



Full wwPDB X-ray Structure Validation Report ⓘ

Aug 8, 2020 – 04:37 PM BST

PDB ID : 5XVS
Title : Crystal structure of UDP-GlcNAc 2-epimerase NeuC complexed with UDP
Authors : Ko, T.P.; Hsieh, T.J.; Chen, S.C.; Wu, S.C.; Guan, H.H.; Yang, C.H.; Chen, C.J.; Chen, Y.
Deposited on : 2017-06-28
Resolution : 2.38 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 : 2.13.1
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) : 2.13.1

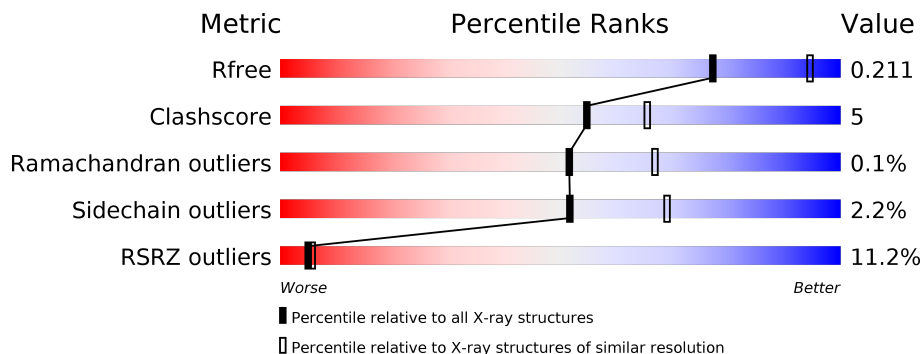
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.38 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	5509 (2.40-2.36)
Clashscore	141614	6082 (2.40-2.36)
Ramachandran outliers	138981	5973 (2.40-2.36)
Sidechain outliers	138945	5975 (2.40-2.36)
RSRZ outliers	127900	5397 (2.40-2.36)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments on the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. 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	379	 17% 80% 14% • 5%
1	B	379	 4% 87% 9% ••

2 Entry composition [i](#)

There are 5 unique types of molecules in this entry. The entry contains 6192 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 GDP/UDP-N,N'-diacetylbacillosamine 2-epimerase (Hydrolyzing).

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	359	2823	1813	470	529	11	0	0	0
1	B	366	2879	1842	480	546	11	0	0	0

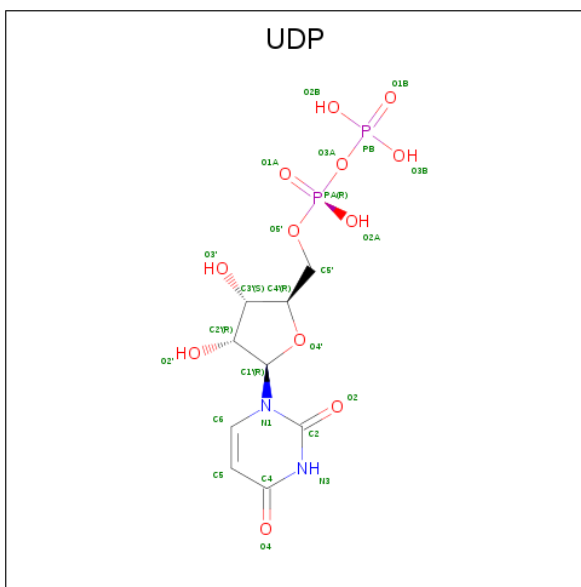
There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	379	LEU	-	expression tag	UNP A0A154EJU5
B	379	LEU	-	expression tag	UNP A0A154EJU5

- Molecule 2 is LITHIUM ION (three-letter code: LI) (formula: Li).

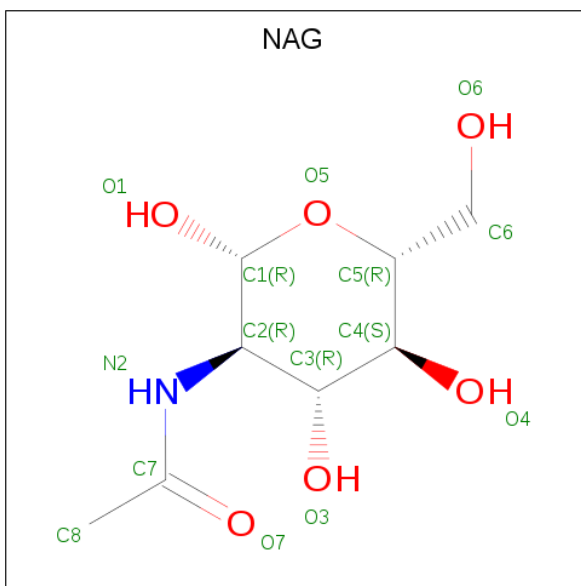
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	Li		
2	B	1	1	1	0	0
2	A	1	1	1	0	0

- Molecule 3 is URIDINE-5'-DIPHOSPHATE (three-letter code: UDP) (formula: C₉H₁₄N₂O₁₂P₂).



