



# Full wwPDB X-ray Structure Validation Report ⓘ

May 26, 2020 – 05:42 pm BST

PDB ID : 3OH4  
Title : Protein structure of USP from L. major bound to URIDINE-5'-DIPHOSPHATE Glucose  
Authors : Dickmanns, A.; Damerow, S.; Neumann, P.; Schulz, E.-C.; Lamerz, A.; Routier, F.H.; Ficner, R.  
Deposited on : 2010-08-17  
Resolution : 2.21 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.

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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 : 1.8.5 (274361), CSD as541be (2020)  
Xtriage (Phenix) : 1.13  
EDS : 2.11  
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) : 2.11

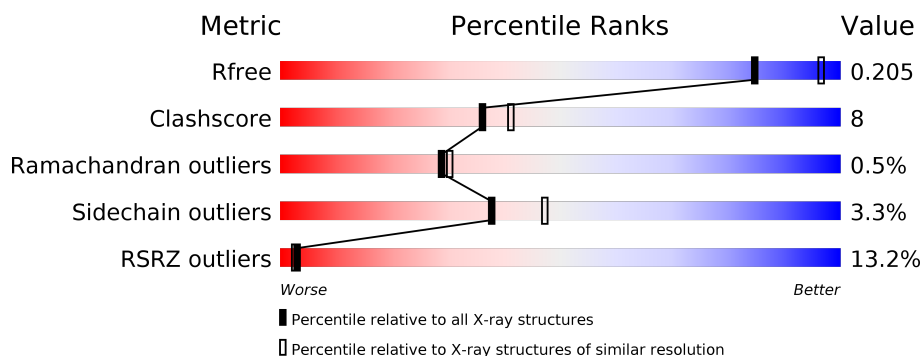
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

## *X-RAY DIFFRACTION*

The reported resolution of this entry is 2.21 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	5912 (2.24-2.20)
Clashscore	141614	6646 (2.24-2.20)
Ramachandran outliers	138981	6543 (2.24-2.20)
Sidechain outliers	138945	6544 (2.24-2.20)
RSRZ outliers	127900	5797 (2.24-2.20)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments on the lower bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 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	641	<div> <div>12%</div> <div>74%</div> <div>16%</div> <div>9%</div> </div>

## 2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 4866 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.

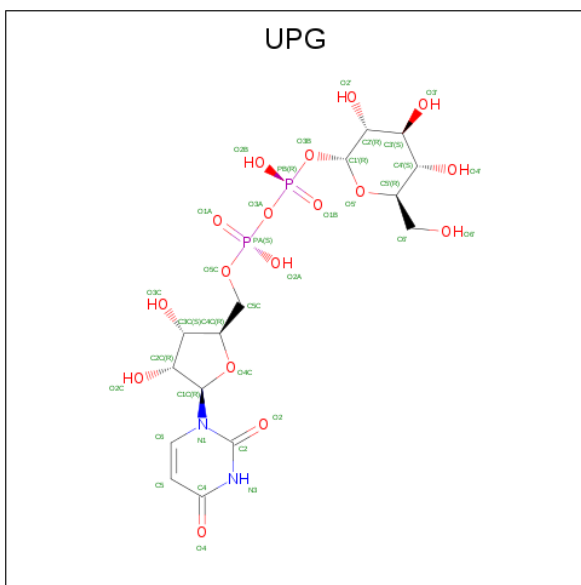
- Molecule 1 is a protein called UDP-sugar pyrophosphorylase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	585	4605	2916	805	865	19	0	6	0

There are 11 discrepancies between the modelled and reference sequences:

