



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 5, 2026 – 08:11 AM UTC

PDB ID : 6LZY / pdb_00006lzy
Title : Structure of Phytolacca americana UGT3 with 18-crown-6
Authors : Maharjan, R.; Fukuda, Y.; Nakayama, T.; Nakayama, T.; Hamada, H.; Ozaki, S.; Inoue, T.
Deposited on : 2020-02-19
Resolution : 2.40 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 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

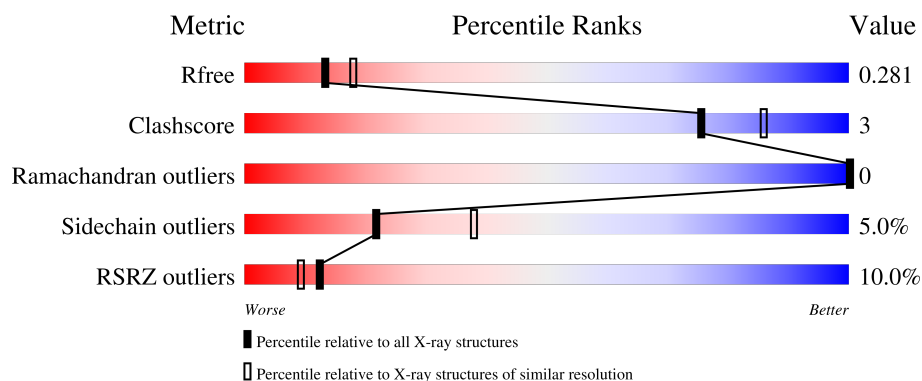
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.40 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	4912 (2.40-2.40)
Clashscore	190562	5391 (2.40-2.40)
Ramachandran outliers	187476	5320 (2.40-2.40)
Sidechain outliers	187428	5321 (2.40-2.40)
RSRZ outliers	180081	4916 (2.40-2.40)

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	505	7% 78% 11% 10%
1	B	505	11% 79% 10% 10%

2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 7434 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.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	454	Total	C	N	O	S	0	0	0
			3642	2349	624	652	17			
1	B	453	Total	C	N	O	S	0	0	0
			3636	2346	623	650	17			

There are 40 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-19	MET	-	initiating methionine	UNP B5MGN9
A	-18	ASN	-	expression tag	UNP B5MGN9
A	-17	HIS	-	expression tag	UNP B5MGN9
A	-16	LYS	-	expression tag	UNP B5MGN9
A	-15	VAL	-	expression tag	UNP B5MGN9
A	-14	HIS	-	expression tag	UNP B5MGN9
A	-13	HIS	-	expression tag	UNP B5MGN9
A	-12	HIS	-	expression tag	UNP B5MGN9
A	-11	HIS	-	expression tag	UNP B5MGN9
A	-10	HIS	-	expression tag	UNP B5MGN9
A	-9	HIS	-	expression tag	UNP B5MGN9
A	-8	LEU	-	expression tag	UNP B5MGN9
A	-7	GLN	-	expression tag	UNP B5MGN9
A	-6	GLU	-	expression tag	UNP B5MGN9
A	-5	ASN	-	expression tag	UNP B5MGN9
A	-4	LEU	-	expression tag	UNP B5MGN9
A	-3	TYR	-	expression tag	UNP B5MGN9
A	-2	PHE	-	expression tag	UNP B5MGN9
A	-1	GLN	-	expression tag	UNP B5MGN9
A	0	GLY	-	expression tag	UNP B5MGN9
B	-19	MET	-	initiating methionine	UNP B5MGN9
B	-18	ASN	-	expression tag	UNP B5MGN9
B	-17	HIS	-	expression tag	UNP B5MGN9
B	-16	LYS	-	expression tag	UNP B5MGN9
B	-15	VAL	-	expression tag	UNP B5MGN9

