99.8 (43.04-1.60)	Depositor EDS
$R_{merge}$	0.11	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.45 (at 1.60Å)	Xtriage
Refinement program	PHENIX 1.12_2829	Depositor
R, $R_{free}$	0.186 , 0.220 0.187 , 0.221	Depositor DCC
$R_{free}$ test set	92898 reflections (4.99%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	19.2	Xtriage
Anisotropy	0.219	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.37 , 46.8	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.49$ , $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	0.026 for h,-k,-h-l	Xtriage
$F_o, F_c$ correlation	0.96	EDS
Total number of atoms	6598	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	28.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.34% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical values of  $\langle |L| \rangle$ ,  $\langle L^2 \rangle$  for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.



## 5 Model quality

### 5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: NAG, UDP, MN, EDO, DMS

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	0.34	0/3086	0.54	0/4189
1	B	0.35	0/3105	0.54	0/4216
All	All	0.34	0/6191	0.54	0/8405

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	2972	0	2916	24	0
1	B	3005	0	2923	22	0
2	A	1	0	0	0	0
2	B	1	0	0	0	0
3	A	25	0	11	1	0
4	A	12	0	18	1	0
4	B	20	0	30	1	0
5	A	4	0	6	0	0
6	B	14	0	13	0	0
7	A	266	0	0	4	0
7	B	278	0	0	2	0
All	All	6598	0	5917	41	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 3.

All (41) 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:298:ARG:HD3	1:B:300:PHE:CZ	2.10	0.86
1:A:422:ILE:HG13	1:B:414:SER:HB3	1.60	0.83
1:A:143:GLY:H	4:A:503:DMS:H22	1.45	0.81
1:A:293:THR:HG22	1:A:294:TYR:H	1.56	0.69
1:A:116:ARG:NH1	7:A:605:HOH:O	2.32	0.61
1:A:293:THR:HG23	1:A:316:GLU:O	2.03	0.58
1:B:318[B]:ASN:HB3	7:B:727:HOH:O	2.04	0.57
1:A:244:ARG:HH12	1:A:447:GLN:HB2	1.70	0.56
1:A:421:ALA:HB3	1:B:417:PHE:CD2	2.43	0.54
1:B:259:GLU:HG3	1:B:262:HIS:CE1	2.44	0.53
1:A:417:PHE:CE1	1:B:418:THR:HG21	2.43	0.53
1:B:307:VAL:HG11	1:B:365:LEU:HG	1.91	0.52
3:A:502:UDP:O2B	1:B:298:ARG:NH1	2.42	0.52
1:A:130:TYR:OH	1:A:386:CYS:HB2	2.11	0.51
1:A:198:ARG:HD3	1:A:224:GLU:HB2	1.93	0.50
1:A:289:LEU:HD22	1:A:365:LEU:HB3	1.93	0.50
1:B:298:ARG:CD	1:B:300:PHE:CZ	2.91	0.49
1:B:298:ARG:HD3	1:B:300:PHE:CE1	2.48	0.48
1:A:118:LEU:HD11	1:A:256:LEU:HB2	1.96	0.47
1:A:239:HIS:CE1	1:A:444:ARG:HA	2.50	0.46
1:B:319[A]:MET:HE1	1:B:374:HIS:N	2.31	0.46
1:B:242:TRP:CE2	1:B:255:ILE:HD12	2.51	0.45
1:B:313:LYS:H	1:B:318[B]:ASN:HD21	1.64	0.45
1:B:319[B]:MET:SD	1:B:374:HIS:HB2	2.57	0.45
1:A:256:LEU:HD11	1:A:291:LEU:HG	1.99	0.45
1:A:94[B]:LEU:HD21	1:A:156:TRP:CZ2	2.53	0.44
1:B:207:LYS:HE3	1:B:207:LYS:HB3	1.79	0.44
1:A:293:THR:HG22	1:A:294:TYR:N	2.29	0.44
1:A:442[B]:SER:OG	7:A:602:HOH:O	2.21	0.43
1:A:444:ARG:NH2	7:A:611:HOH:O	2.38	0.43
1:B:289:LEU:HD22	1:B:365:LEU:HB3	2.00	0.43
1:B:143:GLY:H	4:B:506:DMS:H12	1.84	0.43
1:B:312:TRP:HA	1:B:318[B]:ASN:HD21	1.83	0.43
1:A:94[B]:LEU:HD21	1:A:156:TRP:CH2	2.54	0.43
1:A:350:LEU:O	1:A:354:THR:HG23	2.19	0.42
1:A:354:THR:HA	1:A:358:LEU:HD12	2.01	0.42
1:B:266:PRO:HD3	1:B:399:LEU:HD13	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:319[B]:MET:HA	7:B:644:HOH:O	2.20	0.41
1:A:159:GLU:OE1	7:A:601:HOH:O	2.21	0.41
1:A:295:SER:HB3	1:B:294:TYR:HD1	1.86	0.41
1:A:295:SER:HA	1:B:294:TYR:HE1	1.86	0.40

There are no symmetry-related clashes.