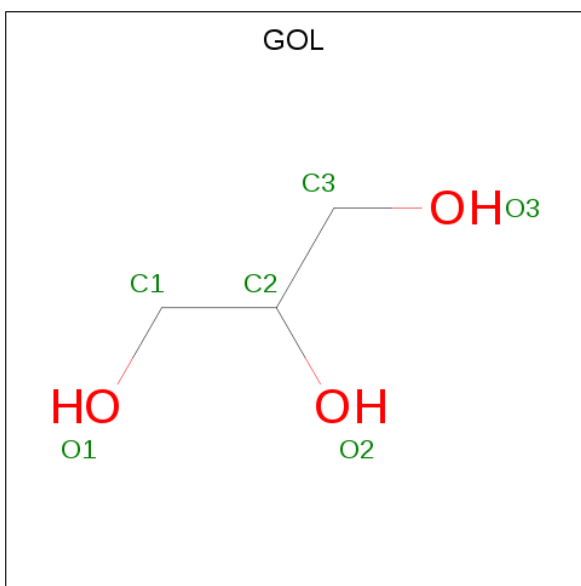
Chain	Residue	Modelled	Actual	Comment	Reference
A	631	MET	-	EXPRESSION TAG	UNP D3G6S4
A	632	ARG	-	EXPRESSION TAG	UNP D3G6S4
A	633	ARG	-	EXPRESSION TAG	UNP D3G6S4
A	634	LEU	-	EXPRESSION TAG	UNP D3G6S4
A	635	GLU	-	EXPRESSION TAG	UNP D3G6S4
A	636	HIS	-	EXPRESSION TAG	UNP D3G6S4
A	637	HIS	-	EXPRESSION TAG	UNP D3G6S4
A	638	HIS	-	EXPRESSION TAG	UNP D3G6S4
A	639	HIS	-	EXPRESSION TAG	UNP D3G6S4
A	640	HIS	-	EXPRESSION TAG	UNP D3G6S4
A	641	HIS	-	EXPRESSION TAG	UNP D3G6S4

- Molecule 2 is URIDINE-5'-DIPHOSPHATE-GLUCOSE (three-letter code: UPG) (formula:  $C_{15}H_{24}N_2O_{17}P_2$ ).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	P	0	0
			36	15	2	17	2		

- Molecule 3 is GLYCEROL (three-letter code: GOL) (formula:  $\text{C}_3\text{H}_8\text{O}_3$ ).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	C	O	0	0
			6	3	3		

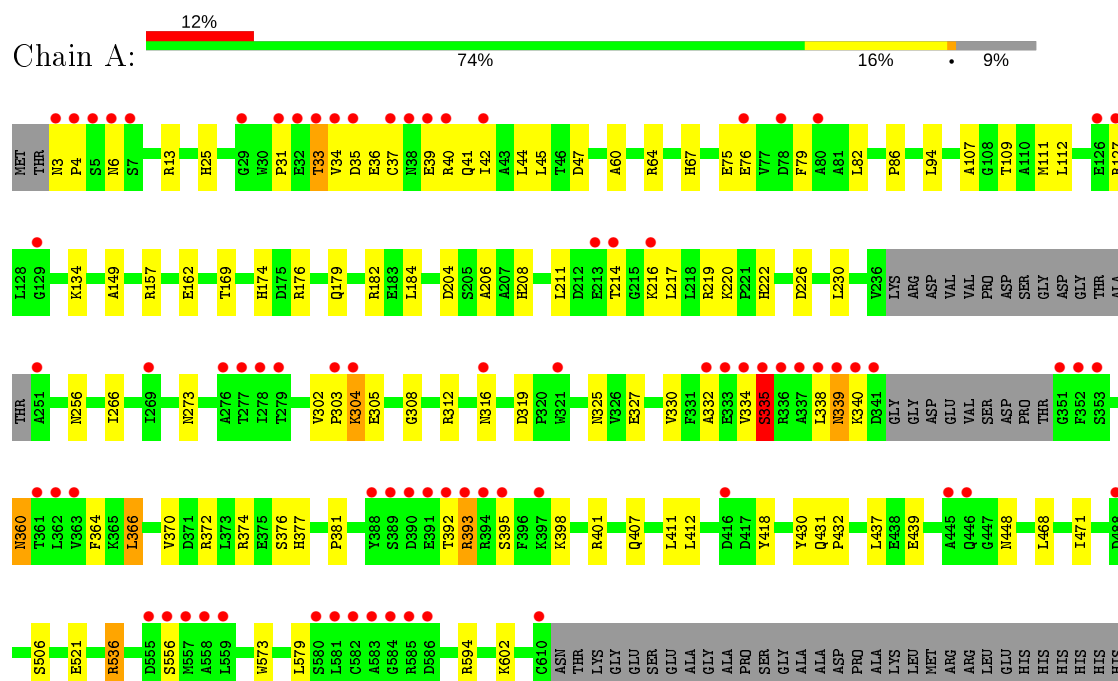
- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	219	Total 219	O 219	0	0

