



wwPDB X-ray Structure Validation Summary Report ⓘ

Mar 9, 2026 – 04:43 AM UTC

PDB ID : 3MBO / pdb_00003mbo
Title : Crystal Structure of the Glycosyltransferase BaBshA bound with UDP and L-malate
Authors : Wallace, B.D.; Claiborne, A.; Redinbo, M.R.
Deposited on : 2010-03-25
Resolution : 3.31 Å(reported)

This is a wwPDB X-ray Structure Validation Summary 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 types of validation reports are described at

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

The following versions of software and data (see [references ⓘ](#)) 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	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
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)	:	2.49

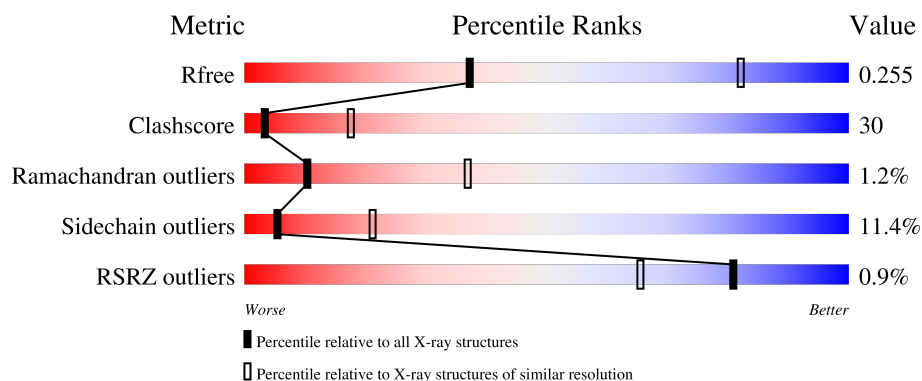
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.31 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}	180053	1169 (3.32-3.28)
Clashscore	190562	1209 (3.32-3.28)
Ramachandran outliers	187476	1188 (3.32-3.28)
Sidechain outliers	187428	1187 (3.32-3.28)
RSRZ outliers	180081	1169 (3.32-3.28)

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 $\leq 5\%$. 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	414	
1	B	414	
1	C	414	
1	D	414	
1	E	414	

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Mol	Chain	Length	Quality of chain
1	F	414	
1	G	414	
1	H	414	

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	E	385	-	-	X	-
3	GOL	F	383	-	-	X	-

2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 23880 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 Glycosyltransferase, group 1 family.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	372	Total	C	N	O	S	0	0	0
			2923	1865	491	554	13			
1	B	369	Total	C	N	O	S	0	0	0
			2907	1852	489	553	13			
1	C	373	Total	C	N	O	S	0	0	0
			2929	1870	493	553	13			
1	D	369	Total	C	N	O	S	0	0	0
			2903	1850	489	551	13			
1	E	375	Total	C	N	O	S	0	0	0
			2959	1886	500	560	13			
1	F	369	Total	C	N	O	S	0	0	0
			2919	1860	492	554	13			
1	G	365	Total	C	N	O	S	0	0	0
			2881	1834	486	548	13			
1	H	369	Total	C	N	O	S	0	0	0
			2907	1852	490	552	13			

There are 264 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-32	MET	-	expression tag	UNP Q81ST7
A	-31	GLY	-	expression tag	UNP Q81ST7
A	-30	SER	-	expression tag	UNP Q81ST7
A	-29	HIS	-	expression tag	UNP Q81ST7
A	-28	HIS	-	expression tag	UNP Q81ST7
A	-27	HIS	-	expression tag	UNP Q81ST7
A	-26	HIS	-	expression tag	UNP Q81ST7
A	-25	HIS	-	expression tag	UNP Q81ST7
A	-24	HIS	-	expression tag	UNP Q81ST7
A	-23	SER	-	expression tag	UNP Q81ST7
A	-22	SER	-	expression tag	UNP Q81ST7
A	-21	GLY	-	expression tag	UNP Q81ST7
A	-20	LEU	-	expression tag	UNP Q81ST7

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Chain	Residue	Modelled	Actual	Comment	Reference
A	-19	VAL	-	expression tag	UNP Q81ST7
A	-18	PRO	-	expression tag	UNP Q81ST7
A	-17	ARG	-	expression tag	UNP Q81ST7
A	-16	GLY	-	expression tag	UNP Q81ST7
A	-15	SER	-	expression tag	UNP Q81ST7
A	-14	HIS	-	expression tag	UNP Q81ST7
A	-13	MET	-	expression tag	UNP Q81ST7
A	-12	ALA	-	expression tag	UNP Q81ST7
A	-11	SER	-	expression tag	UNP Q81ST7
A	-10	MET	-	expression tag	UNP Q81ST7
A	-9	THR	-	expression tag	UNP Q81ST7
A	-8	GLY	-	expression tag	UNP Q81ST7
A	-7	GLY	-	expression tag	UNP Q81ST7
A	-6	GLN	-	expression tag	UNP Q81ST7
A	-5	GLN	-	expression tag	UNP Q81ST7
A	-4	MET	-	expression tag	UNP Q81ST7
A	-3	GLY	-	expression tag	UNP Q81ST7
A	-2	ARG	-	expression tag	UNP Q81ST7
A	-1	GLY	-	expression tag	UNP Q81ST7
A	0	SER	-	expression tag	UNP Q81ST7
B	-32	MET	-	expression tag	UNP Q81ST7
B	-31	GLY	-	expression tag	UNP Q81ST7
B	-30	SER	-	expression tag	UNP Q81ST7
B	-29	HIS	-	expression tag	UNP Q81ST7
B	-28	HIS	-	expression tag	UNP Q81ST7
B	-27	HIS	-	expression tag	UNP Q81ST7
B	-26	HIS	-	expression tag	UNP Q81ST7
B	-25	HIS	-	expression tag	UNP Q81ST7
B	-24	HIS	-	expression tag	UNP Q81ST7
B	-23	SER	-	expression tag	UNP Q81ST7
B	-22	SER	-	expression tag	UNP Q81ST7
B	-21	GLY	-	expression tag	UNP Q81ST7
B	-20	LEU	-	expression tag	UNP Q81ST7
B	-19	VAL	-	expression tag	UNP Q81ST7
B	-18	PRO	-	expression tag	UNP Q81ST7
B	-17	ARG	-	expression tag	UNP Q81ST7
B	-16	GLY	-	expression tag	UNP Q81ST7
B	-15	SER	-	expression tag	UNP Q81ST7
B	-14	HIS	-	expression tag	UNP Q81ST7
B	-13	MET	-	expression tag	UNP Q81ST7
B	-12	ALA	-	expression tag	UNP Q81ST7
B	-11	SER	-	expression tag	UNP Q81ST7

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Chain	Residue	Modelled	Actual	Comment	Reference
B	-10	MET	-	expression tag	UNP Q81ST7
B	-9	THR	-	expression tag	UNP Q81ST7
B	-8	GLY	-	expression tag	UNP Q81ST7
B	-7	GLY	-	expression tag	UNP Q81ST7
B	-6	GLN	-	expression tag	UNP Q81ST7
B	-5	GLN	-	expression tag	UNP Q81ST7
B	-4	MET	-	expression tag	UNP Q81ST7
B	-3	GLY	-	expression tag	UNP Q81ST7
B	-2	ARG	-	expression tag	UNP Q81ST7
B	-1	GLY	-	expression tag	UNP Q81ST7
B	0	SER	-	expression tag	UNP Q81ST7
C	-32	MET	-	expression tag	UNP Q81ST7
C	-31	GLY	-	expression tag	UNP Q81ST7
C	-30	SER	-	expression tag	UNP Q81ST7
C	-29	HIS	-	expression tag	UNP Q81ST7
C	-28	HIS	-	expression tag	UNP Q81ST7
C	-27	HIS	-	expression tag	UNP Q81ST7
C	-26	HIS	-	expression tag	UNP Q81ST7
C	-25	HIS	-	expression tag	UNP Q81ST7
C	-24	HIS	-	expression tag	UNP Q81ST7
C	-23	SER	-	expression tag	UNP Q81ST7
C	-22	SER	-	expression tag	UNP Q81ST7
C	-21	GLY	-	expression tag	UNP Q81ST7
C	-20	LEU	-	expression tag	UNP Q81ST7
C	-19	VAL	-	expression tag	UNP Q81ST7
C	-18	PRO	-	expression tag	UNP Q81ST7
C	-17	ARG	-	expression tag	UNP Q81ST7
C	-16	GLY	-	expression tag	UNP Q81ST7
C	-15	SER	-	expression tag	UNP Q81ST7
C	-14	HIS	-	expression tag	UNP Q81ST7
C	-13	MET	-	expression tag	UNP Q81ST7
C	-12	ALA	-	expression tag	UNP Q81ST7
C	-11	SER	-	expression tag	UNP Q81ST7
C	-10	MET	-	expression tag	UNP Q81ST7
C	-9	THR	-	expression tag	UNP Q81ST7
C	-8	GLY	-	expression tag	UNP Q81ST7
C	-7	GLY	-	expression tag	UNP Q81ST7
C	-6	GLN	-	expression tag	UNP Q81ST7
C	-5	GLN	-	expression tag	UNP Q81ST7
C	-4	MET	-	expression tag	UNP Q81ST7
C	-3	GLY	-	expression tag	UNP Q81ST7
C	-2	ARG	-	expression tag	UNP Q81ST7