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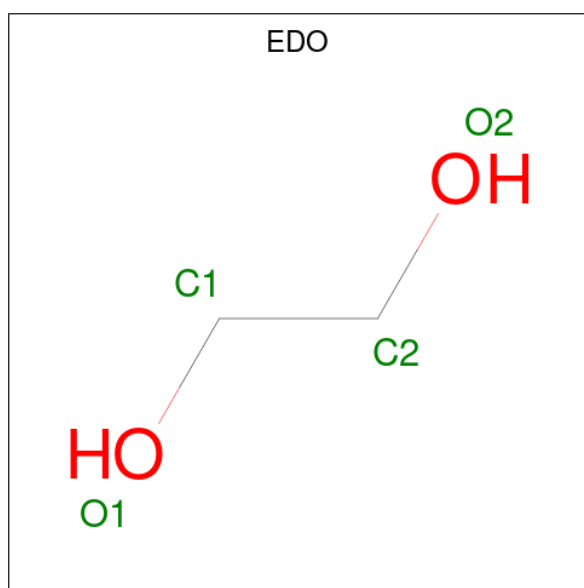
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Chain	Residue	Modelled	Actual	Comment	Reference
B	-14	HIS	-	expression tag	UNP B5MGN9
B	-13	HIS	-	expression tag	UNP B5MGN9
B	-12	HIS	-	expression tag	UNP B5MGN9
B	-11	HIS	-	expression tag	UNP B5MGN9
B	-10	HIS	-	expression tag	UNP B5MGN9
B	-9	HIS	-	expression tag	UNP B5MGN9
B	-8	LEU	-	expression tag	UNP B5MGN9
B	-7	GLN	-	expression tag	UNP B5MGN9
B	-6	GLU	-	expression tag	UNP B5MGN9
B	-5	ASN	-	expression tag	UNP B5MGN9
B	-4	LEU	-	expression tag	UNP B5MGN9
B	-3	TYR	-	expression tag	UNP B5MGN9
B	-2	PHE	-	expression tag	UNP B5MGN9
B	-1	GLN	-	expression tag	UNP B5MGN9
B	0	GLY	-	expression tag	UNP B5MGN9

- Molecule 2 is BROMIDE ION (CCD ID: BR) (formula: Br).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	2	Total Br 2 2	0	0
2	B	2	Total Br 2 2	0	0

- Molecule 3 is 1,2-ETHANEDIOL (CCD ID: EDO) (formula: C₂H₆O₂).

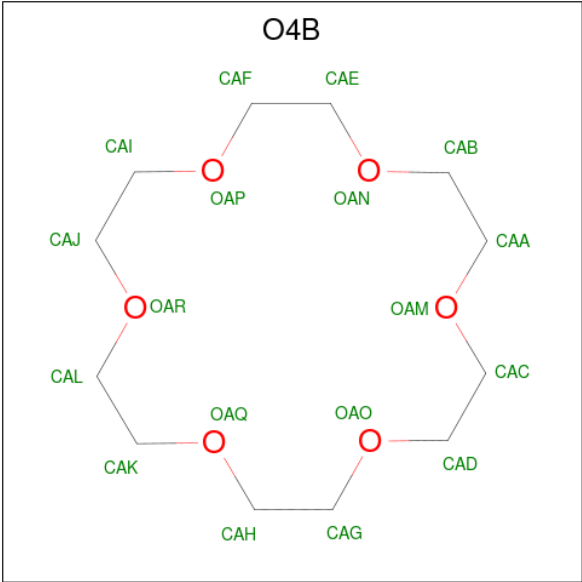


Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total C O 4 2 2	0	0
3	A	1	Total C O 4 2 2	0	0
3	A	1	Total C O 4 2 2	0	0
3	A	1	Total C O 4 2 2	0	0
3	B	1	Total C O 4 2 2	0	0
3	B	1	Total C O 4 2 2	0	0
3	B	1	Total C O 4 2 2	0	0
3	B	1	Total C O 4 2 2	0	0
3	B	1	Total C O 4 2 2	0	0
3	B	1	Total C O 4 2 2	0	0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

- Molecule 4 is SODIUM ION (CCD ID: NA) (formula: Na).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	1	Total Na 1 1	0	0

- Molecule 5 is 1,4,7,10,13,16-HEXAOXACYCLOOCTADECANE (CCD ID: O4B) (formula: C₁₂H₂₄O₆).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	B	1	Total	C	O	0	0
			18	12	6		