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

- Molecule 4 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: $C_8H_{15}NO_6$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
4	B	1	Total	C	N	O	1	0
			15	8	1	6		

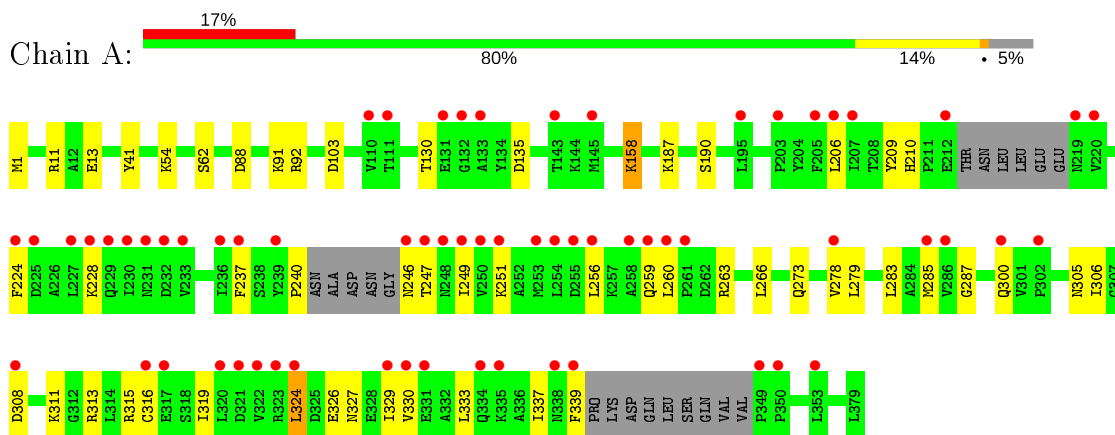
- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	205	Total 205	O 205	0	0
5	B	218	Total 218	O 218	0	0

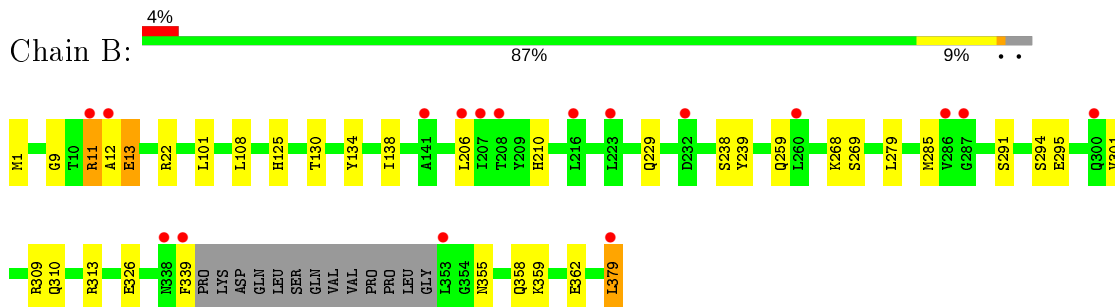
3 Residue-property plots [\(i\)](#)

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: GDP/UDP-N,N'-diacetylglucosamine 2-epimerase (Hydrolyzing)



- Molecule 1: GDP/UDP-N,N'-diacetylglucosamine 2-epimerase (Hydrolyzing)



4 Data and refinement statistics i

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α , β , γ	86.88Å 147.65Å 124.98Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	27.96 – 2.38 27.96 – 2.38	Depositor EDS
% Data completeness (in resolution range)	99.5 (27.96-2.38) 99.5 (27.96-2.38)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	5.47 (at 2.39Å)	Xtriage
Refinement program	PHENIX (1.10.1_2155)	Depositor
R, R_{free}	0.171 , 0.211 0.171 , 0.211	Depositor DCC
R_{free} test set	1620 reflections (5.02%)	wwPDB-VP
Wilson B-factor (Å ²)	50.0	Xtriage
Anisotropy	0.390	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.28 , 59.8	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	0.018 for 1/2*h-1/2*k,-3/2*h-1/2*k,-l 0.026 for 1/2*h+1/2*k,3/2*h-1/2*k,-l	Xtriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	6192	wwPDB-VP
Average B, all atoms (Å ²)	67.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.16% of the height of the origin peak. No significant pseudotranslation is detected.*

¹ Intensities estimated from amplitudes.