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Chain	Residue	Modelled	Actual	Comment	Reference
C	-1	GLY	-	expression tag	UNP Q81ST7
C	0	SER	-	expression tag	UNP Q81ST7
D	-32	MET	-	expression tag	UNP Q81ST7
D	-31	GLY	-	expression tag	UNP Q81ST7
D	-30	SER	-	expression tag	UNP Q81ST7
D	-29	HIS	-	expression tag	UNP Q81ST7
D	-28	HIS	-	expression tag	UNP Q81ST7
D	-27	HIS	-	expression tag	UNP Q81ST7
D	-26	HIS	-	expression tag	UNP Q81ST7
D	-25	HIS	-	expression tag	UNP Q81ST7
D	-24	HIS	-	expression tag	UNP Q81ST7
D	-23	SER	-	expression tag	UNP Q81ST7
D	-22	SER	-	expression tag	UNP Q81ST7
D	-21	GLY	-	expression tag	UNP Q81ST7
D	-20	LEU	-	expression tag	UNP Q81ST7
D	-19	VAL	-	expression tag	UNP Q81ST7
D	-18	PRO	-	expression tag	UNP Q81ST7
D	-17	ARG	-	expression tag	UNP Q81ST7
D	-16	GLY	-	expression tag	UNP Q81ST7
D	-15	SER	-	expression tag	UNP Q81ST7
D	-14	HIS	-	expression tag	UNP Q81ST7
D	-13	MET	-	expression tag	UNP Q81ST7
D	-12	ALA	-	expression tag	UNP Q81ST7
D	-11	SER	-	expression tag	UNP Q81ST7
D	-10	MET	-	expression tag	UNP Q81ST7
D	-9	THR	-	expression tag	UNP Q81ST7
D	-8	GLY	-	expression tag	UNP Q81ST7
D	-7	GLY	-	expression tag	UNP Q81ST7
D	-6	GLN	-	expression tag	UNP Q81ST7
D	-5	GLN	-	expression tag	UNP Q81ST7
D	-4	MET	-	expression tag	UNP Q81ST7
D	-3	GLY	-	expression tag	UNP Q81ST7
D	-2	ARG	-	expression tag	UNP Q81ST7
D	-1	GLY	-	expression tag	UNP Q81ST7
D	0	SER	-	expression tag	UNP Q81ST7
E	-32	MET	-	expression tag	UNP Q81ST7
E	-31	GLY	-	expression tag	UNP Q81ST7
E	-30	SER	-	expression tag	UNP Q81ST7
E	-29	HIS	-	expression tag	UNP Q81ST7
E	-28	HIS	-	expression tag	UNP Q81ST7
E	-27	HIS	-	expression tag	UNP Q81ST7
E	-26	HIS	-	expression tag	UNP Q81ST7

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Chain	Residue	Modelled	Actual	Comment	Reference
E	-25	HIS	-	expression tag	UNP Q81ST7
E	-24	HIS	-	expression tag	UNP Q81ST7
E	-23	SER	-	expression tag	UNP Q81ST7
E	-22	SER	-	expression tag	UNP Q81ST7
E	-21	GLY	-	expression tag	UNP Q81ST7
E	-20	LEU	-	expression tag	UNP Q81ST7
E	-19	VAL	-	expression tag	UNP Q81ST7
E	-18	PRO	-	expression tag	UNP Q81ST7
E	-17	ARG	-	expression tag	UNP Q81ST7
E	-16	GLY	-	expression tag	UNP Q81ST7
E	-15	SER	-	expression tag	UNP Q81ST7
E	-14	HIS	-	expression tag	UNP Q81ST7
E	-13	MET	-	expression tag	UNP Q81ST7
E	-12	ALA	-	expression tag	UNP Q81ST7
E	-11	SER	-	expression tag	UNP Q81ST7
E	-10	MET	-	expression tag	UNP Q81ST7
E	-9	THR	-	expression tag	UNP Q81ST7
E	-8	GLY	-	expression tag	UNP Q81ST7
E	-7	GLY	-	expression tag	UNP Q81ST7
E	-6	GLN	-	expression tag	UNP Q81ST7
E	-5	GLN	-	expression tag	UNP Q81ST7
E	-4	MET	-	expression tag	UNP Q81ST7
E	-3	GLY	-	expression tag	UNP Q81ST7
E	-2	ARG	-	expression tag	UNP Q81ST7
E	-1	GLY	-	expression tag	UNP Q81ST7
E	0	SER	-	expression tag	UNP Q81ST7
F	-32	MET	-	expression tag	UNP Q81ST7
F	-31	GLY	-	expression tag	UNP Q81ST7
F	-30	SER	-	expression tag	UNP Q81ST7
F	-29	HIS	-	expression tag	UNP Q81ST7
F	-28	HIS	-	expression tag	UNP Q81ST7
F	-27	HIS	-	expression tag	UNP Q81ST7
F	-26	HIS	-	expression tag	UNP Q81ST7
F	-25	HIS	-	expression tag	UNP Q81ST7
F	-24	HIS	-	expression tag	UNP Q81ST7
F	-23	SER	-	expression tag	UNP Q81ST7
F	-22	SER	-	expression tag	UNP Q81ST7
F	-21	GLY	-	expression tag	UNP Q81ST7
F	-20	LEU	-	expression tag	UNP Q81ST7
F	-19	VAL	-	expression tag	UNP Q81ST7
F	-18	PRO	-	expression tag	UNP Q81ST7
F	-17	ARG	-	expression tag	UNP Q81ST7

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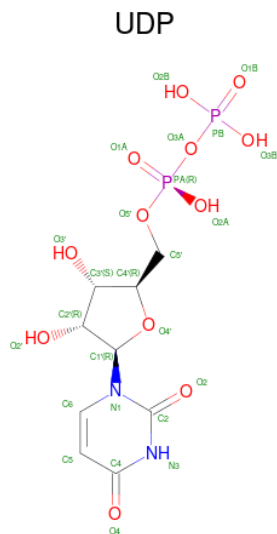
Chain	Residue	Modelled	Actual	Comment	Reference
F	-16	GLY	-	expression tag	UNP Q81ST7
F	-15	SER	-	expression tag	UNP Q81ST7
F	-14	HIS	-	expression tag	UNP Q81ST7
F	-13	MET	-	expression tag	UNP Q81ST7
F	-12	ALA	-	expression tag	UNP Q81ST7
F	-11	SER	-	expression tag	UNP Q81ST7
F	-10	MET	-	expression tag	UNP Q81ST7
F	-9	THR	-	expression tag	UNP Q81ST7
F	-8	GLY	-	expression tag	UNP Q81ST7
F	-7	GLY	-	expression tag	UNP Q81ST7
F	-6	GLN	-	expression tag	UNP Q81ST7
F	-5	GLN	-	expression tag	UNP Q81ST7
F	-4	MET	-	expression tag	UNP Q81ST7
F	-3	GLY	-	expression tag	UNP Q81ST7
F	-2	ARG	-	expression tag	UNP Q81ST7
F	-1	GLY	-	expression tag	UNP Q81ST7
F	0	SER	-	expression tag	UNP Q81ST7
G	-32	MET	-	expression tag	UNP Q81ST7
G	-31	GLY	-	expression tag	UNP Q81ST7
G	-30	SER	-	expression tag	UNP Q81ST7
G	-29	HIS	-	expression tag	UNP Q81ST7
G	-28	HIS	-	expression tag	UNP Q81ST7
G	-27	HIS	-	expression tag	UNP Q81ST7
G	-26	HIS	-	expression tag	UNP Q81ST7
G	-25	HIS	-	expression tag	UNP Q81ST7
G	-24	HIS	-	expression tag	UNP Q81ST7
G	-23	SER	-	expression tag	UNP Q81ST7
G	-22	SER	-	expression tag	UNP Q81ST7
G	-21	GLY	-	expression tag	UNP Q81ST7
G	-20	LEU	-	expression tag	UNP Q81ST7
G	-19	VAL	-	expression tag	UNP Q81ST7
G	-18	PRO	-	expression tag	UNP Q81ST7
G	-17	ARG	-	expression tag	UNP Q81ST7
G	-16	GLY	-	expression tag	UNP Q81ST7
G	-15	SER	-	expression tag	UNP Q81ST7
G	-14	HIS	-	expression tag	UNP Q81ST7
G	-13	MET	-	expression tag	UNP Q81ST7
G	-12	ALA	-	expression tag	UNP Q81ST7
G	-11	SER	-	expression tag	UNP Q81ST7
G	-10	MET	-	expression tag	UNP Q81ST7
G	-9	THR	-	expression tag	UNP Q81ST7
G	-8	GLY	-	expression tag	UNP Q81ST7