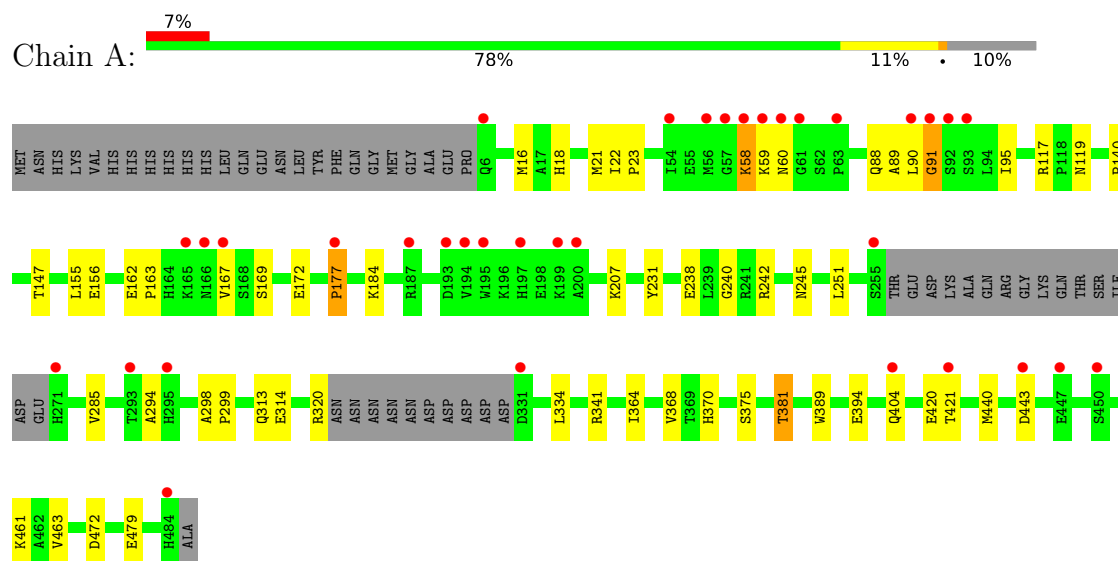
- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	43	Total	O	0	0
			43	43		
6	B	38	Total	O	0	0
			38	38		

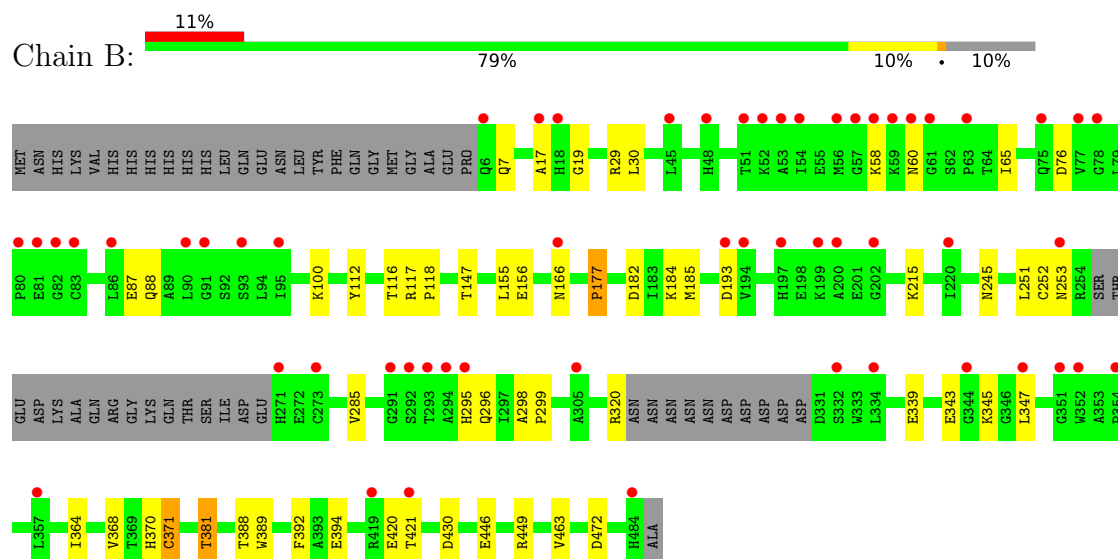
3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density ($RSRZ > 2$). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

• Molecule 1: Glycosyltransferase



• Molecule 1: Glycosyltransferase



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	93.73Å 103.86Å 111.64Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	49.22 – 2.40 49.22 – 2.40	Depositor EDS
% Data completeness (in resolution range)	99.8 (49.22-2.40) 99.8 (49.22-2.40)	Depositor EDS
R_{merge}	0.17	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.71 (at 2.39Å)	Xtriage
Refinement program	REFMAC 5.8.0258	Depositor
R, R_{free}	0.241 , 0.279 0.247 , 0.281	Depositor DCC
R_{free} test set	2119 reflections (4.89%)	wwPDB-VP
Wilson B-factor (Å ²)	42.3	Xtriage
Anisotropy	0.083	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.34 , 35.2	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.92	EDS
Total number of atoms	7434	wwPDB-VP
Average B, all atoms (Å ²)	49.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.31% 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: EDO, NA, O4B, BR