² 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 [i](#)

5.1 Standard geometry [i](#)

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

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	0/2875	0.49	0/3887
1	B	0.29	0/2931	0.49	1/3966 (0.0%)
All	All	0.29	0/5806	0.49	1/7853 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	379	LEU	CA-CB-CG	5.08	126.97	115.30

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	2823	0	2863	37	0
1	B	2879	0	2907	21	0
2	A	1	0	0	0	0
2	B	1	0	0	0	0
3	A	25	0	11	1	0
3	B	25	0	11	3	0
4	B	15	0	15	3	0
5	A	205	0	0	5	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	B	218	0	0	1	0
All	All	6192	0	5807	60	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 5.

All (60) 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:306:ILE:HD11	1:A:324:LEU:HA	1.63	0.80
1:A:313:ARG:O	1:A:315:ARG:NH1	2.26	0.69
1:A:228:LYS:NZ	1:A:259:GLN:OE1	2.26	0.68
1:A:209:TYR:HD2	1:A:249:ILE:HD12	1.59	0.67
1:A:88:ASP:HB3	1:A:92:ARG:HH12	1.64	0.63
1:B:11:ARG:HH12	1:B:238:SER:HB2	1.65	0.62
1:A:316:CYS:SG	5:A:641:HOH:O	2.55	0.60
1:A:210:HIS:NE2	3:A:402:UDP:O2A	2.30	0.60
1:B:239:TYR:CD1	1:B:268:LYS:HA	2.37	0.60
1:B:229:GLN:NE2	1:B:326:GLU:OE2	2.35	0.59
1:A:237:PHE:HB2	1:A:266:LEU:HD23	1.85	0.59
1:A:247:THR:O	1:A:251:LYS:HB2	2.04	0.58
4:B:403:NAG:H82	4:B:403:NAG:H1	1.86	0.57
1:B:11:ARG:HG3	1:B:12:ALA:H	1.68	0.57
1:A:54:LYS:NZ	5:A:507:HOH:O	2.38	0.57
1:B:313:ARG:NH2	4:B:403:NAG:H4	2.19	0.57
4:B:403:NAG:H3	4:B:403:NAG:H83	1.86	0.56
1:A:287:GLY:O	1:A:305:ASN:HA	2.05	0.56
1:B:291:SER:HB3	3:B:402:UDP:H3'	1.86	0.56
1:B:210:HIS:NE2	3:B:402:UDP:O1A	2.32	0.55
1:A:246:ASN:OD1	1:A:247:THR:N	2.40	0.55
1:A:246:ASN:ND2	5:A:508:HOH:O	2.40	0.54
1:A:333:LEU:O	1:A:337:ILE:HG13	2.08	0.53
1:A:103:ASP:OD2	1:A:135:ASP:HB3	2.10	0.52
1:A:228:LYS:HE2	1:A:256:LEU:HD11	1.92	0.51
1:A:224:PHE:HB3	1:A:256:LEU:HD21	1.92	0.51
1:A:326:GLU:O	1:A:330:VAL:HG13	2.10	0.51
1:A:209:TYR:O	1:A:240:PRO:HB3	2.11	0.51
1:B:355:ASN:O	1:B:359:LYS:HG3	2.11	0.50
1:A:287:GLY:C	1:A:306:ILE:HG22	2.32	0.49
1:B:11:ARG:NH1	3:B:402:UDP:O4	2.46	0.49
1:A:308:ASP:HB3	1:A:311:LYS:HB2	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:88:ASP:HB3	1:A:92:ARG:NH1	2.28	0.49
1:A:260:LEU:HD23	1:A:263:ARG:HE	1.78	0.48
1:A:206:LEU:HD22	1:A:278:VAL:HG23	1.95	0.48
1:B:11:ARG:HD3	1:B:269:SER:OG	2.14	0.48
1:B:358:GLN:O	1:B:362:GLU:HG2	2.13	0.47
1:A:279:LEU:HD13	1:A:285:MET:HE2	1.96	0.47
1:B:108:LEU:HB2	1:B:138:ILE:HG23	1.96	0.47
1:B:294:SER:OG	1:B:295:GLU:OE1	2.31	0.47
1:A:315:ARG:HA	1:A:319:ILE:HD12	1.96	0.46
1:B:101:LEU:HD21	1:B:125:HIS:CD2	2.50	0.46
1:A:11:ARG:HG2	5:A:663:HOH:O	2.16	0.45
1:B:358:GLN:HG2	5:B:630:HOH:O	2.17	0.45
1:B:310:GLN:OE1	1:B:313:ARG:NH1	2.41	0.44
1:A:327:ASN:O	1:A:330:VAL:HG22	2.18	0.43
1:B:130:THR:HB	1:B:309:ARG:O	2.18	0.43
1:A:260:LEU:HD23	1:A:263:ARG:NE	2.34	0.42
1:B:339:PHE:CD2	1:B:339:PHE:C	2.92	0.42
1:A:283:LEU:HD13	1:A:337:ILE:HG23	2.01	0.42
1:A:305:ASN:ND2	5:A:509:HOH:O	2.40	0.42
1:A:329:ILE:O	1:A:333:LEU:HG	2.19	0.42
1:A:158:LYS:HB3	1:A:158:LYS:HE3	1.61	0.42
1:A:187:LYS:HE3	1:A:273:GLN:NE2	2.34	0.42
1:B:206:LEU:O	1:B:285:MET:HE3	2.20	0.41
1:B:279:LEU:O	1:B:301:VAL:HG21	2.20	0.41
1:A:256:LEU:HD13	1:A:256:LEU:HA	1.82	0.41
1:A:91:LYS:HB3	1:A:91:LYS:HE2	1.88	0.41
1:B:9:GLY:H	1:B:13:GLU:CD	2.24	0.41
1:A:41:TYR:CZ	1:A:62:SER:HB2	2.56	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	351/379 (93%)	336 (96%)	14 (4%)	1 (0%)	41	53
1	B	362/379 (96%)	353 (98%)	9 (2%)	0	100	100
All	All	713/758 (94%)	689 (97%)	23 (3%)	1 (0%)	51	67