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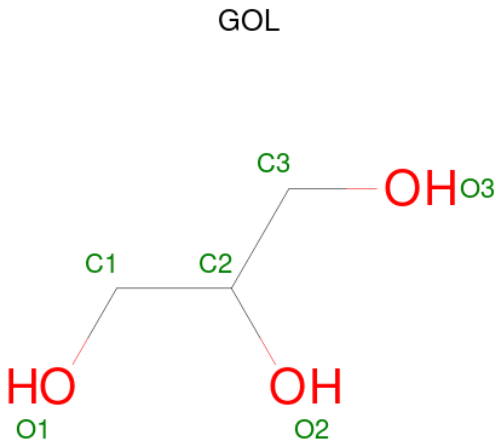
Chain	Residue	Modelled	Actual	Comment	Reference
G	-7	GLY	-	expression tag	UNP Q81ST7
G	-6	GLN	-	expression tag	UNP Q81ST7
G	-5	GLN	-	expression tag	UNP Q81ST7
G	-4	MET	-	expression tag	UNP Q81ST7
G	-3	GLY	-	expression tag	UNP Q81ST7
G	-2	ARG	-	expression tag	UNP Q81ST7
G	-1	GLY	-	expression tag	UNP Q81ST7
G	0	SER	-	expression tag	UNP Q81ST7
H	-32	MET	-	expression tag	UNP Q81ST7
H	-31	GLY	-	expression tag	UNP Q81ST7
H	-30	SER	-	expression tag	UNP Q81ST7
H	-29	HIS	-	expression tag	UNP Q81ST7
H	-28	HIS	-	expression tag	UNP Q81ST7
H	-27	HIS	-	expression tag	UNP Q81ST7
H	-26	HIS	-	expression tag	UNP Q81ST7
H	-25	HIS	-	expression tag	UNP Q81ST7
H	-24	HIS	-	expression tag	UNP Q81ST7
H	-23	SER	-	expression tag	UNP Q81ST7
H	-22	SER	-	expression tag	UNP Q81ST7
H	-21	GLY	-	expression tag	UNP Q81ST7
H	-20	LEU	-	expression tag	UNP Q81ST7
H	-19	VAL	-	expression tag	UNP Q81ST7
H	-18	PRO	-	expression tag	UNP Q81ST7
H	-17	ARG	-	expression tag	UNP Q81ST7
H	-16	GLY	-	expression tag	UNP Q81ST7
H	-15	SER	-	expression tag	UNP Q81ST7
H	-14	HIS	-	expression tag	UNP Q81ST7
H	-13	MET	-	expression tag	UNP Q81ST7
H	-12	ALA	-	expression tag	UNP Q81ST7
H	-11	SER	-	expression tag	UNP Q81ST7
H	-10	MET	-	expression tag	UNP Q81ST7
H	-9	THR	-	expression tag	UNP Q81ST7
H	-8	GLY	-	expression tag	UNP Q81ST7
H	-7	GLY	-	expression tag	UNP Q81ST7
H	-6	GLN	-	expression tag	UNP Q81ST7
H	-5	GLN	-	expression tag	UNP Q81ST7
H	-4	MET	-	expression tag	UNP Q81ST7
H	-3	GLY	-	expression tag	UNP Q81ST7
H	-2	ARG	-	expression tag	UNP Q81ST7
H	-1	GLY	-	expression tag	UNP Q81ST7
H	0	SER	-	expression tag	UNP Q81ST7

- Molecule 2 is URIDINE-5'-DIPHOSPHATE (CCD ID: UDP) (formula: $C_9H_{14}N_2O_{12}P_2$).



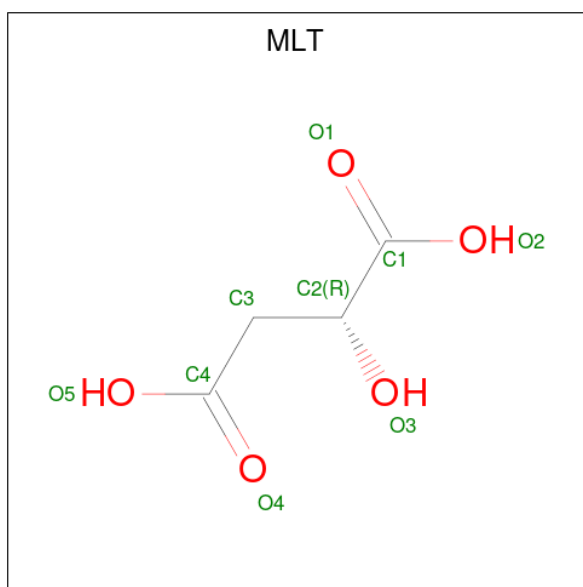
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total 25	C 9	N 2	O 12	P 2	0	0
2	C	1	Total 25	C 9	N 2	O 12	P 2	0	0
2	E	1	Total 25	C 9	N 2	O 12	P 2	0	0
2	H	1	Total 25	C 9	N 2	O 12	P 2	0	0

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



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total C O 6 3 3	0	0
3	A	1	Total C O 6 3 3	0	0
3	A	1	Total C O 6 3 3	0	0
3	A	1	Total C O 6 3 3	0	0
3	A	1	Total C O 6 3 3	0	0
3	B	1	Total C O 6 3 3	0	0
3	B	1	Total C O 6 3 3	0	0
3	C	1	Total C O 6 3 3	0	0
3	C	1	Total C O 6 3 3	0	0
3	D	1	Total C O 6 3 3	0	0
3	D	1	Total C O 6 3 3	0	0
3	D	1	Total C O 6 3 3	0	0
3	E	1	Total C O 6 3 3	0	0
3	E	1	Total C O 6 3 3	0	0
3	E	1	Total C O 6 3 3	0	0
3	E	1	Total C O 6 3 3	0	0
3	F	1	Total C O 6 3 3	0	0
3	F	1	Total C O 6 3 3	0	0
3	F	1	Total C O 6 3 3	0	0
3	F	1	Total C O 6 3 3	0	0
3	H	1	Total C O 6 3 3	0	0

- Molecule 4 is D-MALATE (CCD ID: MLT) (formula: $C_4H_6O_5$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total	C	O	0	0
			9	4	5		
4	C	1	Total	C	O	0	0
			9	4	5		
4	E	1	Total	C	O	0	0
			9	4	5		
4	H	1	Total	C	O	0	0
			9	4	5		

- Molecule 5 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	C	1	Total	Mg	0	0
			1	1		
5	E	1	Total	Mg	0	0
			1	1		

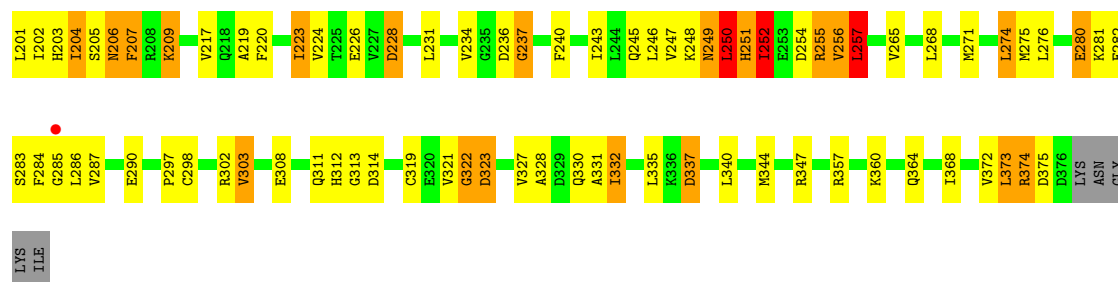
- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	32	Total	O	0	0
			32	32		
6	B	30	Total	O	0	0
			30	30		
6	C	37	Total	O	0	0
			37	37		