### 3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA and DNA 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: UDP-sugar pyrophosphorylase



## 4 Data and refinement statistics

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	107.81Å 121.67Å 61.39Å 90.00° 105.73° 90.00°	Depositor
Resolution (Å)	32.89 – 2.21 32.89 – 2.21	Depositor EDS
% Data completeness (in resolution range)	99.1 (32.89-2.21) 99.2 (32.89-2.21)	Depositor EDS
$R_{merge}$	0.05	Depositor
$R_{sym}$	0.05	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.94 (at 2.22Å)	Xtriage
Refinement program	PHENIX 1.6.1 _357	Depositor
R, $R_{free}$	0.178 , 0.212 0.172 , 0.205	Depositor DCC
$R_{free}$ test set	1840 reflections (4.87%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	42.2	Xtriage
Anisotropy	0.382	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.32 , 46.5	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.49$ , $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
$F_o, F_c$ correlation	0.97	EDS
Total number of atoms	4866	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	60.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.96% 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: GOL, UPG

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	0.29	0/4700	0.46	0/6382

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	4605	0	4573	74	0
2	A	36	0	22	0	0
3	A	6	0	8	0	0
4	A	219	0	0	2	0
All	All	4866	0	4603	74	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 8.

All (74) 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:44:LEU:HD11	1:A:217:LEU:HG	1.64	0.77
1:A:33:THR:HG22	1:A:36:GLU:HG3	1.71	0.71
1:A:204:ASP:OD1	1:A:208:HIS:HD2	1.76	0.67
1:A:304:LYS:HD3	1:A:448:ASN:HD21	1.60	0.66
1:A:220:LYS:NZ	1:A:398:LYS:HE3	2.11	0.65
1:A:308:GLY:HA3	1:A:325:ASN:HD21	1.63	0.64
1:A:381:PRO:HG2	1:A:411:LEU:HD12	1.81	0.62
1:A:3:ASN:HB3	1:A:4:PRO:HD3	1.81	0.62
1:A:360:ASN:HD21	1:A:407:GLN:HB3	1.65	0.61
1:A:256:ASN:ND2	1:A:374:ARG:HH21	1.99	0.59
1:A:31:PRO:HB2	1:A:36:GLU:HB2	1.83	0.59
1:A:220:LYS:HZ3	1:A:398:LYS:HE3	1.69	0.56
1:A:157:ARG:HH22	1:A:556:SER:CB	2.18	0.56
1:A:521:GLU:H	1:A:521:GLU:CD	2.08	0.56
1:A:332:ALA:O	1:A:335:SER:HB2	2.06	0.55
1:A:273:ASN:ND2	1:A:431:GLN:H	2.04	0.55
1:A:34:VAL:HG13	1:A:42:ILE:CD1	2.37	0.55
1:A:157:ARG:HE	1:A:506:SER:HA	1.72	0.54
1:A:127:ARG:HD2	1:A:439:GLU:OE2	2.07	0.53
1:A:109:THR:HA	1:A:112:LEU:HD12	1.90	0.53