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	300	GLN

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	309/327 (94%)	302 (98%)	7 (2%)	50	68
1	B	315/327 (96%)	308 (98%)	7 (2%)	52	69
All	All	624/654 (95%)	610 (98%)	14 (2%)	52	69

All (14) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	1	MET
1	A	13	GLU
1	A	130	THR
1	A	158	LYS
1	A	190	SER
1	A	324	LEU
1	A	339	PHE
1	B	1	MET
1	B	11	ARG
1	B	13	GLU
1	B	22	ARG
1	B	134	TYR
1	B	259	GLN
1	B	379	LEU

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	231	ASN
1	A	338	ASN
1	B	338	ASN

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 monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 5 ligands modelled in this entry, 2 are monoatomic - leaving 3 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	NAG	B	403	-	15,15,15	0.65	1 (6%)	21,21,21	0.95	2 (9%)
3	UDP	B	402	-	20,26,26	1.17	1 (5%)	25,40,40	1.09	2 (8%)
3	UDP	A	402	-	20,26,26	1.13	1 (5%)	25,40,40	1.12	1 (4%)

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. '2' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	NAG	B	403	-	-	6/6/26/26	0/1/1/1
3	UDP	B	402	-	-	5/14/32/32	0/2/2/2
3	UDP	A	402	-	-	3/14/32/32	0/2/2/2

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	402	UDP	C4-N3	3.16	1.38	1.33
3	A	402	UDP	C4-N3	3.09	1.38	1.33
4	B	403	NAG	C1-C2	2.19	1.55	1.52

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	402	UDP	PA-O3A-PB	-3.19	121.89	132.83
4	B	403	NAG	C1-C2-N2	2.50	113.63	110.73
4	B	403	NAG	C2-N2-C7	2.31	128.80	123.18
3	B	402	UDP	C3'-C2'-C1'	2.22	104.32	100.98
3	B	402	UDP	O2B-PB-O3A	2.22	112.08	104.64

There are no chirality outliers.