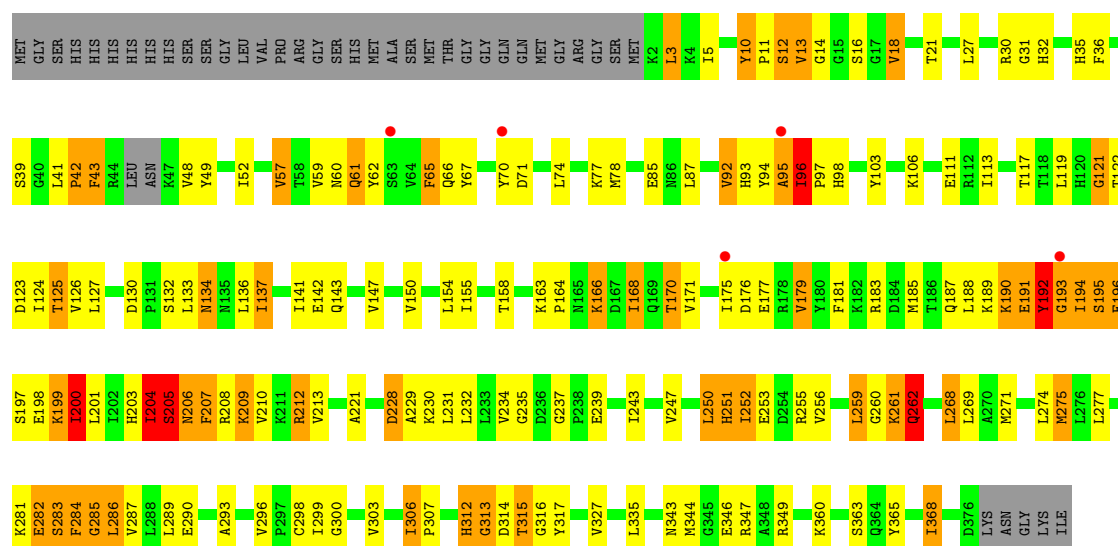
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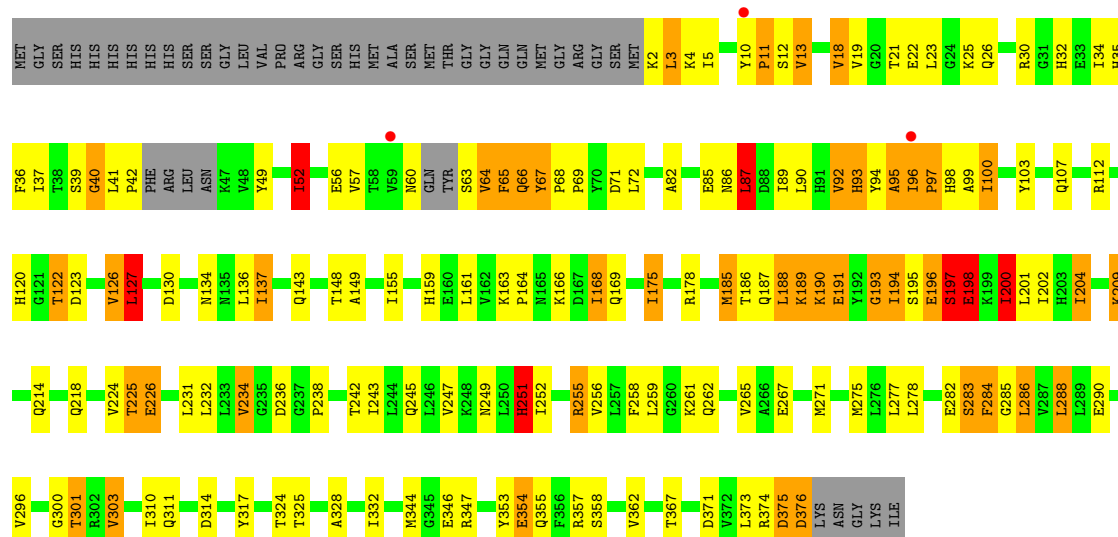
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	D	37	Total 37	O 37	0	0
6	E	41	Total 41	O 41	0	0
6	F	32	Total 32	O 32	0	0
6	G	33	Total 33	O 33	0	0
6	H	46	Total 46	O 46	0	0



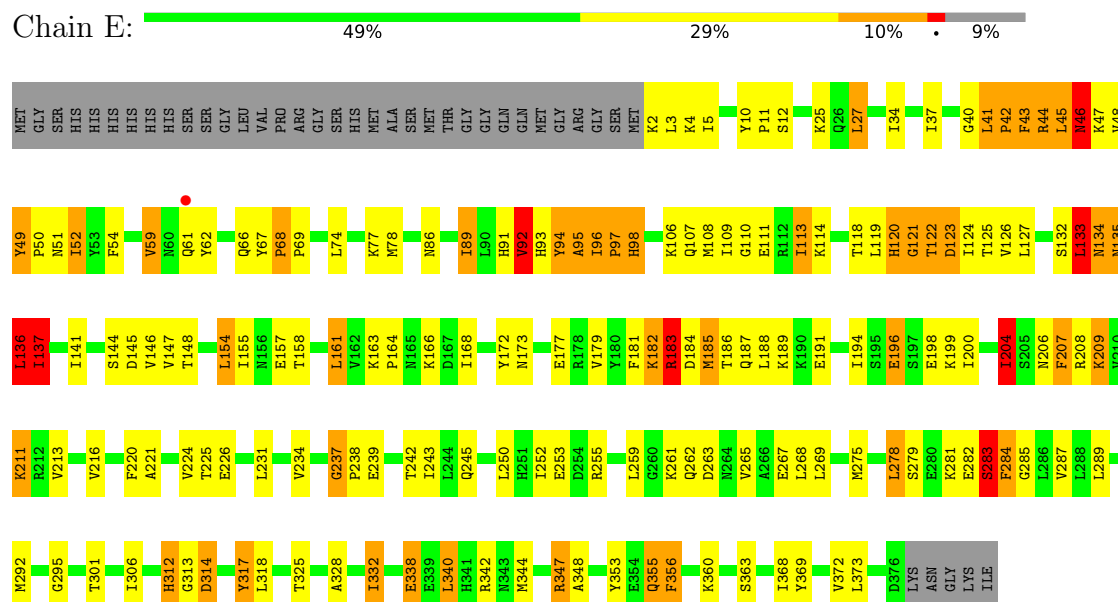
• Molecule 1: Glycosyltransferase, group 1 family



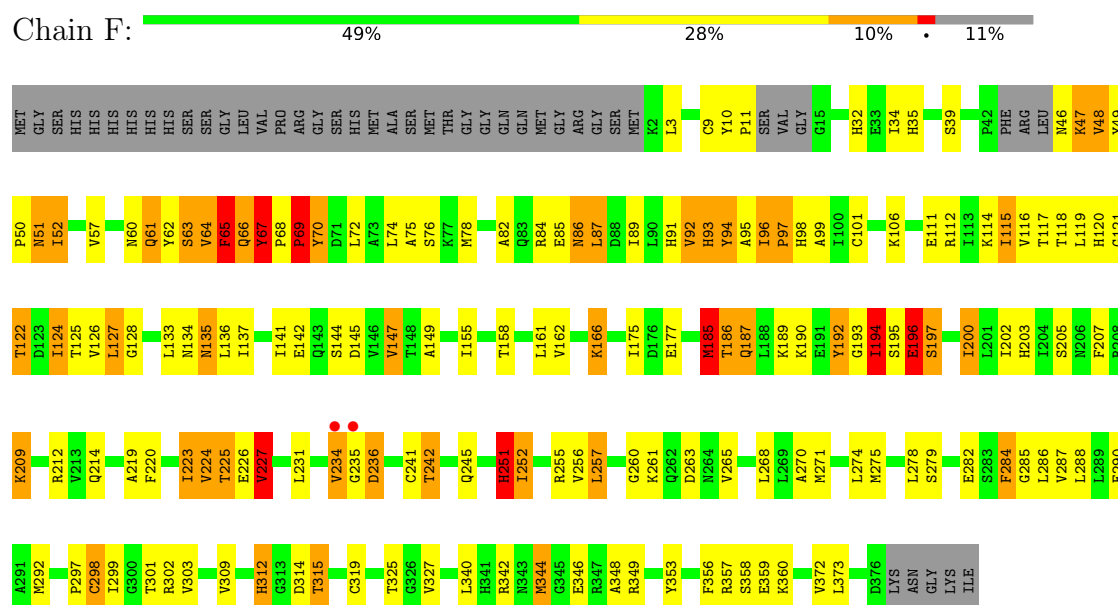
• Molecule 1: Glycosyltransferase, group 1 family



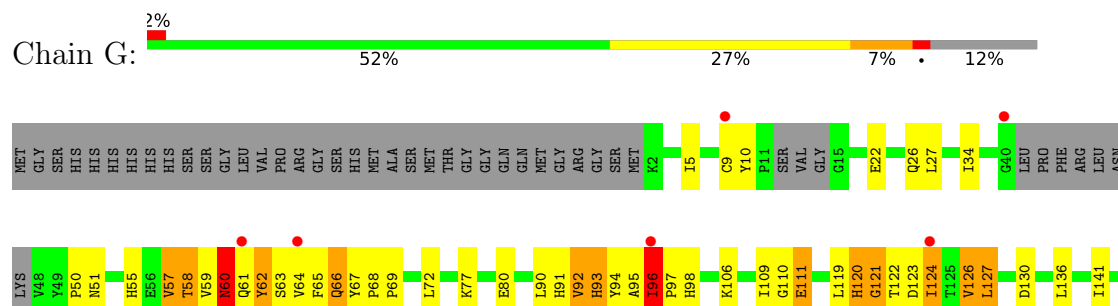
- Molecule 1: Glycosyltransferase, group 1 family