1:A:372:ARG:NE	1:A:372:ARG:HA	2.24	0.53
1:A:330:VAL:O	1:A:334:VAL:HG23	2.09	0.52
1:A:256:ASN:N	1:A:256:ASN:HD22	2.08	0.51
1:A:372:ARG:HD3	1:A:412:LEU:O	2.10	0.51
1:A:157:ARG:HH22	1:A:556:SER:HB3	1.76	0.51
1:A:127:ARG:HB3	1:A:439:GLU:OE1	2.10	0.51
1:A:304:LYS:CD	1:A:448:ASN:HD21	2.23	0.50
1:A:25:HIS:CE1	1:A:208:HIS:HB3	2.47	0.49
1:A:31:PRO:HG2	1:A:37:CYS:SG	2.52	0.49
1:A:179:GLN:HG3	1:A:182[B]:ARG:NH1	2.28	0.49
1:A:214:THR:HB	1:A:216:LYS:HE2	1.95	0.49
1:A:302:VAL:HG22	1:A:305:GLU:CD	2.34	0.48
1:A:376:SER:O	1:A:377:HIS:HB2	2.14	0.48
1:A:176:ARG:HD3	4:A:792:HOH:O	2.14	0.47
1:A:60:ALA:O	1:A:64[A]:ARG:HG3	2.14	0.47
1:A:256:ASN:HD21	1:A:374:ARG:HH21	1.62	0.47
1:A:430:TYR:CZ	1:A:432:PRO:HG3	2.50	0.46
1:A:214:THR:OG1	1:A:216:LYS:HG2	2.15	0.46
1:A:327:GLU:OE1	1:A:327:GLU:HA	2.15	0.46
1:A:316:ASN:HB2	1:A:319:ASP:OD1	2.16	0.45
1:A:366:LEU:HD22	1:A:370:VAL:HG23	1.99	0.45
1:A:34:VAL:HG13	1:A:42:ILE:HD12	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:573:TRP:CD1	1:A:602:LYS:HA	2.51	0.45
1:A:536:ARG:HA	1:A:536:ARG:HE	1.82	0.45
1:A:37:CYS:HB2	1:A:42:ILE:HD11	1.99	0.44
1:A:6:ASN:O	1:A:34:VAL:HG21	2.18	0.44
1:A:47:ASP:HB2	1:A:219:ARG:NH2	2.31	0.44
1:A:34:VAL:HG13	1:A:42:ILE:HD11	1.99	0.44
1:A:162[A]:GLU:CD	1:A:162[A]:GLU:H	2.20	0.44
1:A:372:ARG:HD2	1:A:418:TYR:CE2	2.53	0.43
1:A:594:ARG:HD2	4:A:849:HOH:O	2.19	0.43
1:A:211:LEU:HD23	1:A:217:LEU:HD23	1.99	0.43
1:A:393:ARG:C	1:A:395:SER:H	2.22	0.43
1:A:37:CYS:HB3	1:A:41:GLN:HE21	1.83	0.43
1:A:392:THR:HG22	1:A:392:THR:O	2.19	0.43
1:A:468:LEU:O	1:A:471:ILE:HG12	2.18	0.42
1:A:437:LEU:HA	1:A:437:LEU:HD23	1.88	0.42
1:A:94:LEU:C	1:A:94:LEU:HD12	2.40	0.42
1:A:39:GLU:HG3	1:A:40:ARG:N	2.34	0.42
1:A:79:PHE:H	1:A:338:LEU:HD22	1.84	0.42
1:A:169:THR:OG1	1:A:174:HIS:HD2	2.01	0.42
1:A:67:HIS:HE1	1:A:206:ALA:O	2.02	0.42
1:A:222:HIS:HB3	1:A:226:ASP:OD2	2.20	0.41
1:A:33:THR:HG23	1:A:34:VAL:N	2.35	0.41
1:A:266:ILE:HG23	1:A:364:PHE:HB2	2.02	0.41
1:A:13:ARG:HB2	1:A:45:LEU:HD21	2.01	0.41
1:A:579:LEU:HD23	1:A:579:LEU:HA	1.78	0.41
1:A:304:LYS:HB3	1:A:304:LYS:HE2	1.92	0.41
1:A:204:ASP:OD1	1:A:208:HIS:CD2	2.66	0.41
1:A:149:ALA:HB2	1:A:184:LEU:HD13	2.03	0.41
1:A:302:VAL:HG22	1:A:305:GLU:OE2	2.21	0.41
1:A:107:ALA:O	1:A:111:MET:HG3	2.21	0.40
1:A:86:PRO:HD3	1:A:312:ARG:HD2	2.04	0.40
1:A:372:ARG:HH11	1:A:418:TYR:HE2	1.65	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	585/641 (91%)	570 (97%)	12 (2%)	3 (0%)	29	30

