WORLDWIDE wwPDB PROTEIN DATA BANK

wwPDB X-ray Structure Validation Summary Report ⓘ

Oct 2, 2023 – 12:58 AM EDT

PDB ID	:	6N33
Title	:	Crystal structure of fms kinase domain with a small molecular inhibitor, PLX5622
Authors	:	Zhang, Y.
Deposited on	:	2018-11-14
Resolution	:	2.25 Å(reported)

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)
Xtriage (Phenix)	:	1.13
EDS	:	FAILED
buster-report	:	1.1.7 (2018)
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 2.25 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 2447 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 Macrophage colony-stimulating factor 1 receptor.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	292	2285	1470	390	412	13	0	0	0

There are 60 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	531	MET	-	initiating methionine	UNP P07333
A	532	LYS	-	expression tag	UNP P07333
A	533	LYS	-	expression tag	UNP P07333
A	534	GLY	-	expression tag	UNP P07333
A	535	HIS	-	expression tag	UNP P07333
A	536	HIS	-	expression tag	UNP P07333
A	537	HIS	-	expression tag	UNP P07333
A	538	HIS	-	expression tag	UNP P07333
A	539	HIS	-	expression tag	UNP P07333
A	540	HIS	-	expression tag	UNP P07333
A	541	GLY	-	expression tag	UNP P07333
A	667	THR	CYS	engineered mutation	UNP P07333
A	?	-	GLY	deletion	UNP P07333
A	?	-	VAL	deletion	UNP P07333
A	?	-	ASP	deletion	UNP P07333
A	?	-	TYR	deletion	UNP P07333
A	?	-	LYS	deletion	UNP P07333
A	?	-	ASN	deletion	UNP P07333
A	?	-	ILE	deletion	UNP P07333
A	?	-	HIS	deletion	UNP P07333
A	?	-	LEU	deletion	UNP P07333
A	?	-	GLU	deletion	UNP P07333
A	?	-	LYS	deletion	UNP P07333
A	?	-	LYS	deletion	UNP P07333
A	?	-	TYR	deletion	UNP P07333
A	?	-	VAL	deletion	UNP P07333
A	?	-	ARG	deletion	UNP P07333

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Chain	Residue	Modelled	Actual	Comment	Reference
A	?	-	ARG	deletion	UNP P07333
A	?	-	ASP	deletion	UNP P07333
A	?	-	SER	deletion	UNP P07333
A	?	-	GLY	deletion	UNP P07333
A	?	-	PHE	deletion	UNP P07333
A	?	-	SER	deletion	UNP P07333
A	?	-	SER	deletion	UNP P07333
A	?	-	GLN	deletion	UNP P07333
A	?	-	GLY	deletion	UNP P07333
A	?	-	VAL	deletion	UNP P07333
A	?	-	ASP	deletion	UNP P07333
A	?	-	THR	deletion	UNP P07333
A	?	-	TYR	deletion	UNP P07333
A	?	-	VAL	deletion	UNP P07333
A	?	-	GLU	deletion	UNP P07333
A	?	-	MET	deletion	UNP P07333
A	?	-	ARG	deletion	UNP P07333
A	?	-	PRO	deletion	UNP P07333
A	?	-	VAL	deletion	UNP P07333
A	?	-	SER	deletion	UNP P07333
A	?	-	THR	deletion	UNP P07333
A	?	-	SER	deletion	UNP P07333
A	?	-	SER	deletion	UNP P07333
A	?	-	ASN	deletion	UNP P07333
A	?	-	ASP	deletion	UNP P07333
A	?	-	SER	deletion	UNP P07333
A	?	-	PHE	deletion	UNP P07333
A	?	-	SER	deletion	UNP P07333
A	?	-	GLU	deletion	UNP P07333
A	?	-	GLN	deletion	UNP P07333
A	?	-	ASP	deletion	UNP P07333
A	830	SER	CYS	engineered mutation	UNP P07333
A	907	THR	CYS	engineered mutation	UNP P07333

- Molecule 2 is 6-fluoro-N-[(5-fluoro-2-methoxypyridin-3-yl)methyl]-5-[(5-methyl-1H-pyrrolo[2,3-b]pyridin-3-yl)methyl]pyridin-2-amine (three-letter code: 622) (formula: $C_{21}H_{19}F_2N_5O$) (labeled as "Ligand of Interest" by depositor).

622
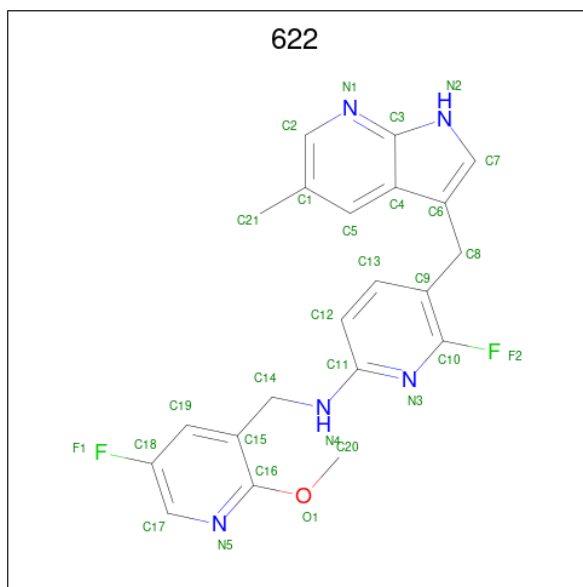
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total 29	C 21	F 2	N 5	O 1	0	0

- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	133	Total 133	O 133	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 43 21 2	Depositor
Cell constants a, b, c, α, β, γ	62.62Å 62.62Å 182.37Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	59.23 – 2.25	Depositor
% Data completeness (in resolution range)	99.7 (59.23-2.25)	Depositor
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$<I/\sigma(I)>$ [1]	2.24 (at 2.07Å)	Xtriage
Refinement program	PHENIX (1.11.1_2575: ???)	Depositor
R, R_{free}	0.181 , 0.220	Depositor
Wilson B-factor (Å^2)	35.5	Xtriage
Anisotropy	0.528	Xtriage
L-test for twinning[2]	$<|L|> = 0.48$, $<L^2> = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
Total number of atoms	2447	wwPDB-VP
Average B, all atoms (Å^2)	38.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.75% of the height of the origin peak. No significant pseudotranslation is detected.*

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[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 ⓘ

4.1 Standard geometry ⓘ

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

4.2 Too-close contacts ⓘ

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

4.3 Torsion angles ⓘ

4.3.1 Protein backbone ⓘ

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

4.3.2 Protein sidechains ⓘ

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

4.3.3 RNA ⓘ

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

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

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

4.5 Carbohydrates ⓘ

There are no monosaccharides in this entry.

4.6 Ligand geometry ⓘ

1 ligand is 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	$\#\|Z\| > 2$
2	622	A	1001	-	30,32,32	1.32	3 (10%)	32,45,45	1.58	10 (31%)

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
2	622	A	1001	-	-	1/11/11/11	0/4/4/4

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	1001	622	C17-C18	3.27	1.41	1.37
2	A	1001	622	C10-N3	2.92	1.35	1.31
2	A	1001	622	C2-N1	2.07	1.35	1.31

The worst 5 of 10 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	1001	622	C5-C1-C2	3.27	120.51	116.96
2	A	1001	622	O1-C16-N5	-2.84	117.05	120.35
2	A	1001	622	C2-N1-C3	-2.83	113.85	116.69
2	A	1001	622	O1-C16-C15	2.76	119.40	115.17
2	A	1001	622	C1-C5-C4	-2.57	118.74	121.64

There are no chirality outliers.

All (1) torsion outliers are listed below:

| Mol	Chain	Res	Type	Atoms
2	A	1001	622	C4-C6-C8-C9

There are no ring outliers.

No monomer is involved in short contacts.

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In

addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

Ligand 622 A 1001

Bond lengths — Bond angles — Torsions — Rings
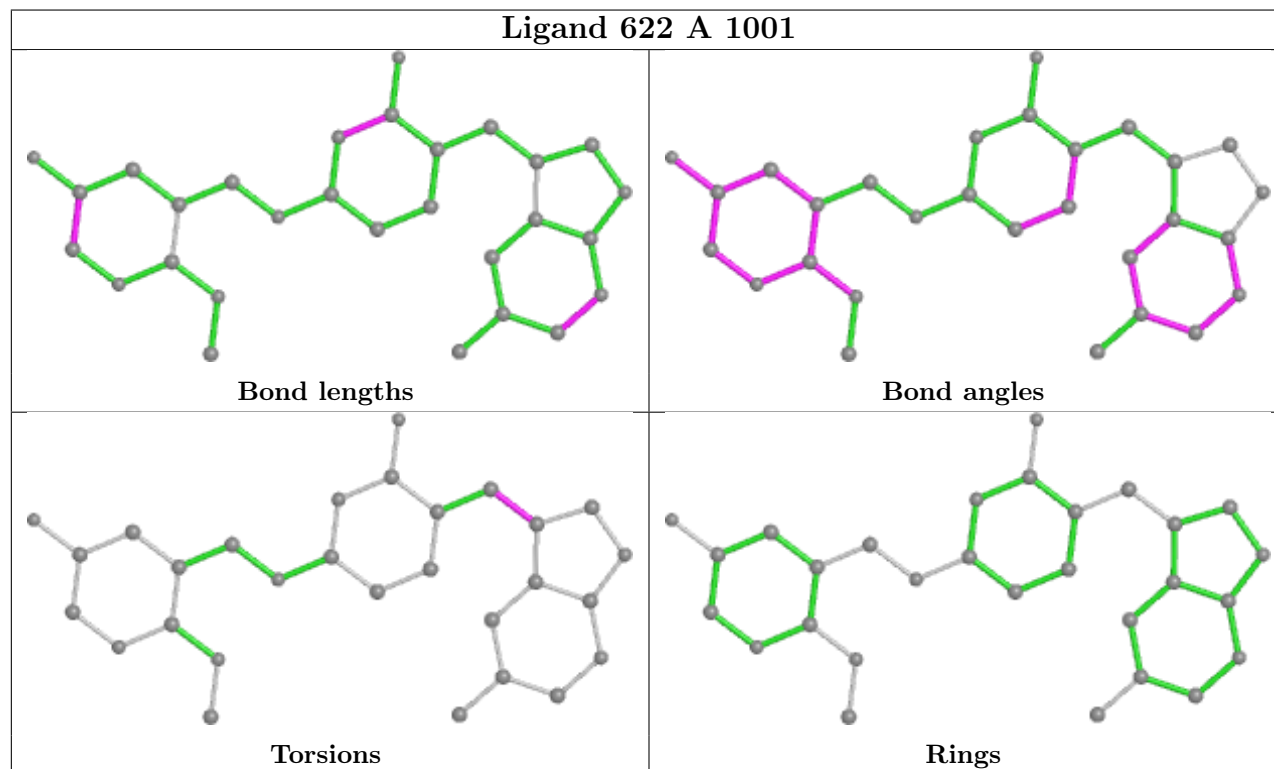
4.7 Other polymers ⓘ

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 ⓘ

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.