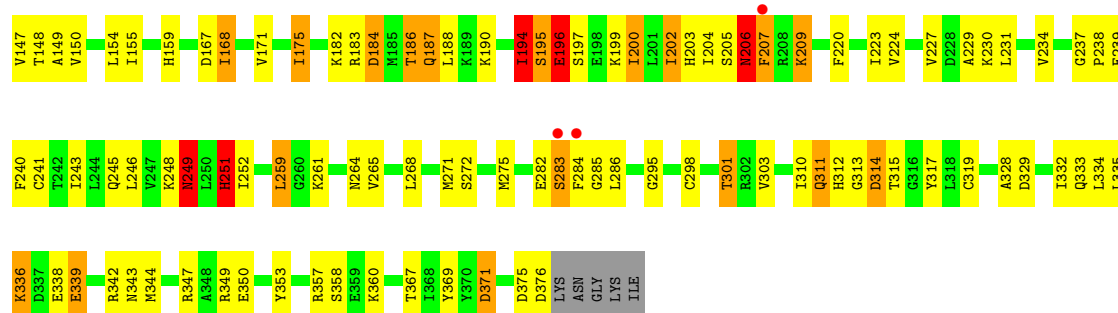


- Molecule 1: Glycosyltransferase, group 1 family



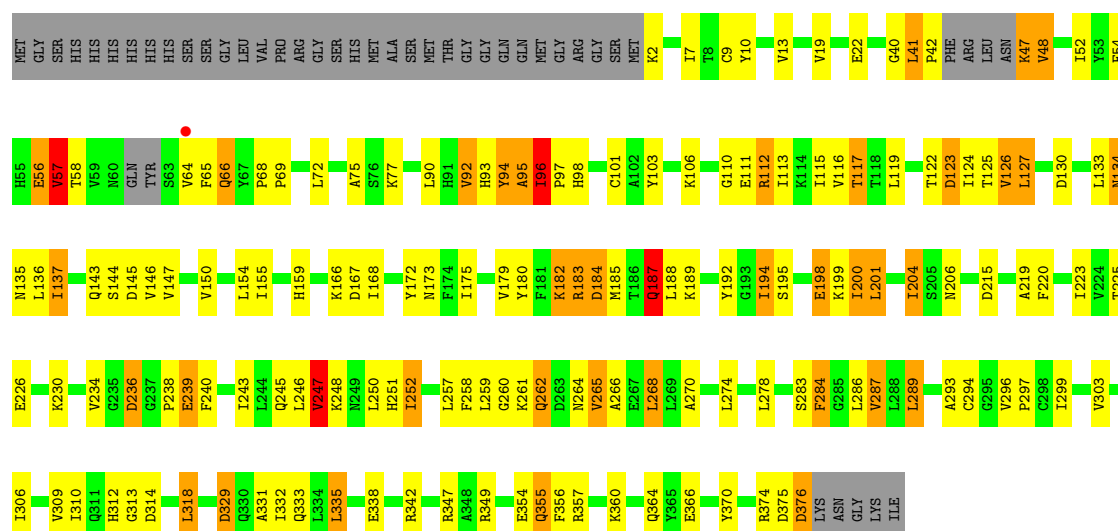
- Molecule 1: Glycosyltransferase, group 1 family





● Molecule 1: Glycosyltransferase, group 1 family

Chain H: 50% 29% 9% 11%



4 Data and refinement statistics

Property	Value	Source
Space group	P 41	Depositor
Cell constants a, b, c, α , β , γ	226.27Å 226.27Å 75.35Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	48.22 – 3.31 48.22 – 3.31	Depositor EDS
% Data completeness (in resolution range)	94.0 (48.22-3.31) 99.2 (48.22-3.31)	Depositor EDS
R_{merge}	0.17	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.81 (at 3.33Å)	Xtriage
Refinement program	PHENIX	Depositor
R, R_{free}	0.228 , 0.257 0.226 , 0.255	Depositor DCC
R_{free} test set	2910 reflections (5.08%)	wwPDB-VP
Wilson B-factor (Å ²)	77.5	Xtriage
Anisotropy	0.182	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.31 , 64.7	EDS
L-test for twinning ²	$\langle L \rangle = 0.46$, $\langle L^2 \rangle = 0.28$	Xtriage
Estimated twinning fraction	0.045 for h,-k,-l	Xtriage
F_o, F_c correlation	0.91	EDS
Total number of atoms	23880	wwPDB-VP
Average B, all atoms (Å ²)	73.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.16% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical 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, MG, UDP, MLT

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	0.64	1/2974 (0.0%)	1.34	57/4027 (1.4%)
1	B	0.59	0/2956	1.42	68/4000 (1.7%)
1	C	0.67	3/2980 (0.1%)	1.35	59/4034 (1.5%)
1	D	0.62	3/2951 (0.1%)	1.36	40/3991 (1.0%)
1	E	0.66	2/3011 (0.1%)	1.38	60/4075 (1.5%)
1	F	0.59	1/2968 (0.0%)	1.53	66/4014 (1.6%)
1	G	0.57	0/2929	1.35	58/3961 (1.5%)
1	H	0.60	1/2955 (0.0%)	1.33	44/3996 (1.1%)
All	All	0.62	11/23724 (0.0%)	1.39	452/32098 (1.4%)

The worst 5 of 11 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	306	ILE	CA-CB	8.06	1.58	1.54
1	D	196	GLU	N-CA	7.18	1.55	1.45
1	E	92	VAL	CA-CB	-6.08	1.47	1.54
1	D	196	GLU	CA-C	5.79	1.61	1.53
1	A	68	PRO	N-CD	5.58	1.55	1.47

The worst 5 of 452 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	F	234	VAL	N-CA-C	30.45	140.92	112.29
1	D	126	VAL	N-CA-C	27.63	135.57	111.81
1	F	284	PHE	N-CA-C	-21.73	81.07	108.45
1	E	284	PHE	N-CA-C	-18.76	79.53	108.42
1	H	194	ILE	N-CA-C	18.73	128.59	111.91

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	2923	0	2932	213	0
1	B	2907	0	2916	204	0
1	C	2929	0	2940	177	0
1	D	2903	0	2929	172	0
1	E	2959	0	2977	204	0
1	F	2919	0	2941	194	0
1	G	2881	0	2885	179	0
1	H	2907	0	2934	158	0
2	A	25	0	11	0	0
2	C	25	0	11	2	0
2	E	25	0	11	2	0
2	H	25	0	11	2	0
3	A	30	0	40	6	0
3	B	12	0	16	1	0
3	C	12	0	16	1	0
3	D	18	0	24	3	0
3	E	24	0	32	7	0
3	F	24	0	32	8	0
3	H	6	0	8	1	0
4	A	9	0	4	0	0
4	C	9	0	4	1	0
4	E	9	0	4	0	0
4	H	9	0	4	1	0
5	C	1	0	0	0	0
5	E	1	0	0	0	0
6	A	32	0	0	7	0
6	B	30	0	0	4	0
6	C	37	0	0	5	0
6	D	37	0	0	13	0
6	E	41	0	0	9	0
6	F	32	0	0	3	0
6	G	33	0	0	5	0
6	H	46	0	0	10	0
All	All	23880	0	23682	1431	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 30.

The worst 5 of 1431 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:66:GLN:HB3	1:A:67:TYR:CE2	1.38	1.59
1:E:245:GLN:CG	1:H:245:GLN:HE22	1.20	1.54
1:C:96:ILE:HG22	1:C:97:PRO:CD	1.38	1.48
1:E:42:PRO:HD2	1:E:43:PHE:CD2	1.45	1.47
1:E:245:GLN:HG3	1:H:245:GLN:NE2	1.16	1.46

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	368/414 (89%)	332 (90%)	32 (9%)	4 (1%)	11	39
1	B	363/414 (88%)	335 (92%)	24 (7%)	4 (1%)	11	39
1	C	369/414 (89%)	331 (90%)	36 (10%)	2 (0%)	24	55
1	D	363/414 (88%)	332 (92%)	25 (7%)	6 (2%)	7	30
1	E	373/414 (90%)	331 (89%)	36 (10%)	6 (2%)	7	31
1	F	363/414 (88%)	326 (90%)	34 (9%)	3 (1%)	16	45
1	G	359/414 (87%)	335 (93%)	22 (6%)	2 (1%)	21	52
1	H	363/414 (88%)	329 (91%)	26 (7%)	8 (2%)	5	26
All	All	2921/3312 (88%)	2651 (91%)	235 (8%)	35 (1%)	10	37

5 of 35 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	284	PHE
1	A	287	VAL
1	B	42	PRO

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Mol	Chain	Res	Type
1	C	205	SER
1	C	286	LEU

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	322/359 (90%)	285 (88%)	37 (12%)	5	21
1	B	321/359 (89%)	286 (89%)	35 (11%)	6	23
1	C	322/359 (90%)	286 (89%)	36 (11%)	6	22
1	D	322/359 (90%)	276 (86%)	46 (14%)	3	14
1	E	327/359 (91%)	282 (86%)	45 (14%)	3	15
1	F	324/359 (90%)	286 (88%)	38 (12%)	5	20
1	G	317/359 (88%)	294 (93%)	23 (7%)	13	39
1	H	323/359 (90%)	289 (90%)	34 (10%)	6	25
All	All	2578/2872 (90%)	2284 (89%)	294 (11%)	5	21

5 of 294 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	F	287	VAL
1	H	287	VAL
1	G	60	ASN
1	H	2	LYS
1	C	206	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 97 such sidechains are listed below:

Mol	Chain	Res	Type
1	F	51	ASN
1	F	311	GLN
1	F	86	ASN

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Mol	Chain	Res	Type
1	F	169	GLN
1	G	66	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 ⓘ