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	1.05	2/3731 (0.1%)	1.40	8/5041 (0.2%)
1	B	1.03	1/3725 (0.0%)	1.39	5/5033 (0.1%)
All	All	1.04	3/7456 (0.0%)	1.39	13/10074 (0.1%)

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	368	VAL	C-O	8.53	1.33	1.24
1	A	375	SER	C-O	5.51	1.30	1.24
1	B	368	VAL	C-O	5.22	1.29	1.24

All (13) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	177	PRO	N-CA-C	10.43	130.68	113.78
1	A	177	PRO	N-CA-C	9.22	131.47	112.47
1	B	371	CYS	CB-CA-C	-6.73	100.03	111.26
1	A	404	GLN	CB-CA-C	6.28	120.22	109.24
1	A	117	ARG	CB-CA-C	-5.79	105.97	111.00
1	B	430	ASP	CA-CB-CG	5.54	118.14	112.60
1	A	169	SER	CA-C-N	5.45	127.84	120.38
1	A	169	SER	C-N-CA	5.45	127.84	120.38
1	A	443	ASP	CA-C-O	-5.36	115.19	120.82
1	B	117	ARG	CB-CA-C	-5.25	106.44	111.00
1	B	177	PRO	CB-CA-C	-5.23	104.36	113.20
1	A	91	GLY	CA-C-O	-5.18	117.84	121.88
1	A	231	TYR	CB-CA-C	5.12	118.20	109.24

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	3642	0	3651	22	0
1	B	3636	0	3646	22	0
2	A	2	0	0	0	0
2	B	2	0	0	0	0
3	A	16	0	24	1	0
3	B	36	0	54	6	0
4	A	1	0	0	0	0
5	B	18	0	24	2	0
6	A	43	0	0	0	0
6	B	38	0	0	2	0
All	All	7434	0	7399	44	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 (44) 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:17:ALA:HB1	3:B:511:EDO:H22	1.46	0.97
1:B:116:THR:HG23	1:B:118:PRO:HD3	1.63	0.81
1:B:29:ARG:HG2	1:B:65:ILE:HD11	1.74	0.69
1:B:19:GLY:HA3	3:B:511:EDO:H12	1.80	0.62
1:B:446:GLU:OE2	1:B:449:ARG:NH1	2.33	0.61
1:A:167:VAL:HG13	1:A:172:GLU:HB3	1.83	0.60
1:A:238:GLU:HA	5:B:501:O4B:HAI1	1.84	0.60
1:B:30:LEU:HD11	3:B:510:EDO:H22	1.84	0.59
1:B:182:ASP:OD2	1:B:184:LYS:NZ	2.39	0.56
1:A:90:LEU:HD23	1:A:90:LEU:H	1.72	0.55
1:B:156:GLU:OE1	1:B:156:GLU:HA	2.08	0.53
1:A:89:ALA:O	1:A:95:ILE:HG13	2.10	0.51
1:B:19:GLY:HA3	3:B:511:EDO:C1	2.41	0.48
1:B:371:CYS:SG	1:B:388:THR:HB	2.53	0.48
1:B:112:TYR:O	1:B:116:THR:HG22	2.13	0.48
1:A:370:HIS:HA	1:A:389:TRP:O	2.14	0.48
1:B:251:LEU:HD21	1:B:381:THR:HG21	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:463:VAL:HG12	3:A:606:EDO:H12	1.96	0.47
1:B:370:HIS:HA	1:B:389:TRP:O	2.14	0.47
1:A:242:ARG:HH21	1:A:479:GLU:CD	2.21	0.46
1:A:147:THR:OG1	1:A:394:GLU:HG3	2.16	0.46
1:B:296:GLN:HA	6:B:627:HOH:O	2.15	0.45
1:A:58:LYS:O	1:A:59:LYS:HG2	2.16	0.45
1:B:394:GLU:OE1	1:B:394:GLU:N	2.43	0.45
1:A:298:ALA:N	1:A:299:PRO:HD2	2.32	0.45
1:B:155:LEU:HD13	3:B:504:EDO:H21	1.99	0.45
1:B:298:ALA:HB3	1:B:299:PRO:HD3	1.98	0.44
1:B:87:GLU:HB2	6:B:604:HOH:O	2.17	0.43
1:A:240:GLY:HA3	5:B:501:O4B:HAH1	2.00	0.43
1:A:91:GLY:O	1:A:95:ILE:HD12	2.19	0.43
1:A:156:GLU:HA	1:A:156:GLU:OE2	2.18	0.43
1:A:334:LEU:HD23	1:A:334:LEU:HA	1.89	0.43
1:B:147:THR:OG1	1:B:394:GLU:HG3	2.19	0.43
1:A:22:ILE:HB	1:A:23:PRO:HD3	2.01	0.42
1:A:294:ALA:O	1:A:320:ARG:HD3	2.19	0.42
1:A:162:GLU:N	1:A:163:PRO:HD3	2.35	0.42
1:A:285:VAL:HB	1:A:364:ILE:HD13	2.00	0.42
1:A:313:GLN:HG2	1:A:440:MET:HG3	2.00	0.42
1:A:119:ASN:O	1:A:140:PRO:HD2	2.20	0.41
1:B:463:VAL:HG22	3:B:510:EDO:H12	2.03	0.41
1:B:252:CYS:SG	1:B:253:ASN:N	2.94	0.41
1:A:18:HIS:HA	1:A:21:MET:HE3	2.04	0.40
1:A:251:LEU:HD21	1:A:381:THR:HG21	2.04	0.40
1:B:285:VAL:HB	1:B:364:ILE:HD13	2.03	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	448/505 (89%)	436 (97%)	12 (3%)	0	100	100
1	B	447/505 (88%)	435 (97%)	12 (3%)	0	100	100
All	All	895/1010 (89%)	871 (97%)	24 (3%)	0	100	100