## 5.3 Torsion angles [i](#)

### 5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	353/419 (84%)	348 (99%)	5 (1%)	0	100	100
1	B	357/419 (85%)	347 (97%)	10 (3%)	0	100	100
All	All	710/838 (85%)	695 (98%)	15 (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	332/370 (90%)	328 (99%)	4 (1%)	67	50
1	B	330/370 (89%)	326 (99%)	4 (1%)	67	50
All	All	662/740 (90%)	654 (99%)	8 (1%)	67	50

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

Mol	Chain	Res	Type
1	A	258	LEU
1	A	295	SER
1	A	344	TYR
1	A	362	TRP
1	B	142	GLN
1	B	344	TYR
1	B	371	ARG
1	B	381	HIS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	125	HIS

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

## 5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

Of 13 ligands modelled in this entry, 2 are monoatomic - leaving 11 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
4	DMS	B	506	-	3,3,3	0.64	0	3,3,3	0.71	0
4	DMS	A	504	-	3,3,3	0.64	0	3,3,3	0.55	0
3	UDP	A	502	2	25,26,26	1.11	2 (8%)	38,40,40	1.68	5 (13%)
4	DMS	A	506	-	3,3,3	0.67	0	3,3,3	0.51	0
4	DMS	B	507	-	3,3,3	0.66	0	3,3,3	0.87	0
4	DMS	B	505	-	3,3,3	0.66	0	3,3,3	0.54	0
4	DMS	A	503	-	3,3,3	0.58	0	3,3,3	0.75	0
4	DMS	B	504	-	3,3,3	0.66	0	3,3,3	0.80	0
5	EDO	A	505	-	3,3,3	0.44	0	2,2,2	0.53	0
4	DMS	B	503	-	3,3,3	0.65	0	3,3,3	0.51	0
6	NAG	B	502	1	14,14,15	0.25	0	17,19,21	0.53	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
5	EDO	A	505	-	-	1/1/1/1	-
3	UDP	A	502	2	-	1/16/32/32	0/2/2/2
6	NAG	B	502	1	-	0/6/23/26	0/1/1/1

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	502	UDP	C4-N3	-2.78	1.33	1.38
3	A	502	UDP	PA-O3A	2.39	1.62	1.59

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	502	UDP	C4-N3-C2	-5.54	119.74	126.61
3	A	502	UDP	N3-C2-N1	4.11	120.25	114.89
3	A	502	UDP	C5-C4-N3	4.00	120.41	114.80
3	A	502	UDP	O4-C4-C5	-2.95	120.07	125.16
3	A	502	UDP	O2-C2-N1	-2.74	119.23	122.80

There are no chirality outliers.

All (2) torsion outliers are listed below:

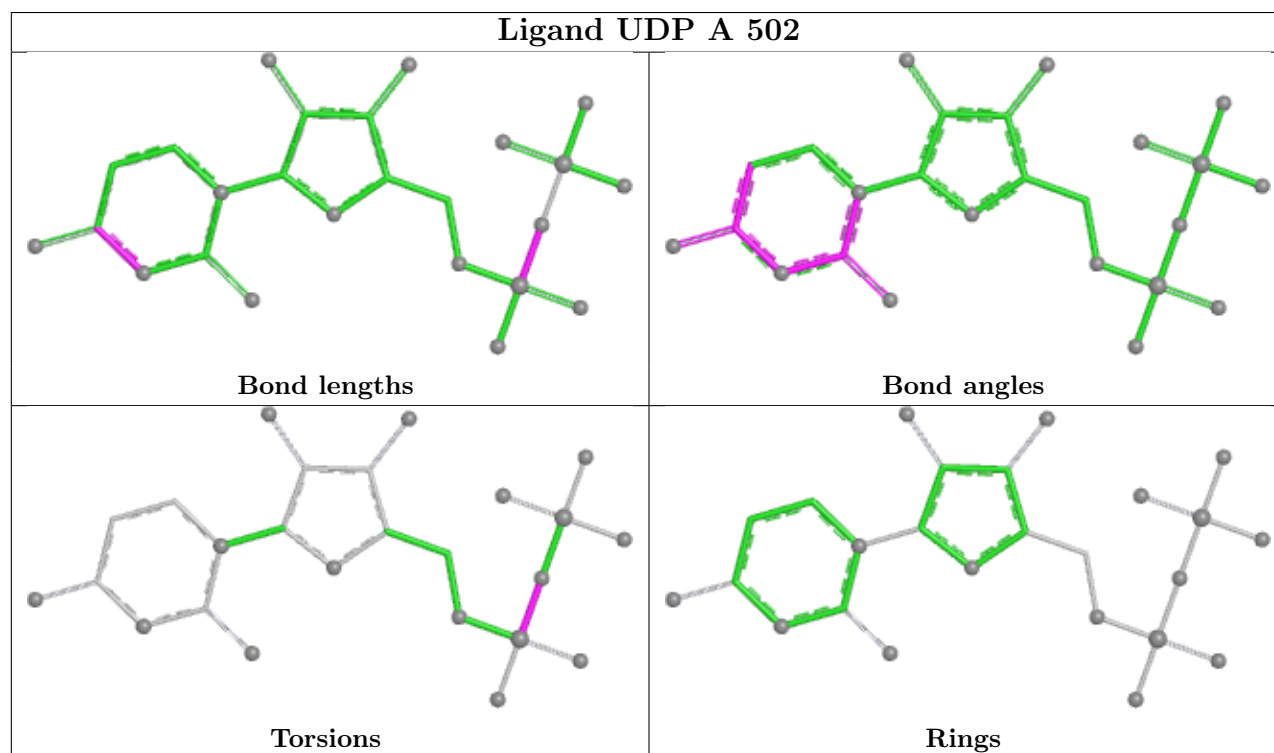
Mol	Chain	Res	Type	Atoms
5	A	505	EDO	O1-C1-C2-O2
3	A	502	UDP	PB-O3A-PA-O1A