Of 31 ligands modelled in this entry, 2 are monoatomic - leaving 29 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	MLT	H	384	-	8,8,8	1.11	0	10,10,10	1.57	2 (20%)
4	MLT	C	385	-	8,8,8	1.02	0	10,10,10	1.82	2 (20%)
3	GOL	C	384	-	5,5,5	0.40	0	5,5,5	0.19	0
3	GOL	F	384	-	5,5,5	0.41	0	5,5,5	0.25	0
2	UDP	E	382	5	25,26,26	1.03	0	38,40,40	1.95	7 (18%)
3	GOL	A	386	-	5,5,5	0.36	0	5,5,5	0.19	0
3	GOL	D	384	-	5,5,5	0.40	0	5,5,5	0.41	0
3	GOL	E	386	-	5,5,5	0.33	0	5,5,5	0.40	0
4	MLT	E	387	-	8,8,8	1.08	0	10,10,10	1.74	4 (40%)
2	UDP	A	382	-	25,26,26	1.02	1 (4%)	38,40,40	1.61	5 (13%)
3	GOL	H	383	-	5,5,5	0.32	0	5,5,5	0.42	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	GOL	B	382	-	5,5,5	0.40	0	5,5,5	0.34	0
3	GOL	D	383	-	5,5,5	0.37	0	5,5,5	0.37	0
3	GOL	E	385	-	5,5,5	0.39	0	5,5,5	0.49	0
2	UDP	C	382	5	25,26,26	1.03	2 (8%)	38,40,40	1.56	4 (10%)
3	GOL	A	387	-	5,5,5	0.37	0	5,5,5	0.46	0
2	UDP	H	382	-	25,26,26	1.08	1 (4%)	38,40,40	1.71	7 (18%)
3	GOL	B	383	-	5,5,5	0.37	0	5,5,5	0.27	0
3	GOL	E	384	-	5,5,5	0.37	0	5,5,5	0.30	0
3	GOL	D	382	-	5,5,5	0.37	0	5,5,5	0.29	0
3	GOL	A	384	-	5,5,5	0.40	0	5,5,5	0.17	0
3	GOL	F	383	-	5,5,5	0.41	0	5,5,5	0.28	0
4	MLT	A	388	-	8,8,8	1.10	0	10,10,10	1.68	2 (20%)
3	GOL	A	385	-	5,5,5	0.40	0	5,5,5	0.29	0
3	GOL	F	382	-	5,5,5	0.39	0	5,5,5	0.23	0
3	GOL	A	383	-	5,5,5	0.36	0	5,5,5	0.22	0
3	GOL	E	383	-	5,5,5	0.40	0	5,5,5	0.30	0
3	GOL	F	385	-	5,5,5	0.41	0	5,5,5	0.31	0
3	GOL	C	383	-	5,5,5	0.37	0	5,5,5	0.28	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
4	MLT	H	384	-	-	6/8/8/8	-
4	MLT	C	385	-	-	2/8/8/8	-
3	GOL	C	384	-	-	0/4/4/4	-
3	GOL	F	384	-	-	4/4/4/4	-
2	UDP	E	382	5	-	6/16/32/32	0/2/2/2
3	GOL	A	386	-	-	4/4/4/4	-
3	GOL	D	384	-	-	4/4/4/4	-
3	GOL	E	386	-	-	3/4/4/4	-
4	MLT	E	387	-	-	3/8/8/8	-
2	UDP	A	382	-	-	5/16/32/32	0/2/2/2
3	GOL	H	383	-	-	4/4/4/4	-
3	GOL	B	382	-	-	4/4/4/4	-
3	GOL	D	383	-	-	2/4/4/4	-
3	GOL	E	385	-	-	0/4/4/4	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	UDP	C	382	5	-	7/16/32/32	0/2/2/2
3	GOL	A	387	-	-	2/4/4/4	-
2	UDP	H	382	-	-	3/16/32/32	0/2/2/2
3	GOL	B	383	-	-	4/4/4/4	-
3	GOL	E	384	-	-	1/4/4/4	-
3	GOL	D	382	-	-	4/4/4/4	-
3	GOL	A	384	-	-	2/4/4/4	-
3	GOL	F	383	-	-	2/4/4/4	-
4	MLT	A	388	-	-	0/8/8/8	-
3	GOL	A	385	-	-	1/4/4/4	-
3	GOL	F	382	-	-	2/4/4/4	-
3	GOL	A	383	-	-	0/4/4/4	-
3	GOL	E	383	-	-	2/4/4/4	-
3	GOL	F	385	-	-	2/4/4/4	-
3	GOL	C	383	-	-	4/4/4/4	-

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	H	382	UDP	PA-O3A	2.42	1.62	1.59
2	A	382	UDP	PA-O3A	2.16	1.61	1.59
2	C	382	UDP	PA-O3A	2.01	1.61	1.59
2	C	382	UDP	C5-C4	-2.00	1.39	1.43

The worst 5 of 33 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	E	382	UDP	C4-N3-C2	-5.66	119.59	126.61
2	C	382	UDP	C4-N3-C2	-5.29	120.05	126.61
2	H	382	UDP	C4-N3-C2	-5.16	120.21	126.61
2	A	382	UDP	C4-N3-C2	-5.01	120.39	126.61
2	E	382	UDP	C1'-N1-C2	4.39	125.47	117.59

There are no chirality outliers.

5 of 83 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	382	UDP	C5'-O5'-PA-O1A
2	A	382	UDP	C5'-O5'-PA-O2A

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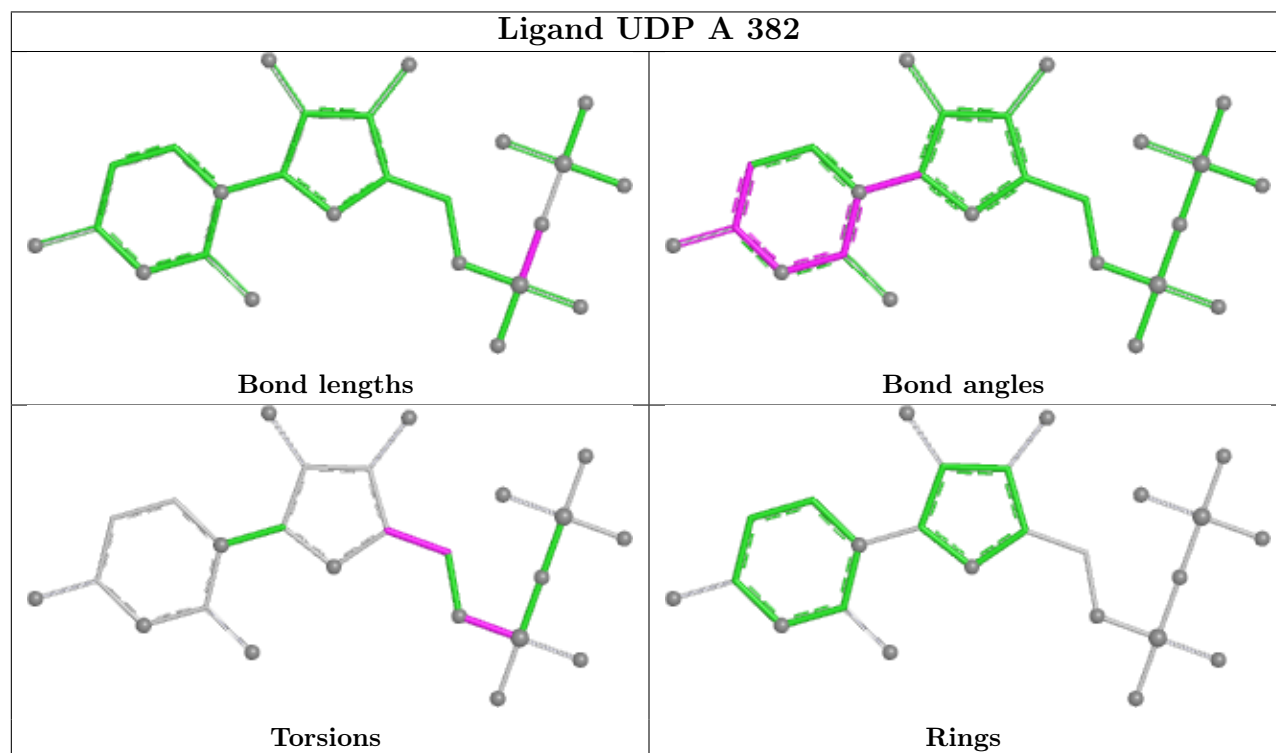
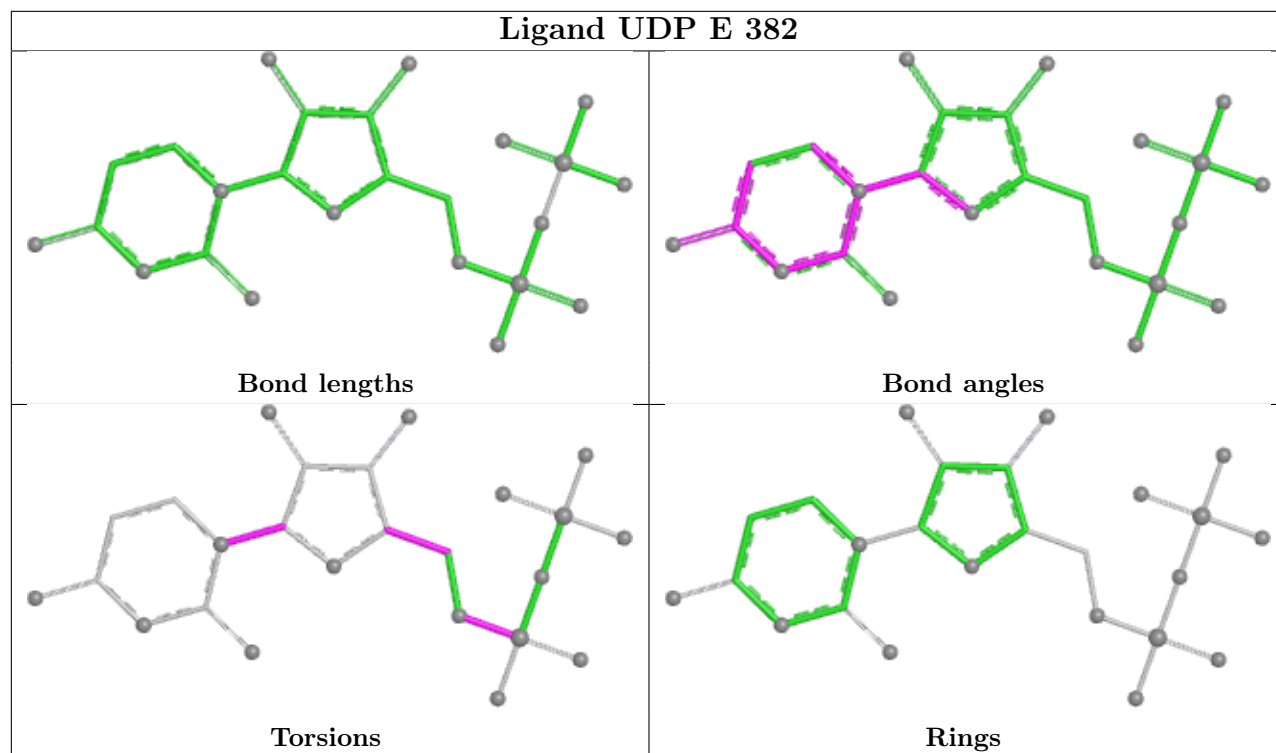
Mol	Chain	Res	Type	Atoms
2	A	382	UDP	C5'-O5'-PA-O3A
2	E	382	UDP	O4'-C1'-N1-C2
2	E	382	UDP	O4'-C1'-N1-C6

