



wwPDB X-ray Structure Validation Summary Report ⓘ

Oct 4, 2023 – 10:56 PM EDT

PDB ID : 6VET
Title : Human insulin analog: [GluB10,HisA8,ArgA9,TyrB20]-DOI
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Deposited on : 2020-01-02
Resolution : 1.46 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

<https://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 1.46 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 i

There are 3 unique types of molecules in this entry. The entry contains 2072 atoms, of which 903 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 Insulin A chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace	
			Total	C	H	N	O				S
1	A	20	Total 309	C 100	H 147	N 28	O 30	S 4	0	0	0
1	C	20	Total 310	C 100	H 148	N 28	O 30	S 4	0	0	0
1	E	20	Total 311	C 100	H 149	N 28	O 30	S 4	0	0	0

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	8	HIS	THR	engineered mutation	UNP P01308
A	9	ARG	SER	engineered mutation	UNP P01308
C	8	HIS	THR	engineered mutation	UNP P01308
C	9	ARG	SER	engineered mutation	UNP P01308
E	8	HIS	THR	engineered mutation	UNP P01308
E	9	ARG	SER	engineered mutation	UNP P01308

- Molecule 2 is a protein called Insulin B chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace	
			Total	C	H	N	O				S
2	B	22	Total 359	C 121	H 171	N 30	O 35	S 2	0	1	0
2	D	22	Total 334	C 116	H 153	N 29	O 34	S 2	0	0	0
2	F	22	Total 330	C 123	H 135	N 32	O 38	S 2	0	2	0

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	10	GLU	HIS	engineered mutation	UNP P01308
B	20	TYR	GLY	engineered mutation	UNP P01308

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Chain	Residue	Modelled	Actual	Comment	Reference
D	10	GLU	HIS	engineered mutation	UNP P01308
D	20	TYR	GLY	engineered mutation	UNP P01308
F	10	GLU	HIS	engineered mutation	UNP P01308
F	20	TYR	GLY	engineered mutation	UNP P01308

- Molecule 3 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	20	Total O 20 20	0	0
3	B	21	Total O 21 21	0	0
3	C	15	Total O 15 15	0	0
3	D	31	Total O 31 31	0	0
3	E	14	Total O 14 14	0	0
3	F	18	Total O 18 18	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	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	28.37Å 52.12Å 80.50Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	43.75 – 1.46	Depositor
% Data completeness (in resolution range)	99.1 (43.75-1.46)	Depositor
R_{merge}	0.14	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.10 (at 1.46Å)	Xtrriage
Refinement program	PHENIX (1.13-2998_1692)	Depositor
R, R_{free}	0.201 , 0.238	Depositor
Wilson B-factor (Å ²)	20.2	Xtrriage
Anisotropy	0.418	Xtrriage
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
Total number of atoms	2072	wwPDB-VP
Average B, all atoms (Å ²)	32.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 11.32% 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.

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](#)

There are no ligands in this entry.

4.7 Other polymers [i](#)

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

5.1 Protein, DNA and RNA chains

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

5.2 Non-standard residues in protein, DNA, RNA chains

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

5.3 Carbohydrates

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

5.4 Ligands

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

5.5 Other polymers

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