There are no ring outliers.

3 monomers are involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	B	506	DMS	1	0
3	A	502	UDP	1	0
4	A	503	DMS	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 than 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.



## 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<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	351/419 (83%)	0.22	17 (4%) 36 36	12, 24, 43, 62	10 (2%)
1	B	358/419 (85%)	0.67	51 (14%) 7 6	10, 25, 50, 80	7 (1%)
All	All	709/838 (84%)	0.44	68 (9%) 15 14	10, 24, 47, 80	17 (2%)

All (68) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	417	PHE	10.8
1	B	422	ILE	6.3
1	A	417	PHE	5.0
1	B	304	ALA	4.8
1	A	420	VAL	4.6
1	B	414	SER	4.6
1	B	302[A]	GLY	4.5
1	B	315	THR	4.5
1	B	301	TYR	4.4
1	B	78	ALA	4.3
1	B	420	VAL	4.1
1	B	300	PHE	3.9
1	B	413	ILE	3.8
1	B	305	ASP	3.8
1	B	294	TYR	3.8
1	B	397	SER	3.8
1	B	412	THR	3.7
1	B	421	ALA	3.6
1	A	422	ILE	3.6
1	A	386	CYS	3.5
1	B	309[A]	VAL	3.5
1	A	295	SER	3.2
1	B	419	VAL	3.2
1	A	378	CYS	3.2

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Mol	Chain	Res	Type	RSRZ
1	A	249	ARG	3.1
1	B	318[A]	ASN	3.1
1	B	298	ARG	3.1
1	B	410	THR	3.1
1	B	312	TRP	3.0
1	A	379	GLY	3.0
1	B	311	THR	2.9
1	B	79	VAL	2.9
1	B	276	TRP	2.8
1	B	361	PHE	2.8
1	B	316	GLU	2.8
1	A	387	ARG	2.8
1	B	297	SER	2.8
1	B	319[A]	MET	2.8
1	A	446	LEU	2.7
1	A	447	GLN	2.6
1	A	418	THR	2.6
1	A	419	VAL	2.5
1	B	155[A]	PHE	2.5
1	B	314	SER	2.5
1	A	294	TYR	2.5
1	B	395	ILE	2.4
1	B	110	ALA	2.4
1	B	393	ALA	2.4
1	B	299	SER	2.4
1	B	227	PHE	2.4
1	B	418	THR	2.4
1	B	306	LYS	2.4
1	B	411	LEU	2.3
1	B	382	HIS	2.3
1	B	373	PHE	2.3
1	B	445	ARG	2.3
1	B	399	LEU	2.3
1	B	383	LYS	2.2
1	A	293	THR	2.2
1	B	211	ILE	2.2
1	A	445	ARG	2.2
1	B	423	SER	2.2
1	B	81	GLN	2.1
1	B	107	VAL	2.1
1	B	396	GLU	2.1
1	A	377	ASP	2.0

*Continued on next page...*

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Mol	Chain	Res	Type	RSRZ
1	B	317	HIS	2.0
1	B	112	THR	2.0