There are no Ramachandran outliers to report.

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	389/434 (90%)	373 (96%)	16 (4%)	27	46
1	B	388/434 (89%)	365 (94%)	23 (6%)	18	31
All	All	777/868 (90%)	738 (95%)	39 (5%)	22	38

All (39) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	16	MET
1	A	58	LYS
1	A	60	ASN
1	A	88	GLN
1	A	155	LEU
1	A	177	PRO
1	A	184	LYS
1	A	207	LYS
1	A	245	ASN
1	A	314	GLU
1	A	341	ARG
1	A	381	THR
1	A	420	GLU
1	A	421	THR
1	A	461	LYS
1	A	472	ASP
1	B	7	GLN
1	B	58	LYS

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Mol	Chain	Res	Type
1	B	60	ASN
1	B	76	ASP
1	B	88	GLN
1	B	100	LYS
1	B	166	ASN
1	B	177	PRO
1	B	185	MET
1	B	193	ASP
1	B	215	LYS
1	B	245	ASN
1	B	295	HIS
1	B	320	ARG
1	B	339	GLU
1	B	343	GLU
1	B	345	LYS
1	B	347	LEU
1	B	381	THR
1	B	392	PHE
1	B	420	GLU
1	B	421	THR
1	B	472	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (8) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	60	ASN
1	A	166	ASN
1	A	296	GLN
1	B	7	GLN
1	B	60	ASN
1	B	66	HIS
1	B	88	GLN
1	B	166	ASN

5.3.3 RNA ⓘ

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 19 ligands modelled in this entry, 5 are monoatomic - leaving 14 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	$\# Z > 2$
3	EDO	B	505	-	3,3,3	0.22	0	2,2,2	0.34	0
3	EDO	B	504	-	3,3,3	0.32	0	2,2,2	0.45	0
3	EDO	B	506	-	3,3,3	0.09	0	2,2,2	0.18	0
3	EDO	A	603	-	3,3,3	0.18	0	2,2,2	0.24	0
3	EDO	B	508	-	3,3,3	0.05	0	2,2,2	0.13	0
3	EDO	A	605	-	3,3,3	0.36	0	2,2,2	0.31	0
3	EDO	B	511	-	3,3,3	0.13	0	2,2,2	0.35	0
3	EDO	B	507	-	3,3,3	0.14	0	2,2,2	0.22	0
5	O4B	B	501	4	18,18,18	0.24	0	18,18,18	0.21	0
3	EDO	A	604	-	3,3,3	0.38	0	2,2,2	0.45	0
3	EDO	B	510	-	3,3,3	0.49	0	2,2,2	0.59	0
3	EDO	A	606	-	3,3,3	0.28	0	2,2,2	0.32	0
3	EDO	B	509	-	3,3,3	0.10	0	2,2,2	0.14	0
3	EDO	B	503	-	3,3,3	0.17	0	2,2,2	0.32	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
3	EDO	B	505	-	-	1/1/1/1	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	EDO	B	504	-	-	0/1/1/1	-
3	EDO	B	506	-	-	1/1/1/1	-
3	EDO	A	603	-	-	1/1/1/1	-
3	EDO	B	508	-	-	1/1/1/1	-
3	EDO	A	605	-	-	1/1/1/1	-
3	EDO	B	511	-	-	1/1/1/1	-
3	EDO	B	507	-	-	1/1/1/1	-
5	O4B	B	501	4	-	6/18/18/18	0/1/1/1
3	EDO	A	604	-	-	1/1/1/1	-
3	EDO	B	510	-	-	1/1/1/1	-
3	EDO	A	606	-	-	1/1/1/1	-
3	EDO	B	509	-	-	0/1/1/1	-
3	EDO	B	503	-	-	1/1/1/1	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (17) torsion outliers are listed below:

