

# Full wwPDB X-ray Structure Validation Report (i)

#### Oct 5, 2023 – 08:56 AM EDT

PDB ID	:	6UX3
Title	:	Crystal structure of acetoin dehydrogenase from Enterobacter cloacae
Authors	:	Chang, C.; Skarina, T.; Mesa, N.; Savchenko, A.; Joachimiak, A.; Center for
		Structural Genomics of Infectious Diseases (CSGID)
Deposited on	:	2019-11-06
Resolution	:	2.20  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 (i) 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 (1)) were used in the production of this report:

MolProbity	:	FAILED
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	FAILED
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.35.1

## 1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:  $X\hbox{-}RAY\,DIFFRACTION$ 

The reported resolution of this entry is 2.20 Å.

There are no overall percentile quality scores available for this entry.

MolProbity and EDS failed to run properly - the sequence quality summary graphics cannot be shown.



#### 6UX3

# 2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 7771 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.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	1 A	244	Total	С	Ν	0	$\mathbf{S}$	0	2	0
		244	1831	1149	318	352	12	0		0
1	В	252	Total	С	Ν	0	S	0	0	0
	I D	202	1862	1168	325	357	12	0	0	0
1	С	245	Total	С	Ν	0	S	0	0	0
		240	1828	1147	318	352	11	0		0
1	1 D	247	Total	С	Ν	0	S	0	2	0
			1859	1164	323	361	11	0		U

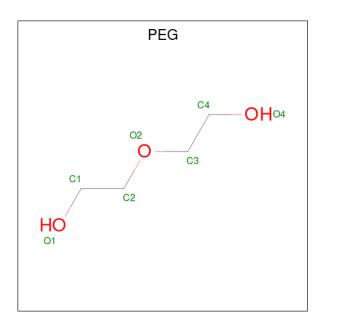
• Molecule 1 is a protein called Acetoin dehydrogenase.

There are 12 discrepancies between the modelled and reference sequences:

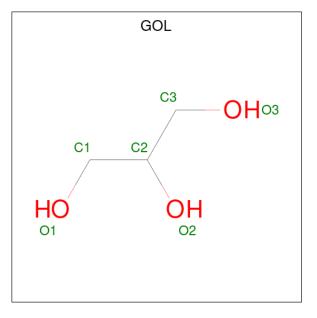
Chain	Residue	Modelled	Actual	Comment	Reference
А	-2	SER	-	expression tag	UNP A0A0H3CM71
А	-1	ASN	-	expression tag	UNP A0A0H3CM71
А	0	ALA	-	expression tag	UNP A0A0H3CM71
В	-2	SER	-	expression tag	UNP A0A0H3CM71
В	-1	ASN	-	expression tag	UNP A0A0H3CM71
В	0	ALA	-	expression tag	UNP A0A0H3CM71
С	-2	SER	-	expression tag	UNP A0A0H3CM71
С	-1	ASN	-	expression tag	UNP A0A0H3CM71
С	0	ALA	-	expression tag	UNP A0A0H3CM71
D	-2	SER	-	expression tag	UNP A0A0H3CM71
D	-1	ASN	-	expression tag	UNP A0A0H3CM71
D	0	ALA	_	expression tag	UNP A0A0H3CM71

• Molecule 2 is DI(HYDROXYETHYL)ETHER (three-letter code: PEG) (formula:  $C_4H_{10}O_3$ ).





Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	С	1	Total 7	С 4	O 3	0	0



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	D	1	Total 6	${ m C} { m 3}$	O 3	0	0

• Molecule 4 is water.



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	А	87	Total O 87 87	0	0
4	В	112	Total         O           112         112	0	0
4	С	93	Total         O           93         93	0	0
4	D	86	Total         O           86         86	0	0

MolProbity and EDS failed to run properly - this section is therefore empty.



# 3 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants	64.07Å 99.84Å $82.22$ Å	Depositor
a, b, c, $\alpha$ , $\beta$ , $\gamma$	$90.00^{\circ}$ $98.89^{\circ}$ $90.00^{\circ}$	Depositor
Resolution (Å)	49.92 - 2.20	Depositor
% Data completeness	89.9 (49.92-2.20)	Depositor
(in resolution range)		-
R <sub>merge</sub>	0.06	Depositor
R <sub>sym</sub>	(Not available)	Depositor
$< I/\sigma(I) > 1$	$3.62 (at 2.20 \text{\AA})$	Xtriage
Refinement program	PHENIX 1.16_3549	Depositor
$R, R_{free}$	0.176 , $0.236$	Depositor
Wilson B-factor ( $Å^2$ )	27.7	Xtriage
Anisotropy	0.159	Xtriage
L-test for twinning <sup>2</sup>	$ \langle L  \rangle = 0.50, \langle L^2 \rangle = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
Total number of atoms	7771	wwPDB-VP
Average B, all atoms $(Å^2)$	36.0	wwPDB-VP

EDS failed to run properly - this section is therefore incomplete.

Xtriage's analysis on translational NCS is as follows: The largest off-origin peak in the Patterson function is 5.50% of the height of the origin peak. No significant pseudotranslation is detected.

<sup>&</sup>lt;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.



<sup>&</sup>lt;sup>1</sup>Intensities estimated from amplitudes.

## 4 Model quality (i)

## 4.1 Standard geometry (i)

MolProbity failed to run properly - this section is therefore empty.

### 4.2 Too-close contacts (i)

MolProbity failed to run properly - this section is therefore empty.

### 4.3 Torsion angles (i)

#### 4.3.1 Protein backbone (i)

MolProbity failed to run properly - this section is therefore empty.

#### 4.3.2 Protein sidechains (i)

MolProbity failed to run properly - this section is therefore empty.

#### 4.3.3 RNA (i)

MolProbity failed to run properly - this section is therefore empty.

### 4.4 Non-standard residues in protein, DNA, RNA chains (i)

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

### 4.5 Carbohydrates (i)

There are no monosaccharides in this entry.

## 4.6 Ligand geometry (i)

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 Cha		Chain	Res	Link	B	ond leng	$\operatorname{gths}$	Bond angles		
	туре	Chain	nes		Counts	RMSZ	# Z >2	Counts	RMSZ	# Z >2
3	GOL	D	301	-	$5,\!5,\!5$	0.08	0	$5,\!5,\!5$	0.33	0
2	PEG	С	301	-	6,6,6	0.11	0	$5,\!5,\!5$	0.08	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	GOL	D	301	-	-	0/4/4/4	-
2	PEG	С	301	-	-	0/4/4/4	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

## 4.7 Other polymers (i)

There are no such residues in this entry.

### 4.8 Polymer linkage issues (i)

There are no chain breaks in this entry.



## 5 Fit of model and data (i)

## 5.1 Protein, DNA and RNA chains (i)

EDS failed to run properly - this section is therefore empty.

## 5.2 Non-standard residues in protein, DNA, RNA chains (i)

EDS failed to run properly - this section is therefore empty.

## 5.3 Carbohydrates (i)

EDS failed to run properly - this section is therefore empty.

## 5.4 Ligands (i)

EDS failed to run properly - this section is therefore empty.

### 5.5 Other polymers (i)

EDS failed to run properly - this section is therefore empty.