All (14) torsion outliers are listed below:

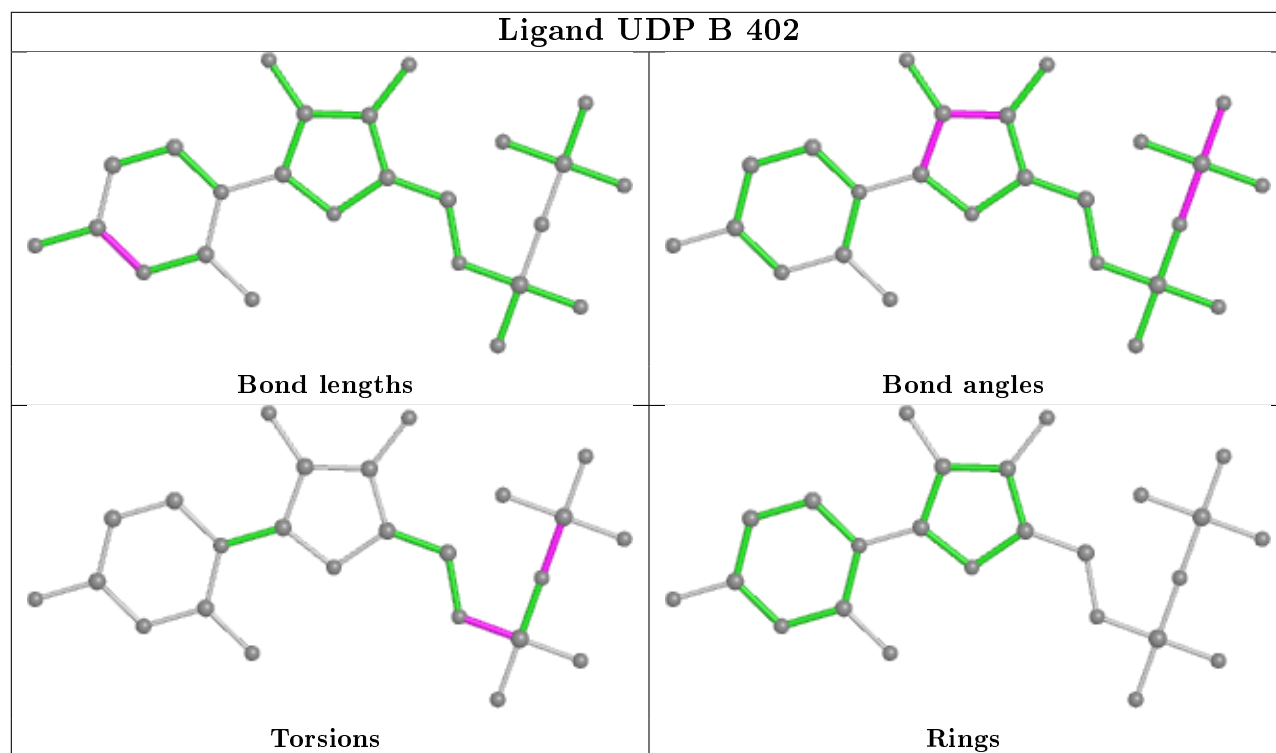
Mol	Chain	Res	Type	Atoms
3	B	402	UDP	C5'-O5'-PA-O1A
3	B	402	UDP	C5'-O5'-PA-O2A
3	B	402	UDP	C5'-O5'-PA-O3A
3	B	402	UDP	PA-O3A-PB-O2B
3	A	402	UDP	C5'-O5'-PA-O3A
4	B	403	NAG	C4-C5-C6-O6
4	B	403	NAG	C8-C7-N2-C2
4	B	403	NAG	O7-C7-N2-C2
4	B	403	NAG	O5-C5-C6-O6
3	A	402	UDP	C5'-O5'-PA-O1A
3	A	402	UDP	C5'-O5'-PA-O2A
4	B	403	NAG	C3-C2-N2-C7
4	B	403	NAG	C1-C2-N2-C7
3	B	402	UDP	PA-O3A-PB-O1B