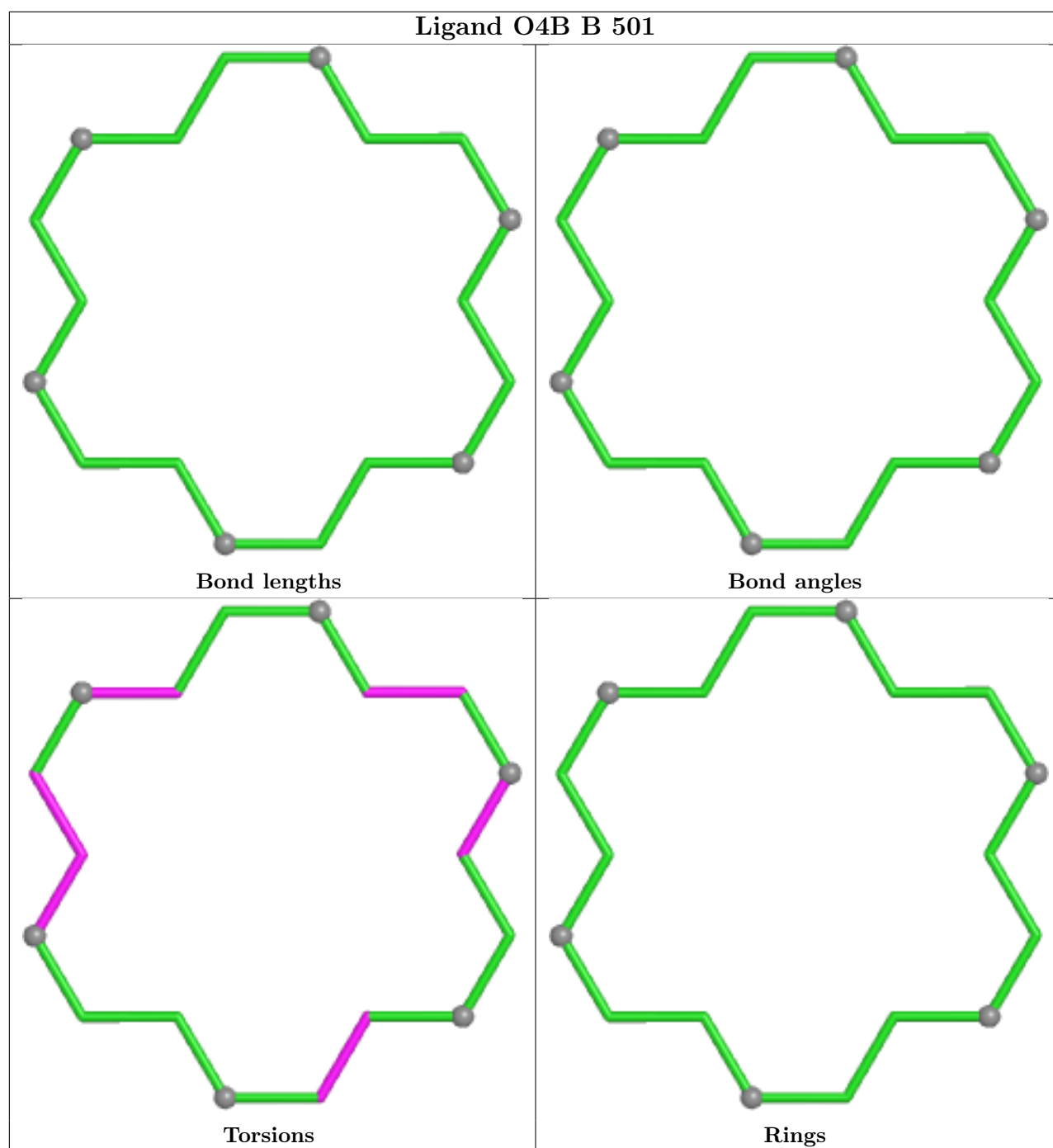
Mol	Chain	Res	Type	Atoms
3	A	604	EDO	O1-C1-C2-O2
3	B	503	EDO	O1-C1-C2-O2
3	A	603	EDO	O1-C1-C2-O2
3	B	508	EDO	O1-C1-C2-O2
5	B	501	O4B	OAM-CAC-CAD-OAO
3	B	507	EDO	O1-C1-C2-O2
3	B	511	EDO	O1-C1-C2-O2
5	B	501	O4B	OAQ-CAK-CAL-OAR
5	B	501	O4B	OAN-CAE-CAF-OAP
5	B	501	O4B	CAA-CAB-OAN-CAE
3	B	505	EDO	O1-C1-C2-O2
3	B	510	EDO	O1-C1-C2-O2
3	A	606	EDO	O1-C1-C2-O2
3	B	506	EDO	O1-C1-C2-O2
3	A	605	EDO	O1-C1-C2-O2
5	B	501	O4B	CAI-CAJ-OAR-CAL
5	B	501	O4B	CAL-CAK-OAQ-CAH

