wwPDB X-ray Structure Validation Summary Report (i)

Oct 3, 2023 – 04:26 AM EDT

PDB ID	:	6O41
Title	:	Crystal structure of the unbound PGZL1 germline Fab fragment (PGZL1_gVmDmJ)
Authors	:	Irimia, A.; Wilson, I.A.
Deposited on	:	2019-02-27
Resolution	:	2.46 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 (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 (i)) 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-RAY DIFFRACTION

The reported resolution of this entry is 2.46 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 5 unique types of molecules in this entry. The entry contains 11744 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 germline PGZL1_gVmDmJ light chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	L	213	1668	1037	291	335	5	0	4	0
1	A	213	1635	1019	279	332	5	0	1	0
1	C	213	1635	1019	279	332	5	0	1	0

- Molecule 2 is a protein called germline PGZL1_gVmDmJ heavy chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	H	223	1652	1044	275	324	9	0	4	0
2	B	222	1643	1039	274	321	9	0	3	0
2	D	222	1639	1036	273	321	9	0	3	0

- Molecule 3 is a protein called Immunoglobulin G-binding protein G (DOMAIN III).

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
3	M	60	465	292	76	97	0	0	0
3	N	60	473	296	78	99	0	1	0
3	O	59	460	289	75	96	0	0	0

There are 18 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
M	1	MET	-	initiating methionine	UNP P19909
M	62	HIS	-	expression tag	UNP P19909

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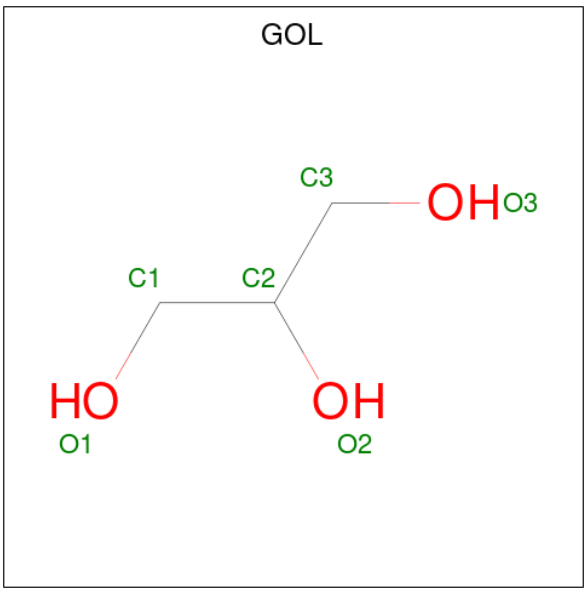
Chain	Residue	Modelled	Actual	Comment	Reference
M	63	HIS	-	expression tag	UNP P19909
M	64	HIS	-	expression tag	UNP P19909
M	65	HIS	-	expression tag	UNP P19909
M	66	HIS	-	expression tag	UNP P19909
N	1	MET	-	initiating methionine	UNP P19909
N	62	HIS	-	expression tag	UNP P19909
N	63	HIS	-	expression tag	UNP P19909
N	64	HIS	-	expression tag	UNP P19909
N	65	HIS	-	expression tag	UNP P19909
N	66	HIS	-	expression tag	UNP P19909
O	1	MET	-	initiating methionine	UNP P19909
O	62	HIS	-	expression tag	UNP P19909
O	63	HIS	-	expression tag	UNP P19909
O	64	HIS	-	expression tag	UNP P19909
O	65	HIS	-	expression tag	UNP P19909
O	66	HIS	-	expression tag	UNP P19909

- Molecule 4 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
			Total	C	O		
4	L	1	6	3	3	0	0
			Total	C	O		
4	L	1	6	3	3	0	0
			Total	C	O		
4	L	1	6	3	3	0	0

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
			Total	C	O		
4	L	1	6	3	3	0	0
			Total	C	O		
4	L	1	6	3	3	0	0
			Total	C	O		
4	H	1	6	3	3	0	0
			Total	C	O		
4	H	1	6	3	3	0	0
			Total	C	O		
4	A	1	6	3	3	0	0
			Total	C	O		
4	B	1	6	3	3	0	0
			Total	C	O		
4	C	1	6	3	3	0	0
			Total	C	O		
4	C	1	6	3	3	0	0
			Total	C	O		
4	D	1	6	3	3	0	0
			Total	C	O		
4	O	1	6	3	3	0	0

- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	O		
5	L	79	79	79	0	0
			Total	O		
5	H	58	58	58	0	0
			Total	O		
5	A	59	59	59	0	0
			Total	O		
5	B	47	47	47	0	0
			Total	O		
5	C	72	72	72	0	0
			Total	O		
5	D	42	42	42	0	0
			Total	O		
5	M	16	16	16	0	0
			Total	O		
5	N	13	13	13	0	0
			Total	O		
5	O	10	10	10	0	0

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

3 Data and refinement statistics (i)

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

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	78.84Å 107.49Å 131.96Å 90.00° 94.61° 90.00°	Depositor
Resolution (Å)	39.67 – 2.46	Depositor
% Data completeness (in resolution range)	97.8 (39.67-2.46)	Depositor
R_{merge}	(Not available)	Depositor
R_{sym}	0.10	Depositor
$< I/\sigma(I) >$ [1]	1.68 (at 2.48Å)	Xtriage
Refinement program	PHENIX (1.12_2829: ???)	Depositor
R, R_{free}	0.169 , 0.219	Depositor
Wilson B-factor (Å^2)	50.0	Xtriage
Anisotropy	0.211	Xtriage
L-test for twinning[2]	$< \|L\| > = 0.51$, $< L^2 > = 0.34$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
Total number of atoms	11744	wwPDB-VP
Average B, all atoms (Å^2)	52.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.12% of the height of the origin peak. No significant pseudotranslation is detected.*

[1]Intensities estimated from amplitudes.

[2]Theoretical values of $< |L| >$, $< L^2 >$ 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)

13 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	$\#\|Z\| > 2$
4	GOL	L	304	-	5,5,5	0.90	0	5,5,5	1.02	0
4	GOL	L	303	-	5,5,5	0.92	0	5,5,5	0.95	0
4	GOL	C	302	-	5,5,5	0.97	0	5,5,5	1.01	0
4	GOL	D	301	-	5,5,5	0.82	0	5,5,5	1.20	1 (20%)
4	GOL	A	301	-	5,5,5	0.72	0	5,5,5	1.20	0
4	GOL	H	302	-	5,5,5	1.03	0	5,5,5	0.98	0
4	GOL	L	301	-	5,5,5	0.92	0	5,5,5	0.98	0
4	GOL	L	302	-	5,5,5	0.97	0	5,5,5	0.93	0
4	GOL	B	301	-	5,5,5	1.00	0	5,5,5	0.89	0
4	GOL	L	305	-	5,5,5	1.01	0	5,5,5	0.85	0
4	GOL	O	101	-	5,5,5	0.88	0	5,5,5	0.84	0
4	GOL	H	301	-	5,5,5	1.05	0	5,5,5	0.95	0
4	GOL	C	301	-	5,5,5	0.80	0	5,5,5	1.20	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
4	GOL	L	304	-	-	0/4/4/4	-
4	GOL	L	303	-	-	4/4/4/4	-
4	GOL	C	302	-	-	2/4/4/4	-
4	GOL	D	301	-	-	2/4/4/4	-
4	GOL	A	301	-	-	4/4/4/4	-
4	GOL	H	302	-	-	2/4/4/4	-
4	GOL	L	301	-	-	1/4/4/4	-
4	GOL	L	302	-	-	2/4/4/4	-
4	GOL	B	301	-	-	0/4/4/4	-
4	GOL	L	305	-	-	2/4/4/4	-
4	GOL	O	101	-	-	1/4/4/4	-
4	GOL	H	301	-	-	2/4/4/4	-
4	GOL	C	301	-	-	0/4/4/4	-

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	D	301	GOL	C3-C2-C1	-2.21	103.11	111.70

There are no chirality outliers.

5 of 22 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	L	303	GOL	O1-C1-C2-O2
4	L	303	GOL	O1-C1-C2-C3
4	H	301	GOL	C1-C2-C3-O3
4	H	302	GOL	O1-C1-C2-C3
4	A	301	GOL	O1-C1-C2-C3

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.