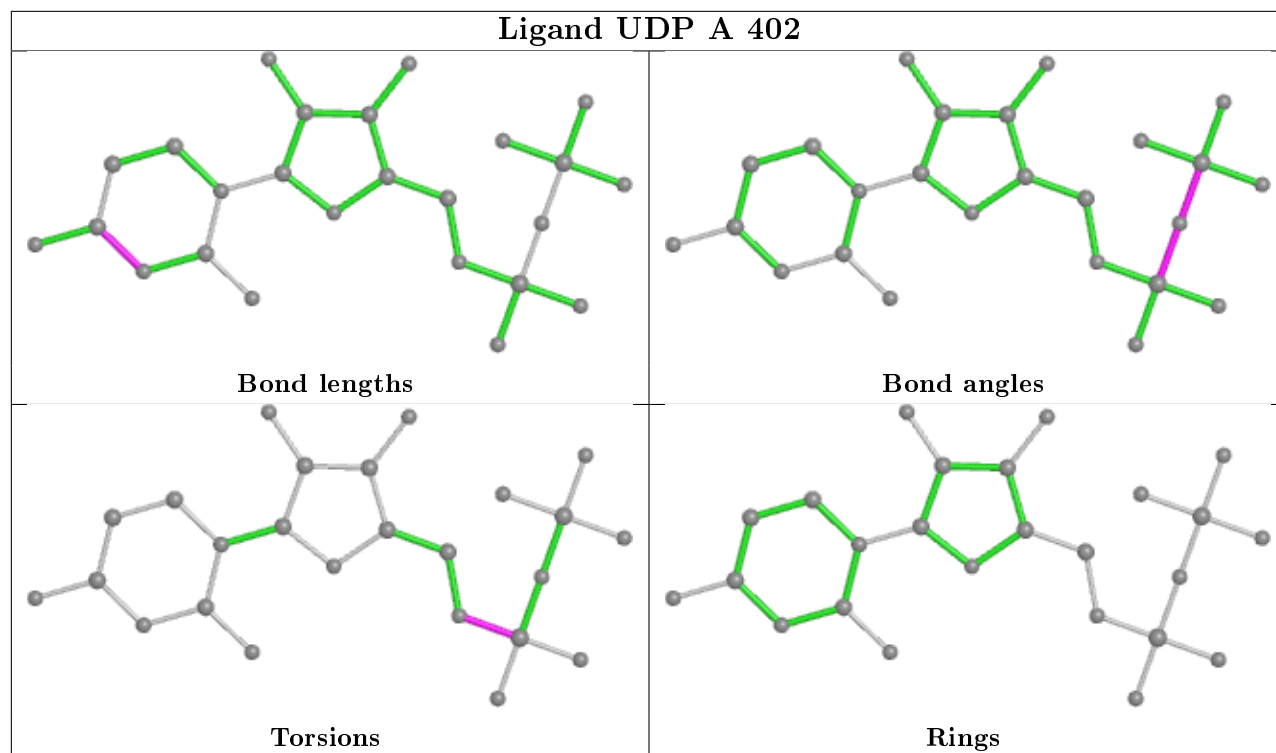
There are no ring outliers.

3 monomers are involved in 7 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	B	403	NAG	3	0
3	B	402	UDP	3	0
3	A	402	UDP	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, 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	359/379 (94%)	0.68	64 (17%) 1 1	33, 58, 141, 175	0
1	B	366/379 (96%)	0.08	17 (4%) 32 35	34, 57, 87, 147	0
All	All	725/758 (95%)	0.38	81 (11%) 5 6	33, 58, 128, 175	0

All (81) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	133	ALA	5.3
1	A	251	LYS	5.2
1	A	255	ASP	5.0
1	A	219	ASN	4.9
1	A	206	LEU	4.8
1	A	254	LEU	4.8
1	B	207	ILE	4.8
1	A	229	GLN	4.6
1	A	322	VAL	4.4
1	A	259	GLN	4.3
1	A	132	GLY	4.3
1	A	233	VAL	4.2
1	A	249	ILE	4.1
1	A	232	ASP	4.0
1	A	285	MET	3.9
1	B	206	LEU	3.9
1	A	212	GLU	3.9
1	A	205	PHE	3.9
1	B	208	THR	3.7
1	A	239	TYR	3.7
1	A	250	VAL	3.6
1	B	12	ALA	3.5
1	B	286	VAL	3.5
1	A	308	ASP	3.4

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Mol	Chain	Res	Type	RSRZ
1	A	246	ASN	3.4
1	A	331	GLU	3.4
1	A	227	LEU	3.4
1	B	379	LEU	3.3
1	A	261	PRO	3.3
1	A	231	ASN	3.2
1	B	353	LEU	3.2
1	A	248	ASN	3.2
1	A	225	ASP	3.2
1	A	207	ILE	3.1
1	B	260	LEU	3.1
1	A	258	ALA	3.1
1	A	256	LEU	3.0
1	B	338	ASN	3.0
1	A	316	CYS	3.0
1	A	247	THR	2.9
1	A	338	ASN	2.9
1	A	203	PRO	2.8
1	A	220	VAL	2.8
1	A	286	VAL	2.8
1	B	339	PHE	2.7
1	B	11	ARG	2.7
1	A	300	GLN	2.6
1	B	141	ALA	2.6
1	B	216	LEU	2.6
1	A	131	GLU	2.6
1	A	335	LYS	2.5
1	A	320	LEU	2.5
1	A	110	VAL	2.5
1	A	330	VAL	2.5
1	A	236	ILE	2.5
1	A	278	VAL	2.5
1	A	321	ASP	2.5
1	A	230	ILE	2.4
1	A	339	PHE	2.4
1	A	350	PRO	2.3
1	A	195	LEU	2.3
1	B	232	ASP	2.3
1	B	300	GLN	2.3
1	A	324	LEU	2.3
1	B	287	GLY	2.3
1	A	143	THR	2.3