There are no ring outliers.

5 monomers are involved in 9 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	B	504	EDO	1	0
3	B	511	EDO	3	0
5	B	501	O4B	2	0
3	B	510	EDO	2	0
3	A	606	EDO	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	454/505 (89%)	0.52	35 (7%)	19 16	21, 40, 88, 133	0
1	B	453/505 (89%)	0.76	56 (12%)	8 6	21, 45, 104, 146	0
All	All	907/1010 (89%)	0.64	91 (10%)	12 9	21, 42, 98, 146	0

All (91) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	352	TRP	6.1
1	B	354	PRO	5.4
1	B	293	THR	5.4
1	A	193	ASP	4.8
1	B	291	GLY	4.7
1	B	82	GLY	4.7
1	B	90	LEU	4.6
1	B	80	PRO	4.2
1	A	194	VAL	4.0
1	B	351	GLY	4.0
1	A	54	ILE	4.0
1	A	295	HIS	3.9
1	B	294	ALA	3.8
1	A	195	TRP	3.7
1	B	63	PRO	3.7
1	B	57	GLY	3.5
1	A	57	GLY	3.5
1	A	484	HIS	3.5
1	B	295	HIS	3.5
1	A	90	LEU	3.4
1	B	194	VAL	3.4
1	A	61	GLY	3.4
1	A	255	SER	3.4
1	A	271	HIS	3.3

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Mol	Chain	Res	Type	RSRZ
1	A	167	VAL	3.3
1	B	484	HIS	3.3
1	A	165	LYS	3.3
1	A	93	SER	3.3
1	A	197	HIS	3.2
1	B	54	ILE	3.2
1	A	92	SER	3.2
1	B	81	GLU	3.2
1	B	200	ALA	3.2
1	B	78	GLY	3.1
1	B	193	ASP	3.1
1	B	344	GLY	3.1
1	B	197	HIS	3.0
1	B	6	GLN	2.9
1	A	421	THR	2.9
1	B	83	CYS	2.8
1	B	56	MET	2.8
1	B	199	LYS	2.8
1	B	292	SER	2.8
1	B	52	LYS	2.8
1	A	199	LYS	2.8
1	A	200	ALA	2.7
1	A	447	GLU	2.7
1	A	58	LYS	2.7
1	A	177	PRO	2.6
1	A	59	LYS	2.6
1	B	59	LYS	2.6
1	B	75	GLN	2.6
1	B	253	ASN	2.6
1	B	332	SER	2.6
1	B	419	ARG	2.5
1	A	443	ASP	2.5
1	B	61	GLY	2.5
1	B	53	ALA	2.5
1	A	56	MET	2.5
1	B	357	LEU	2.4
1	B	17	ALA	2.4
1	B	95	ILE	2.4
1	B	421	THR	2.3
1	B	91	GLY	2.3
1	B	86	LEU	2.3
1	B	58	LYS	2.3

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Mol	Chain	Res	Type	RSRZ
1	A	166	ASN	2.3
1	B	45	LEU	2.2
1	B	347	LEU	2.2
1	A	293	THR	2.2
1	B	202	GLY	2.2
1	B	271	HIS	2.2
1	B	220	ILE	2.2
1	A	63	PRO	2.2
1	A	6	GLN	2.1
1	B	60	ASN	2.1
1	A	187	ARG	2.1
1	A	91	GLY	2.1
1	B	48	HIS	2.1
1	B	77	VAL	2.1
1	B	166	ASN	2.1
1	B	93	SER	2.1
1	B	51	THR	2.0
1	A	450	SER	2.0
1	A	404	GLN	2.0
1	B	273	CYS	2.0
1	B	305	ALA	2.0
1	B	334	LEU	2.0
1	A	60	ASN	2.0
1	A	331	ASP	2.0
1	B	18	HIS	2.0