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	335	SER
1	A	339	ASN
1	A	303	PRO

### 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	498/536 (93%)	482 (97%)	16 (3%)	39	49

All (16) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	33	THR
1	A	35	ASP
1	A	75	GLU
1	A	76	GLU
1	A	82	LEU
1	A	134	LYS
1	A	230	LEU
1	A	304	LYS
1	A	335	SER
1	A	339	ASN
1	A	340	LYS
1	A	360	ASN
1	A	366	LEU
1	A	393	ARG

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Mol	Chain	Res	Type
1	A	401	ARG
1	A	536	ARG

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (15) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	10	GLN
1	A	41	GLN
1	A	67	HIS
1	A	144	ASN
1	A	174	HIS
1	A	208	HIS
1	A	256	ASN
1	A	273	ASN
1	A	325	ASN
1	A	360	ASN
1	A	446	GLN
1	A	448	ASN
1	A	480	GLN
1	A	527	GLN
1	A	561	HIS

### 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 carbohydrates in this entry.

### 5.6 Ligand geometry ⓘ

2 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	$\# Z  > 2$
3	GOL	A	642	-	5,5,5	0.39	0	5,5,5	0.13	0
2	UPG	A	7566	-	31,38,38	1.56	4 (12%)	41,58,58	1.68	9 (21%)

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	GOL	A	642	-	-	2/4/4/4	-
2	UPG	A	7566	-	-	3/21/59/59	0/3/3/3

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	7566	UPG	O4-C4	4.00	1.34	1.24
2	A	7566	UPG	C6-N1	2.88	1.39	1.35
2	A	7566	UPG	C5C-C4C	2.09	1.58	1.51
2	A	7566	UPG	C2-N3	2.07	1.42	1.38

All (9) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	7566	UPG	PB-O3B-C1'	4.37	136.64	119.74
2	A	7566	UPG	O2B-PB-O1B	3.76	130.82	112.24
2	A	7566	UPG	O3B-C1'-C2'	3.05	113.97	108.38
2	A	7566	UPG	O5'-C5'-C4'	2.83	114.83	109.69
2	A	7566	UPG	C1'-C2'-C3'	-2.68	104.42	110.00
2	A	7566	UPG	O3B-PB-O1B	-2.59	99.73	109.47
2	A	7566	UPG	O5'-C5'-C6'	2.43	112.48	106.44
2	A	7566	UPG	O3A-PB-O3B	2.28	107.09	102.48
2	A	7566	UPG	O2'-C2'-C1'	-2.08	104.99	110.05

There are no chirality outliers.