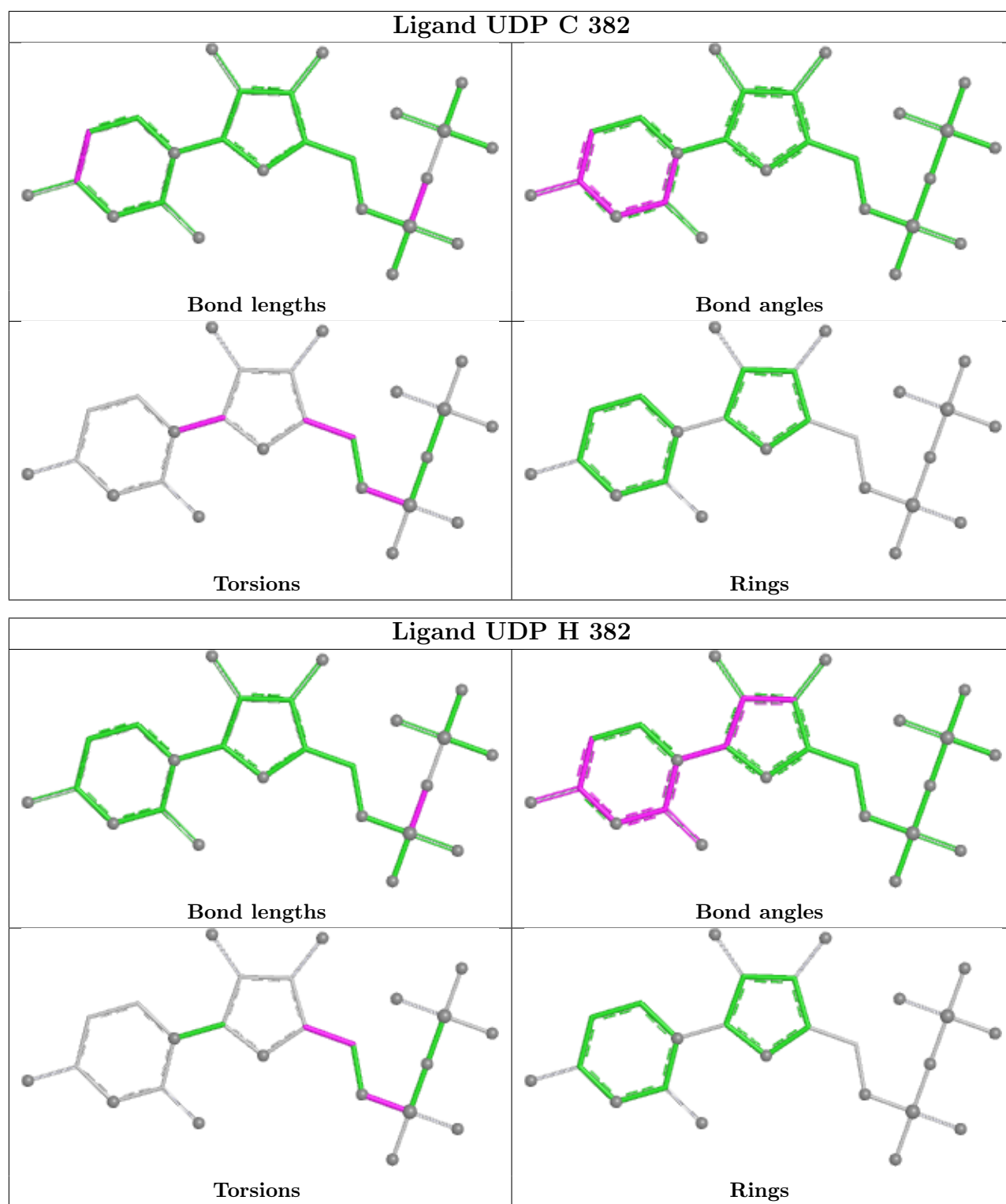
There are no ring outliers.

21 monomers are involved in 35 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	H	384	MLT	1	0
4	C	385	MLT	1	0
3	C	384	GOL	1	0
3	F	384	GOL	2	0
2	E	382	UDP	2	0
3	A	386	GOL	1	0
3	E	386	GOL	1	0
3	H	383	GOL	1	0
3	B	382	GOL	1	0
3	D	383	GOL	1	0
3	E	385	GOL	6	0
2	C	382	UDP	2	0
3	A	387	GOL	1	0
2	H	382	UDP	2	0
3	D	382	GOL	2	0
3	A	384	GOL	1	0
3	F	383	GOL	4	0
3	A	385	GOL	2	0
3	F	382	GOL	1	0
3	A	383	GOL	1	0
3	F	385	GOL	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 ⓘ

There are no chain breaks in this entry.

6 Fit of model and data [i](#)

6.1 Protein, DNA and RNA chains [i](#)

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	372/414 (89%)	-0.12	3 (0%) 82 68	34, 57, 107, 153	0
1	B	369/414 (89%)	0.12	3 (0%) 82 68	41, 85, 124, 147	0
1	C	373/414 (90%)	-0.06	5 (1%) 75 56	35, 60, 104, 133	0
1	D	369/414 (89%)	-0.11	3 (0%) 82 68	35, 56, 109, 139	0
1	E	375/414 (90%)	-0.01	1 (0%) 90 82	37, 66, 116, 149	0
1	F	369/414 (89%)	0.00	2 (0%) 87 76	42, 69, 115, 146	0
1	G	365/414 (88%)	0.23	9 (2%) 58 39	55, 96, 135, 152	0
1	H	369/414 (89%)	-0.10	1 (0%) 90 82	48, 69, 110, 140	0
All	All	2961/3312 (89%)	-0.01	27 (0%) 81 65	34, 68, 120, 153	0

The worst 5 of 27 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	63	SER	2.9
1	C	95	ALA	2.9
1	D	96	ILE	2.7
1	A	96	ILE	2.7
1	B	285	GLY	2.7

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 oligosaccharides in this entry.