6.2 Non-standard residues in protein, DNA, RNA chains ⓘ

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

6.3 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

6.4 Ligands ⓘ

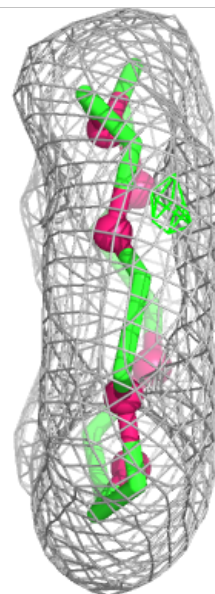
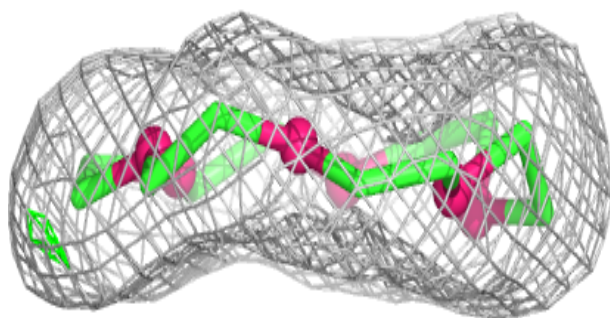
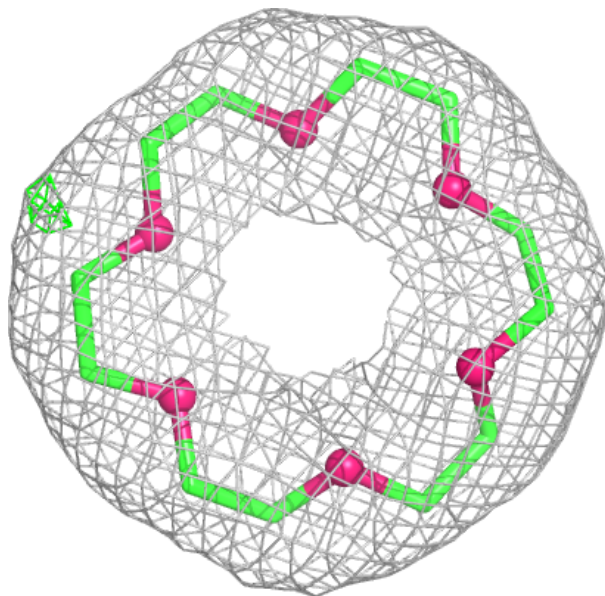
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
3	EDO	B	509	4/4	0.78	0.15	53,57,58,65	0
3	EDO	B	507	4/4	0.79	0.21	66,70,71,72	0
3	EDO	A	603	4/4	0.79	0.24	69,74,78,78	0
3	EDO	A	605	4/4	0.80	0.26	48,56,57,64	0
3	EDO	B	511	4/4	0.80	0.14	57,59,59,63	0
3	EDO	B	504	4/4	0.84	0.20	51,52,56,58	0
3	EDO	B	508	4/4	0.84	0.17	72,72,73,76	0
3	EDO	A	604	4/4	0.85	0.17	46,51,52,54	0
3	EDO	B	510	4/4	0.88	0.23	59,65,69,73	0
3	EDO	A	606	4/4	0.88	0.20	60,68,68,69	0
3	EDO	B	505	4/4	0.89	0.16	61,63,65,68	0
3	EDO	B	506	4/4	0.90	0.18	68,73,75,78	0
2	BR	B	512	1/1	0.92	0.26	106,106,106,106	0
3	EDO	B	503	4/4	0.92	0.16	38,49,49,56	0
4	NA	A	607	1/1	0.93	0.08	34,34,34,34	0
5	O4B	B	501	18/18	0.94	0.08	29,31,32,33	0
2	BR	A	602	1/1	0.98	0.07	45,45,45,45	0
2	BR	A	601	1/1	0.99	0.05	34,34,34,34	0
2	BR	B	502	1/1	0.99	0.03	28,28,28,28	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 O4B B 501:

$2mF_o-DF_c$ (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.