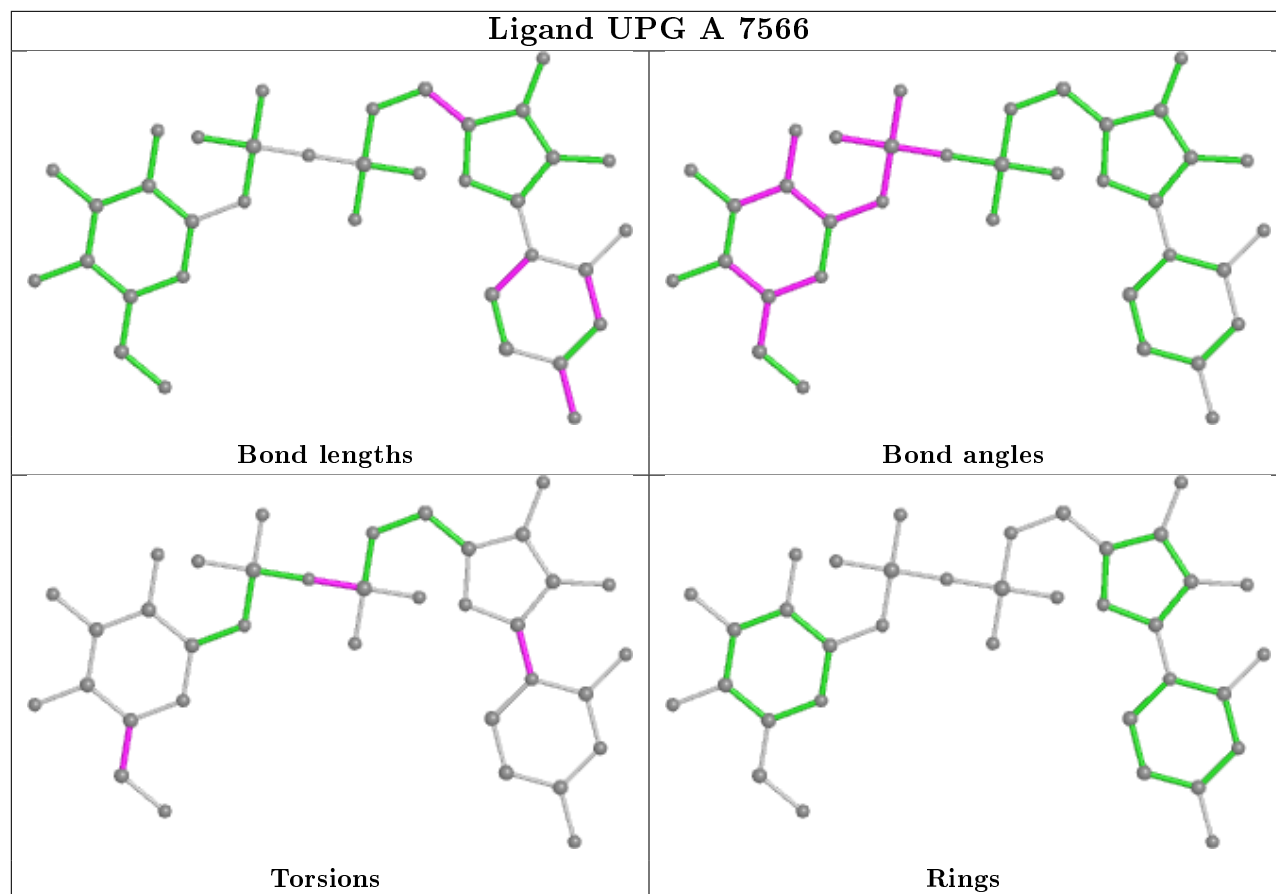
All (5) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	642	GOL	C1-C2-C3-O3
2	A	7566	UPG	O4C-C1C-N1-C6
3	A	642	GOL	O2-C2-C3-O3
2	A	7566	UPG	PB-O3A-PA-O5C
2	A	7566	UPG	O5'-C5'-C6'-O6'

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 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	585/641 (91%)	0.56	77 (13%) 3 2	28, 52, 121, 212	2 (0%)

All (77) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	341	ASP	15.9
1	A	340	LYS	14.6
1	A	338	LEU	8.2
1	A	339	ASN	7.5
1	A	337	ALA	7.3
1	A	583	ALA	6.9
1	A	584	GLY	6.5
1	A	126	GLU	6.3
1	A	335	SER	5.7
1	A	40	ARG	5.5
1	A	39	GLU	5.4
1	A	585	ARG	5.4
1	A	586	ASP	5.2
1	A	352	PHE	5.0
1	A	394	ARG	5.0
1	A	336	ARG	4.8
1	A	33	THR	4.7
1	A	581	LEU	4.7
1	A	80	ALA	4.6
1	A	7	SER	4.6
1	A	351	GLY	4.5
1	A	35	ASP	4.4
1	A	332	ALA	4.4
1	A	321	TRP	4.4
1	A	557	MET	4.3
1	A	214	THR	4.2
1	A	582	CYS	4.1

