wwPDB X-ray Structure Validation Summary Report (i)

Dec 3, 2023 – 04:54 pm GMT

PDB ID	:	2UZX
Title	:	Structure of the human receptor tyrosine kinase Met in complex with the Listeria monocytogenes invasion protein InlB: Crystal form I
Authors	:	Niemann, H.H.; Jager, V.; Butler, P.J.G.; Van Den Heuvel, J.; Schmidt, S.; Ferraris, D.; Gherardi, E.; Heinz, D.W.
Deposited on	:	2007-05-02
Resolution	:	2.80 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 (1)) were used in the production of this report:

MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.36
Percentile statistics	:	FAILED
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

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 2.80 Å.

There are no overall percentile quality scores available for this entry.

2 Entry composition (i)

There are 2 unique types of molecules in this entry. The entry contains 13170 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 INTERNALIN B.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	287	2257	1438	379	438	2	0	0	0
1	C	287	2257	1438	379	438	2	0	0	0

- Molecule 2 is a protein called HEPATOCYTE GROWTH FACTOR RECEPTOR.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	547	4328	2757	732	809	30	0	0	1
2	D	547	4328	2757	732	809	30	0	0	1

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	41	CYS	TYR	conflict	UNP P08581
B	344	ALA	GLY	conflict	UNP P08581
D	41	CYS	TYR	conflict	UNP P08581
D	344	ALA	GLY	conflict	UNP P08581

SEQUENCE-PLOTS INFOmissingINFO

3 Data and refinement statistics (i)

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α, β, γ	214.50Å 66.70Å 181.50Å 90.00° 123.30° 90.00°	Depositor
Resolution (Å)	15.00 – 2.80 48.39 – 2.80	Depositor EDS
% Data completeness (in resolution range)	96.9 (15.00-2.80) 97.2 (48.39-2.80)	Depositor EDS
R_{merge}	0.23	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.48 (at 2.81Å)	Xtriage
Refinement program	PHENIX	Depositor
R, R_{free}	0.268 , 0.307 0.279 , 0.316	Depositor DCC
R_{free} test set	2482 reflections (4.79%)	wwPDB-VP
Wilson B-factor (Å^2)	53.2	Xtriage
Anisotropy	0.327	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.29 , 49.1	EDS
L-test for twinning[2]	$< \|L\| > = 0.40$, $< L^2 > = 0.23$	Xtriage
Estimated twinning fraction	0.009 for h,-k,-h-l	Xtriage
F_o,F_c correlation	0.88	EDS
Total number of atoms	13170	wwPDB-VP
Average B, all atoms (Å^2)	64.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 56.05 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 2.8953e-05. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

[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)

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 $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\#\|Z\| >5$	RMSZ	$\#\|Z\| >5$
1	A	0.34	0/2293	0.53	0/3112
1	C	0.34	0/2293	0.53	0/3112
2	B	0.37	0/4427	0.58	0/6001
2	D	0.37	0/4427	0.58	0/6001
All	All	0.36	0/13440	0.56	0/18226

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand.A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
2	B	0	3
2	D	0	3
All	All	0	6

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

5 of 6 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	B	168	GLU	Peptide
2	B	210	PRO	Peptide
2	B	627	GLY	Peptide
2	D	168	GLU	Peptide
2	D	210	PRO	Peptide

4.2 Too-close contacts (i)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2257	0	2328	69	0
1	C	2257	0	2328	70	0
2	B	4328	0	4212	175	0
2	D	4328	0	4212	171	0
All	All	13170	0	13080	480	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 18.

The worst 5 of 480 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:329:LEU:HA	2:D:332:GLN:NE2	1.93	0.84
2:D:43:LEU:HD12	2:D:513:ILE:HA	1.61	0.82
2:B:329:LEU:HA	2:B:332:GLN:NE2	1.93	0.82
2:B:43:LEU:HD12	2:B:513:ILE:HA	1.61	0.80
2:B:647:THR:HG22	2:B:648:GLN:H	1.47	0.80

There are no symmetry-related clashes.

4.3 Torsion angles (i)

4.3.1 Protein backbone (i)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	A	285/289 (99%)	253 (89%)	30 (10%)	2 (1%)	22 53
1	C	285/289 (99%)	252 (88%)	31 (11%)	2 (1%)	22 53

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	B	529/727 (73%)	450 (85%)	67 (13%)	12 (2%)	6	21
2	D	529/727 (73%)	451 (85%)	66 (12%)	12 (2%)	6	21
All	All	1628/2032 (80%)	1406 (86%)	194 (12%)	28 (2%)	9	29

5 of 28 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	B	148	HIS
2	D	148	HIS
2	B	87	GLY
2	B	386	LEU
2	B	552	LEU

4.3.2 Protein sidechains (i)

There are no protein residues with a non-rotameric sidechain to report in this entry.

4.3.3 RNA (i)

There are no RNA molecules in this entry.

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 (i)

There are no chain breaks in this entry.

5 Fit of model and data (i)

5.1 Protein, DNA and RNA chains (i)

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	287/289 (99%)	-0.01	4 (1%)	75	70	29, 55, 82, 116	0
1	C	287/289 (99%)	0.10	7 (2%)	59	49	36, 60, 91, 111	0
2	B	547/727 (75%)	0.10	26 (4%)	30	21	17, 55, 95, 119	0
2	D	547/727 (75%)	0.46	38 (6%)	16	10	43, 74, 117, 155	0
All	All	1668/2032 (82%)	0.20	75 (4%)	33	23	17, 62, 103, 155	0

The worst 5 of 75 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	D	82	ALA	7.0
2	D	84	TYR	5.6
1	C	34	ALA	5.1
2	B	576	GLU	5.0
2	D	416	TYR	5.0

5.2 Non-standard residues in protein, DNA, RNA chains (i)

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

5.3 Carbohydrates (i)

There are no monosaccharides in this entry.

5.4 Ligands (i)

There are no ligands in this entry.

5.5 Other polymers (i)

There are no such residues in this entry.