6.4 Ligands

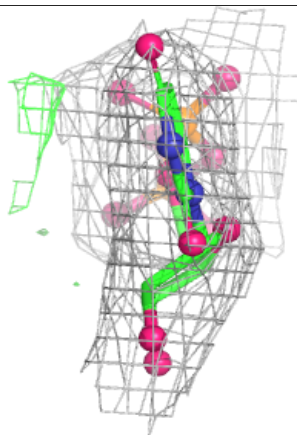
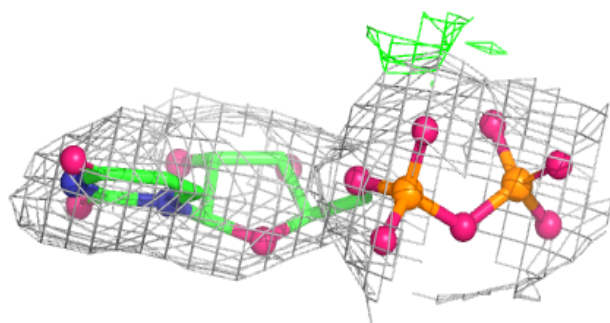
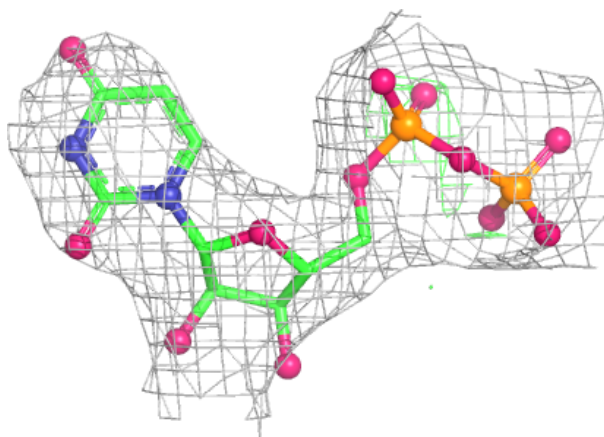
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists 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	GOL	H	383	6/6	0.55	0.13	89,91,91,92	0
3	GOL	E	385	6/6	0.61	0.18	80,81,81,81	6
3	GOL	B	382	6/6	0.65	0.24	107,108,108,108	0
3	GOL	F	383	6/6	0.72	0.12	144,145,145,146	0
3	GOL	E	383	6/6	0.74	0.12	103,104,105,105	0
3	GOL	A	387	6/6	0.74	0.16	84,86,86,90	0
4	MLT	H	384	9/9	0.74	0.19	80,82,86,86	9
3	GOL	F	385	6/6	0.76	0.20	77,82,82,85	6
4	MLT	C	385	9/9	0.77	0.17	61,62,62,62	9
3	GOL	A	385	6/6	0.77	0.13	75,78,78,79	0
3	GOL	D	383	6/6	0.78	0.14	102,107,107,110	0
3	GOL	C	384	6/6	0.78	0.14	72,73,73,74	6
3	GOL	F	382	6/6	0.79	0.18	83,84,85,85	0
4	MLT	A	388	9/9	0.79	0.18	76,80,86,86	9
3	GOL	F	384	6/6	0.82	0.17	110,111,111,112	0
3	GOL	E	384	6/6	0.82	0.13	92,92,92,93	0
3	GOL	A	384	6/6	0.82	0.12	100,101,101,102	0
4	MLT	E	387	9/9	0.83	0.12	90,91,91,91	0
5	MG	E	388	1/1	0.84	0.15	72,72,72,72	0
3	GOL	A	386	6/6	0.85	0.14	71,73,73,73	0
2	UDP	A	382	25/25	0.85	0.12	70,78,98,99	0
2	UDP	H	382	25/25	0.85	0.11	91,94,121,121	0
3	GOL	D	384	6/6	0.86	0.09	77,79,79,80	0
3	GOL	E	386	6/6	0.86	0.13	52,53,54,56	6
3	GOL	D	382	6/6	0.86	0.15	100,100,100,100	0
2	UDP	E	382	25/25	0.86	0.12	82,85,96,97	2
3	GOL	B	383	6/6	0.88	0.10	81,82,82,82	0
3	GOL	C	383	6/6	0.88	0.11	78,84,85,85	0
3	GOL	A	383	6/6	0.89	0.09	57,58,59,60	0
2	UDP	C	382	25/25	0.91	0.10	65,67,76,76	0
5	MG	C	386	1/1	0.93	0.13	43,43,43,43	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.

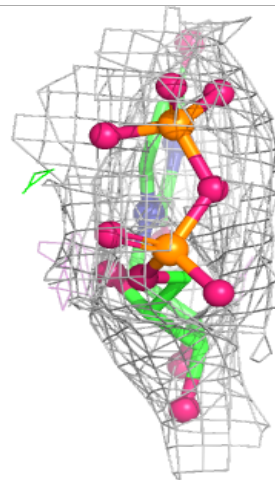
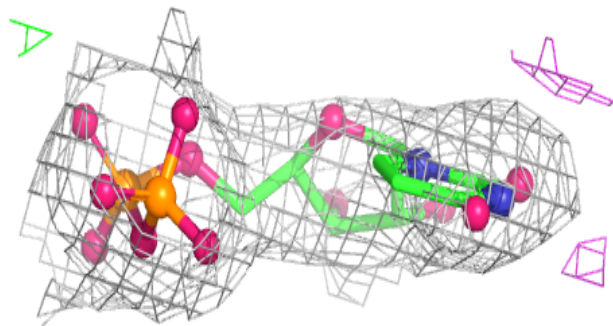
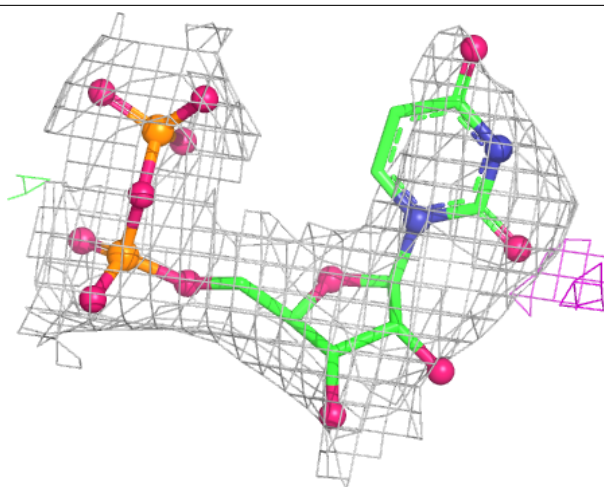
Electron density around UDP A 382:

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



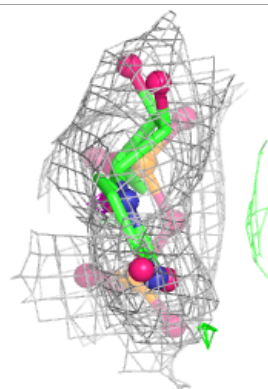
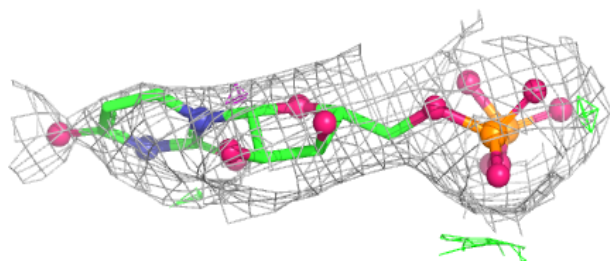
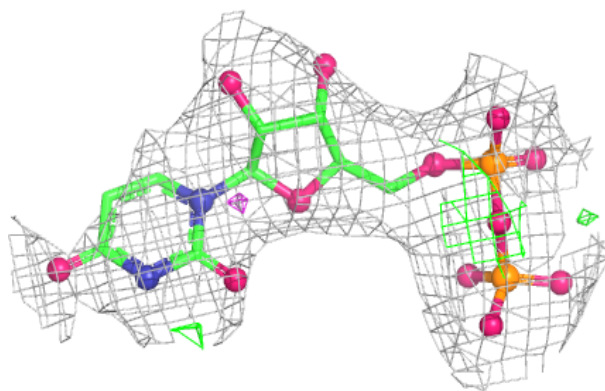
Electron density around UDP H 382:

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

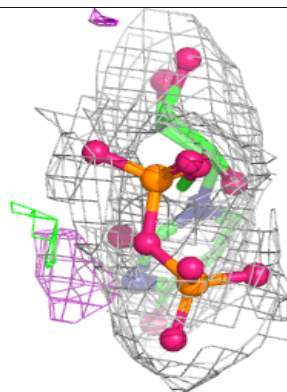
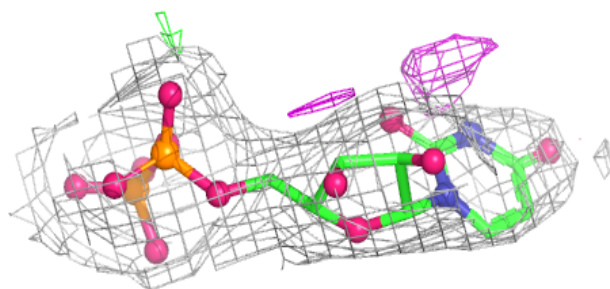


Electron density around UDP E 382:

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

**Electron density around UDP C 382:**

$2mF_o-DF_c$ (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.