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Mol	Chain	Res	Type	RSRZ
1	A	31	PRO	3.9
1	A	362	LEU	3.9
1	A	353	SER	3.9
1	A	29	GLY	3.8
1	A	488	ASP	3.8
1	A	388	TYR	3.8
1	A	334	VAL	3.8
1	A	390	ASP	3.7
1	A	556	SER	3.7
1	A	393	ARG	3.6
1	A	558	ALA	3.6
1	A	363	VAL	3.5
1	A	559	LEU	3.4
1	A	316	ASN	3.4
1	A	32	GLU	3.3
1	A	580	SER	3.3
1	A	78	ASP	3.3
1	A	38	ASN	3.3
1	A	389	SER	3.2
1	A	6	ASN	3.2
1	A	391	GLU	3.2
1	A	251	ALA	3.2
1	A	303	PRO	3.1
1	A	555	ASP	3.0
1	A	361	THR	3.0
1	A	34	VAL	3.0
1	A	213	GLU	2.9
1	A	42	ILE	2.8
1	A	216	LYS	2.8
1	A	37	CYS	2.8
1	A	269	ILE	2.8
1	A	277	THR	2.7
1	A	127	ARG	2.6
1	A	610	CYS	2.6
1	A	445	ALA	2.5
1	A	5	SER	2.5
1	A	276	ALA	2.5
1	A	416	ASP	2.5
1	A	76	GLU	2.4
1	A	446	GLN	2.4
1	A	3	ASN	2.4
1	A	333	GLU	2.3

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Mol	Chain	Res	Type	RSRZ
1	A	304	LYS	2.3
1	A	4	PRO	2.3
1	A	392	THR	2.2
1	A	129	GLY	2.2
1	A	279	THR	2.1
1	A	397	LYS	2.1
1	A	278	ILE	2.0
1	A	395	SER	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 carbohydrates in this entry.

## 6.4 Ligands [i](#)

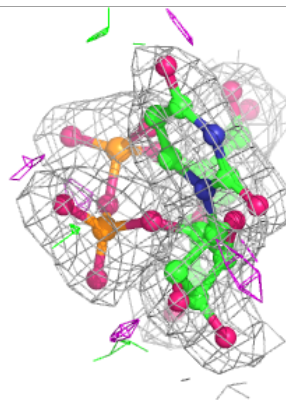
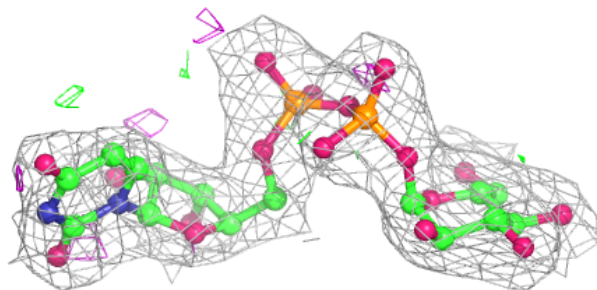
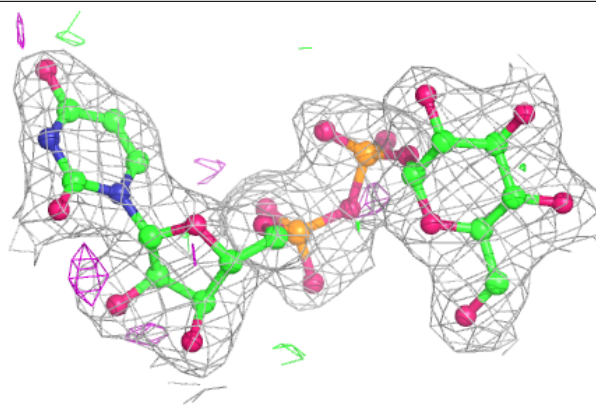
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95<sup>th</sup> percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 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
3	GOL	A	642	6/6	0.81	0.23	61,62,65,65	0
2	UPG	A	7566	36/36	0.96	0.12	36,47,52,53	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 UPG A 7566:**

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



## 6.5 Other polymers [i](#)

There are no such residues in this entry.