



Full wwPDB X-ray Structure Validation Report ⓘ

Oct 1, 2023 – 10:08 PM EDT

PDB ID : 6MGS
Title : Crystal structure of alpha-Amino-beta-Carboxymuconate-epsilon-Semialdehyde-Decarboxylase with Space Group of C2221
Authors : Yang, Y.; Davis, I.; Matsui, T.; Rubalcava, I.; Liu, A.
Deposited on : 2018-09-14
Resolution : 3.13 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 : **FAILED**
Xtrriage (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

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.13 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.

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 7774 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 2-amino-3-carboxymuconate 6-semialdehyde decarboxylase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	331	2591	1653	450	470	18	0	3	0
1	B	331	2589	1651	450	470	18	0	2	0
1	C	330	2580	1645	448	469	18	0	2	0

There are 63 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-20	MET	-	initiating methionine	UNP Q83V25
A	-19	GLY	-	expression tag	UNP Q83V25
A	-18	HIS	-	expression tag	UNP Q83V25
A	-17	HIS	-	expression tag	UNP Q83V25
A	-16	HIS	-	expression tag	UNP Q83V25
A	-15	HIS	-	expression tag	UNP Q83V25
A	-14	HIS	-	expression tag	UNP Q83V25
A	-13	HIS	-	expression tag	UNP Q83V25
A	-12	HIS	-	expression tag	UNP Q83V25
A	-11	HIS	-	expression tag	UNP Q83V25
A	-10	HIS	-	expression tag	UNP Q83V25
A	-9	HIS	-	expression tag	UNP Q83V25
A	-8	SER	-	expression tag	UNP Q83V25
A	-7	SER	-	expression tag	UNP Q83V25
A	-6	GLY	-	expression tag	UNP Q83V25
A	-5	HIS	-	expression tag	UNP Q83V25
A	-4	ILE	-	expression tag	UNP Q83V25
A	-3	GLU	-	expression tag	UNP Q83V25
A	-2	GLY	-	expression tag	UNP Q83V25
A	-1	ARG	-	expression tag	UNP Q83V25
A	0	HIS	-	expression tag	UNP Q83V25
B	-20	MET	-	initiating methionine	UNP Q83V25
B	-19	GLY	-	expression tag	UNP Q83V25

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Chain	Residue	Modelled	Actual	Comment	Reference
B	-18	HIS	-	expression tag	UNP Q83V25
B	-17	HIS	-	expression tag	UNP Q83V25
B	-16	HIS	-	expression tag	UNP Q83V25
B	-15	HIS	-	expression tag	UNP Q83V25
B	-14	HIS	-	expression tag	UNP Q83V25
B	-13	HIS	-	expression tag	UNP Q83V25
B	-12	HIS	-	expression tag	UNP Q83V25
B	-11	HIS	-	expression tag	UNP Q83V25
B	-10	HIS	-	expression tag	UNP Q83V25
B	-9	HIS	-	expression tag	UNP Q83V25
B	-8	SER	-	expression tag	UNP Q83V25
B	-7	SER	-	expression tag	UNP Q83V25
B	-6	GLY	-	expression tag	UNP Q83V25
B	-5	HIS	-	expression tag	UNP Q83V25
B	-4	ILE	-	expression tag	UNP Q83V25
B	-3	GLU	-	expression tag	UNP Q83V25
B	-2	GLY	-	expression tag	UNP Q83V25
B	-1	ARG	-	expression tag	UNP Q83V25
B	0	HIS	-	expression tag	UNP Q83V25
C	-20	MET	-	initiating methionine	UNP Q83V25
C	-19	GLY	-	expression tag	UNP Q83V25
C	-18	HIS	-	expression tag	UNP Q83V25
C	-17	HIS	-	expression tag	UNP Q83V25
C	-16	HIS	-	expression tag	UNP Q83V25
C	-15	HIS	-	expression tag	UNP Q83V25
C	-14	HIS	-	expression tag	UNP Q83V25
C	-13	HIS	-	expression tag	UNP Q83V25
C	-12	HIS	-	expression tag	UNP Q83V25
C	-11	HIS	-	expression tag	UNP Q83V25
C	-10	HIS	-	expression tag	UNP Q83V25
C	-9	HIS	-	expression tag	UNP Q83V25
C	-8	SER	-	expression tag	UNP Q83V25
C	-7	SER	-	expression tag	UNP Q83V25
C	-6	GLY	-	expression tag	UNP Q83V25
C	-5	HIS	-	expression tag	UNP Q83V25
C	-4	ILE	-	expression tag	UNP Q83V25
C	-3	GLU	-	expression tag	UNP Q83V25
C	-2	GLY	-	expression tag	UNP Q83V25
C	-1	ARG	-	expression tag	UNP Q83V25
C	0	HIS	-	expression tag	UNP Q83V25

- Molecule 2 is COBALT (II) ION (three-letter code: CO) (formula: Co).

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

- Molecule 3 is water.

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

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

3 Data and refinement statistics

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

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α , β , γ	102.48Å 154.17Å 154.56Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	34.49 – 3.13	Depositor
% Data completeness (in resolution range)	65.3 (34.49-3.13)	Depositor
R_{merge}	0.14	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	8.85 (at 3.12Å)	Xtrriage
Refinement program	PHENIX (1.11.1_2575)	Depositor
R, R_{free}	0.229 , 0.300	Depositor
Wilson B-factor (Å ²)	60.0	Xtrriage
Anisotropy	0.058	Xtrriage
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
Total number of atoms	7774	wwPDB-VP
Average B, all atoms (Å ²)	57.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.04% 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.

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](#)

Of 3 ligands modelled in this entry, 3 are monoatomic - leaving 0 for Mogul analysis.

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

There are no such residues in this entry.

4.8 Polymer linkage issues

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.