## 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](#)

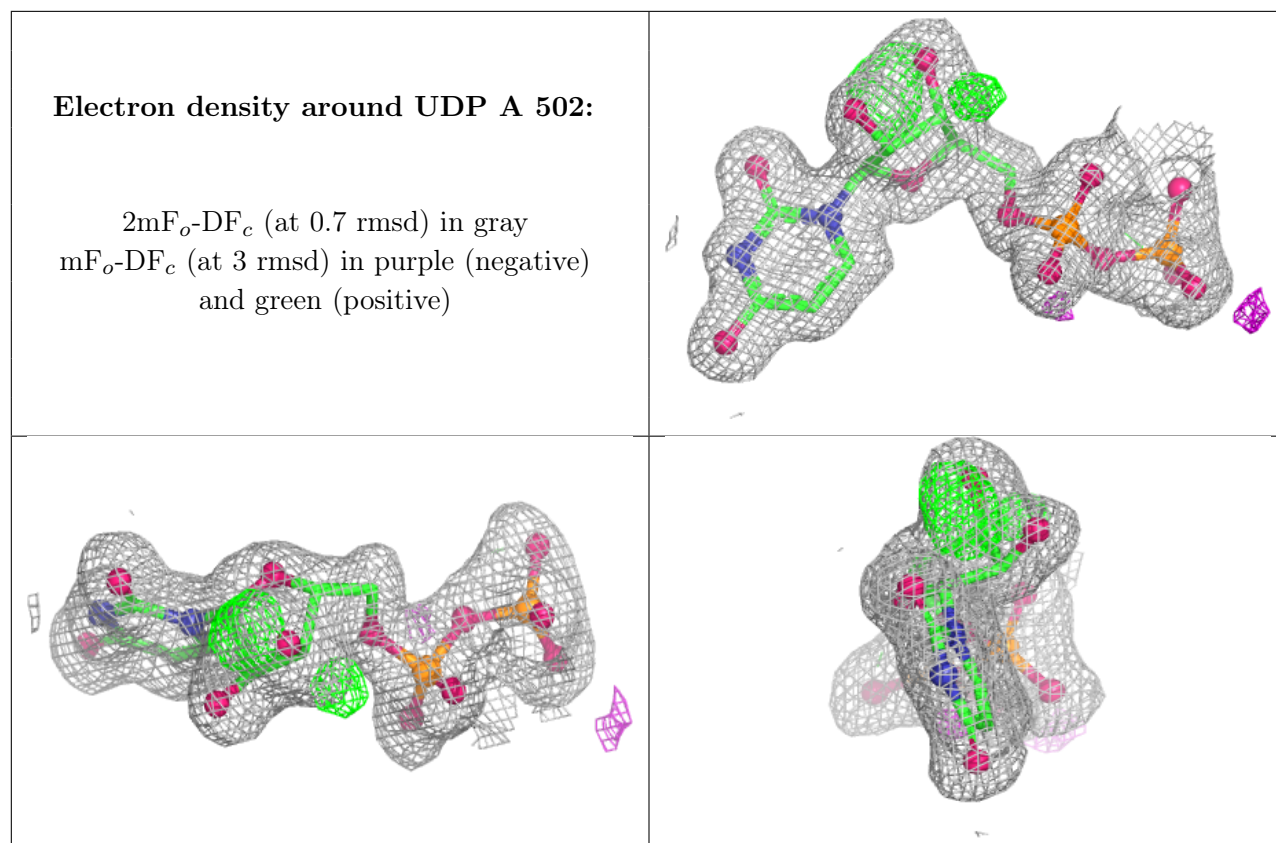
There are no monosaccharides in this entry.

## 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, 95<sup>th</sup> 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( $\text{\AA}^2$ )	Q<0.9
4	DMS	A	506	4/4	0.70	0.21	63,66,67,68	0
6	NAG	B	502	14/15	0.86	0.12	20,29,33,38	14
4	DMS	B	507	4/4	0.90	0.16	35,48,48,51	0
4	DMS	B	503	4/4	0.92	0.14	42,43,45,45	0
5	EDO	A	505	4/4	0.92	0.09	22,25,29,34	0
4	DMS	B	506	4/4	0.92	0.12	39,47,48,55	0
3	UDP	A	502	25/25	0.93	0.08	15,23,31,36	25
4	DMS	A	503	4/4	0.94	0.12	28,40,41,43	0
4	DMS	B	504	4/4	0.94	0.13	24,47,51,56	0
4	DMS	A	504	4/4	0.95	0.10	38,38,42,44	0
4	DMS	B	505	4/4	0.95	0.12	38,40,43,46	0
2	MN	B	501	1/1	0.99	0.09	25,25,25,25	1
2	MN	A	501	1/1	0.99	0.03	21,21,21,21	1

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.



## 6.5 Other polymers ⓘ

There are no such residues in this entry.