



Full wwPDB X-ray Structure Validation Report ⓘ

Oct 2, 2023 – 03:28 AM EDT

PDB ID : 6MOE
Title : Monomeric DARPin E2 complex with EpoR
Authors : Jude, K.M.; Mohan, K.; Garcia, K.C.
Deposited on : 2018-10-04
Resolution : 2.09 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**
Mogul : 1.8.5 (274361), CSD as541be (2020)
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 2.09 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 6 unique types of molecules in this entry. The entry contains 6249 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 E2 DARPin.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	161	1194	751	203	237	3	0	0	0
1	B	161	1194	751	203	237	3	0	0	0

- Molecule 2 is a protein called Erythropoietin receptor.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	C	217	1676	1064	293	312	7	0	0	0
2	D	216	1669	1061	290	311	7	0	0	0

There are 26 discrepancies between the modelled and reference sequences:

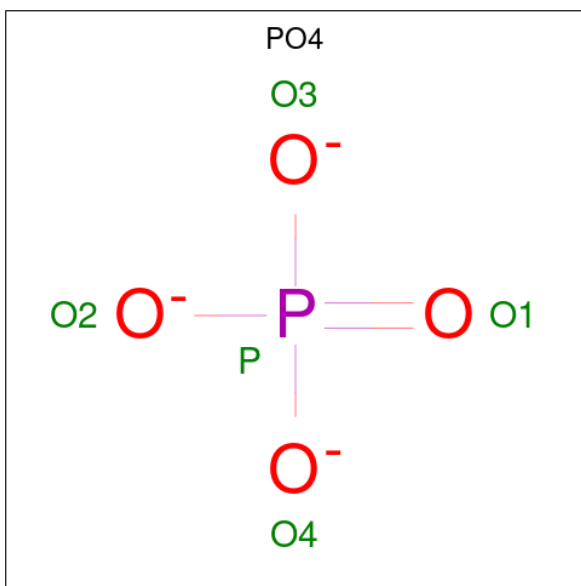
Chain	Residue	Modelled	Actual	Comment	Reference
C	3	PHE	-	expression tag	UNP P19235
C	4	ALA	-	expression tag	UNP P19235
C	5	GLY	-	expression tag	UNP P19235
C	6	SER	-	expression tag	UNP P19235
C	7	ALA	-	expression tag	UNP P19235
C	52	GLN	ASN	conflict	UNP P19235
C	164	GLN	ASN	conflict	UNP P19235
C	226	LYS	-	expression tag	UNP P19235
C	227	GLU	-	expression tag	UNP P19235
C	228	LYS	-	expression tag	UNP P19235
C	229	ALA	-	expression tag	UNP P19235
C	230	ALA	-	expression tag	UNP P19235
C	231	ALA	-	expression tag	UNP P19235
D	3	PHE	-	expression tag	UNP P19235
D	4	ALA	-	expression tag	UNP P19235
D	5	GLY	-	expression tag	UNP P19235

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Chain	Residue	Modelled	Actual	Comment	Reference
D	6	SER	-	expression tag	UNP P19235
D	7	ALA	-	expression tag	UNP P19235
D	52	GLN	ASN	conflict	UNP P19235
D	164	GLN	ASN	conflict	UNP P19235
D	226	LYS	-	expression tag	UNP P19235
D	227	GLU	-	expression tag	UNP P19235
D	228	LYS	-	expression tag	UNP P19235
D	229	ALA	-	expression tag	UNP P19235
D	230	ALA	-	expression tag	UNP P19235
D	231	ALA	-	expression tag	UNP P19235

- Molecule 3 is PHOSPHATE ION (three-letter code: PO4) (formula: O₄P).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total O P 5 4 1	0	0
3	A	1	Total O P 5 4 1	0	0
3	B	1	Total O P 5 4 1	0	0
3	C	1	Total O P 5 4 1	0	0
3	C	1	Total O P 5 4 1	0	0
3	C	1	Total O P 5 4 1	0	0

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	D	1	Total O P 5 4 1	0	0
3	D	1	Total O P 5 4 1	0	0
3	D	1	Total O P 5 4 1	0	0

- Molecule 4 is 1,2-ETHANEDIOL (three-letter code: EDO) (formula: C₂H₆O₂).



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

- Molecule 5 is 4-(2-HYDROXYETHYL)-1-PIPERAZINE ETHANESULFONIC ACID (three-letter code: EPE) (formula: C₈H₁₈N₂O₄S).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	S		
5	B	1	15	8	2	4	1	0	0

- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	104	Total	O	0	0
			104	104		
6	B	101	Total	O	0	0
			101	101		
6	C	116	Total	O	0	0
			116	116		
6	D	127	Total	O	0	0
			127	127		

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	69.25Å 122.16Å 132.57Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	29.77 – 2.09	Depositor
% Data completeness (in resolution range)	99.5 (29.77-2.09)	Depositor
R_{merge}	0.13	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	0.30 (at 2.10Å)	Xtrriage
Refinement program	PHENIX (1.14_3211: ???)	Depositor
R, R_{free}	0.204 , 0.230	Depositor
Wilson B-factor (Å ²)	43.0	Xtrriage
Anisotropy	0.491	Xtrriage
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.33$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
Total number of atoms	6249	wwPDB-VP
Average B, all atoms (Å ²)	68.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.97% 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](#)

12 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	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	PO4	A	202	-	4,4,4	0.90	0	6,6,6	0.44	0
5	EPE	B	202	-	15,15,15	0.83	1 (6%)	18,20,20	1.95	5 (27%)
3	PO4	D	301	-	4,4,4	0.91	0	6,6,6	0.43	0
4	EDO	A	203	-	3,3,3	0.45	0	2,2,2	0.30	0
3	PO4	C	302	-	4,4,4	0.93	0	6,6,6	0.43	0
3	PO4	A	201	-	4,4,4	0.90	0	6,6,6	0.41	0
3	PO4	D	302	-	4,4,4	0.93	0	6,6,6	0.43	0
3	PO4	D	303	-	4,4,4	0.89	0	6,6,6	0.46	0
3	PO4	B	201	-	4,4,4	0.95	0	6,6,6	0.42	0
4	EDO	C	304	-	3,3,3	0.45	0	2,2,2	0.34	0
3	PO4	C	301	-	4,4,4	0.92	0	6,6,6	0.44	0
3	PO4	C	303	-	4,4,4	0.91	0	6,6,6	0.42	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
5	EPE	B	202	-	-	8/9/19/19	0/1/1/1
4	EDO	A	203	-	-	0/1/1/1	-
4	EDO	C	304	-	-	0/1/1/1	-

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	B	202	EPE	C10-S	2.76	1.81	1.77

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	B	202	EPE	C5-N4-C3	4.33	118.58	108.83
5	B	202	EPE	C7-N4-C5	3.64	120.54	111.23
5	B	202	EPE	C7-N4-C3	3.53	120.27	111.23
5	B	202	EPE	O3S-S-C10	2.33	109.53	105.77
5	B	202	EPE	O2S-S-C10	2.25	109.62	106.92

There are no chirality outliers.

All (8) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	B	202	EPE	S-C10-C9-N1
5	B	202	EPE	C9-C10-S-O2S
5	B	202	EPE	C9-C10-S-O3S
5	B	202	EPE	N4-C7-C8-O8
5	B	202	EPE	C9-C10-S-O1S
5	B	202	EPE	C8-C7-N4-C5
5	B	202	EPE	C10-C9-N1-C2
5	B	202	EPE	C10-C9-N1-C6

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

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.