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Mol	Chain	Res	Type	RSRZ
1	A	224	PHE	2.3
1	A	237	PHE	2.3
1	A	349	PRO	2.3
1	A	302	PRO	2.2
1	A	253	MET	2.2
1	A	334	GLN	2.2
1	A	228	LYS	2.2
1	A	260	LEU	2.2
1	A	323	ARG	2.1
1	A	145	MET	2.1
1	A	317	GLU	2.1
1	A	329	ILE	2.0
1	A	111	THR	2.0
1	A	353	LEU	2.0
1	B	223	LEU	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.

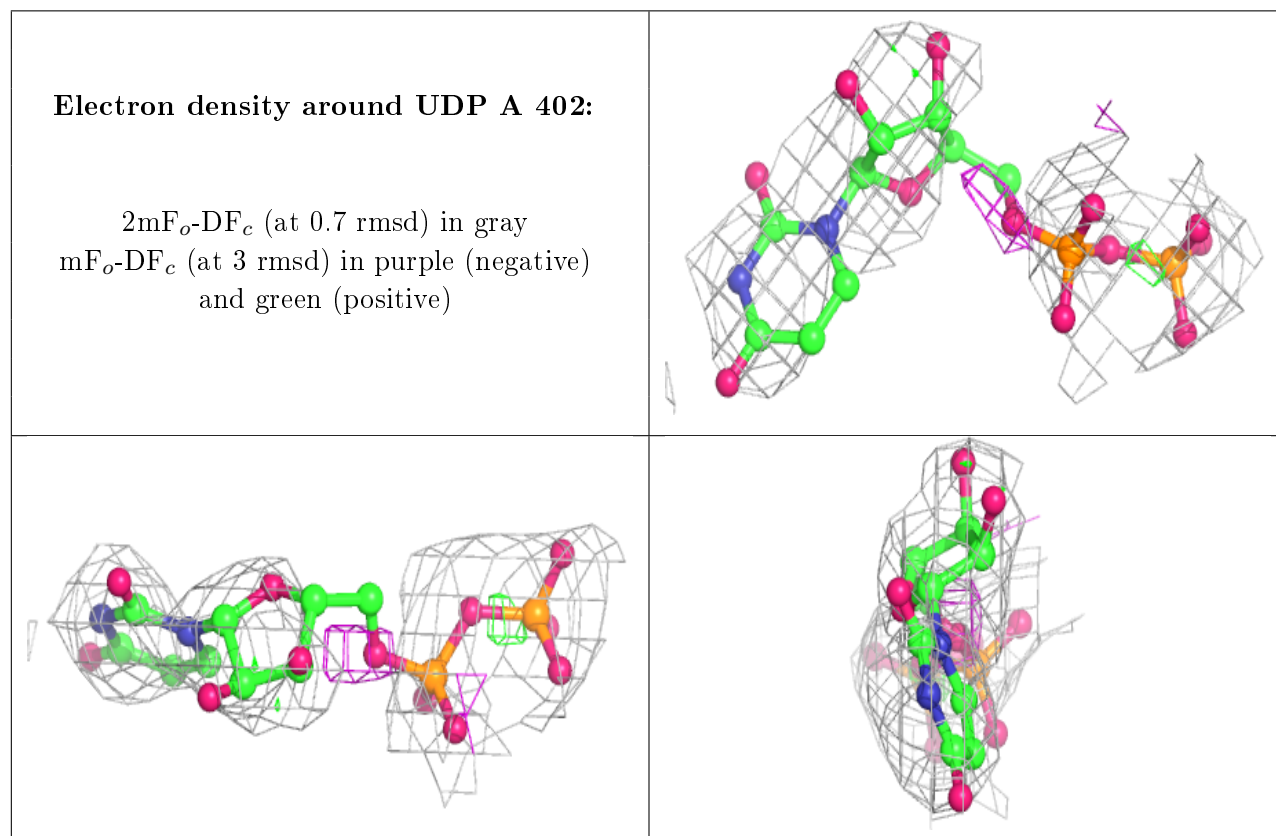
6.4 Ligands [i](#)

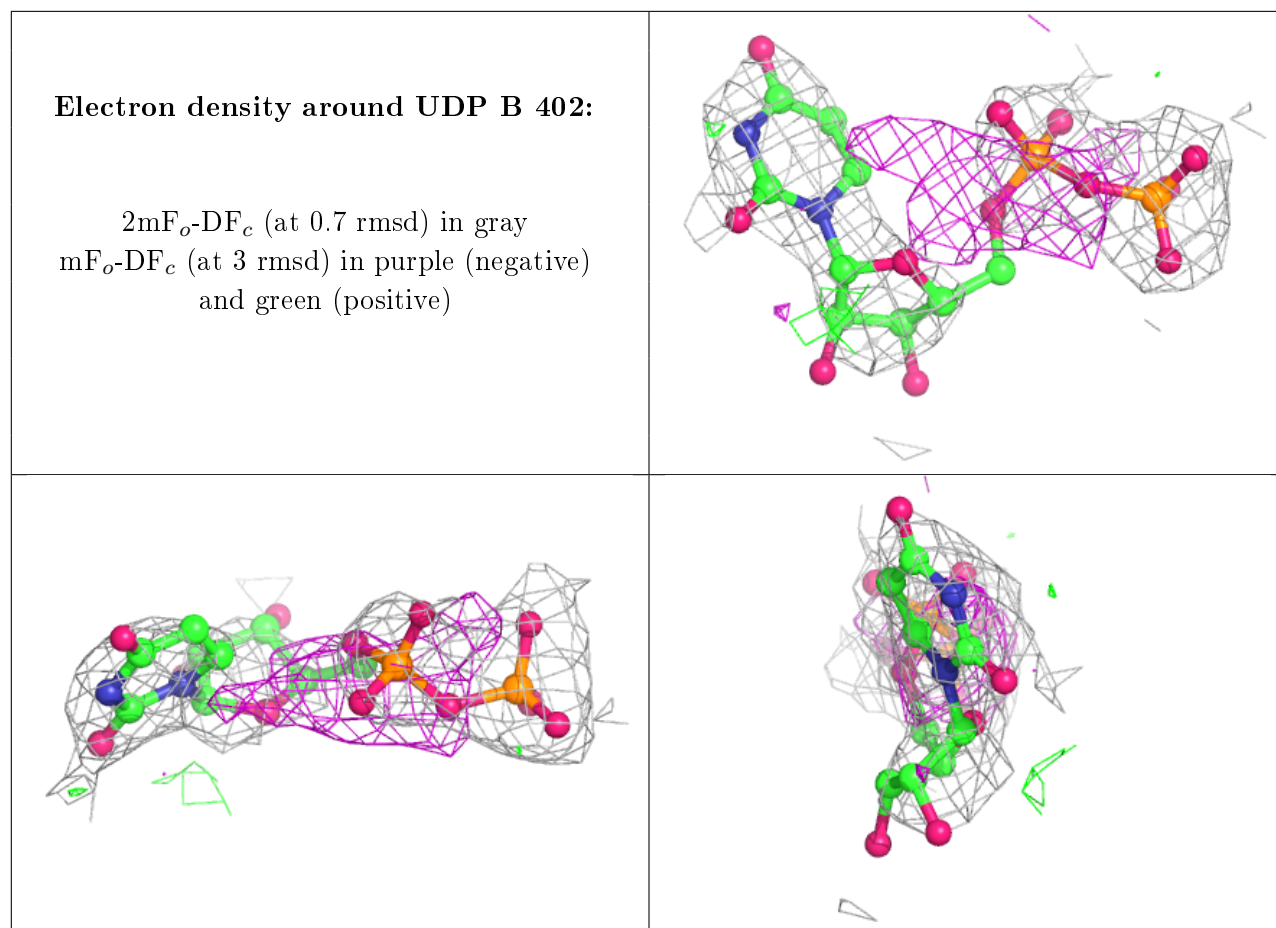
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
2	LI	A	401	1/1	0.75	0.33	14,14,14,14	0
4	NAG	B	403	15/15	0.79	0.39	95,107,111,112	1
3	UDP	A	402	25/25	0.80	0.27	123,141,145,148	0
2	LI	B	401	1/1	0.82	0.21	31,31,31,31	0
3	UDP	B	402	25/25	0.94	0.18	56,94,112,118	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.





6.5 Other polymers [i](#)

There are no such residues in this entry.