WORLDWIDE wwPDB PROTEIN DATA BANK

wwPDB X-ray Structure Validation Summary Report (i)

Dec 16, 2023 – 07:05 PM EST

PDB ID	:	2O8A
Title	:	rat PP1cgamma complexed with mouse inhibitor-2
Authors	:	Hurley, T.D.
Deposited on	:	2006-12-12
Resolution	:	2.61 Å(reported)

The following versions of software and data (see references (i)) were used in the production of this report:

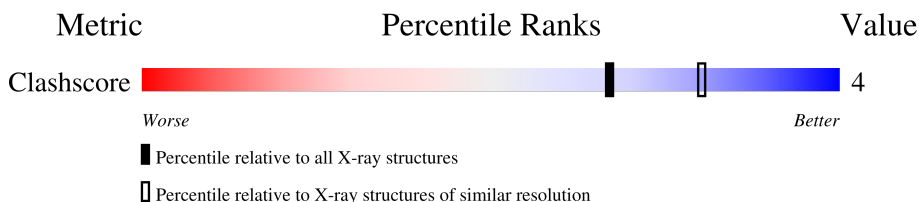|		
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	FAILED
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

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 2.61 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.

Metric	Percentile Ranks	Value
Clashscore		4

Worse   *Better*

▌ Percentile relative to all X-ray structures

▐ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
Clashscore	141614	4168 (2.64-2.60)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5%

Note EDS failed to run properly.

Mol	Chain	Length	Quality of chain
1	A	329	80% 9% · 10%
1	B	329	79% 11% 10%
2	I	206	24% 5% 71%
2	J	206	24% · 72%

2 Entry composition (i)

There are 3 unique types of molecules in this entry. The entry contains 5842 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 Serine/threonine-protein phosphatase PP1-gamma catalytic subunit.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	295	Total	C	N	O	S	0	0	0
			2380	1527	399	436	18			
1	B	295	Total	C	N	O	S	0	0	0
			2380	1527	399	436	18			

There are 14 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-5	MET	-	initiating methionine	UNP P63088
A	-4	HIS	-	expression tag	UNP P63088
A	-3	HIS	-	expression tag	UNP P63088
A	-2	HIS	-	expression tag	UNP P63088
A	-1	HIS	-	expression tag	UNP P63088
A	0	HIS	-	expression tag	UNP P63088
A	1	HIS	-	expression tag	UNP P63088
B	-5	MET	-	initiating methionine	UNP P63088
B	-4	HIS	-	expression tag	UNP P63088
B	-3	HIS	-	expression tag	UNP P63088
B	-2	HIS	-	expression tag	UNP P63088
B	-1	HIS	-	expression tag	UNP P63088
B	0	HIS	-	expression tag	UNP P63088
B	1	HIS	-	expression tag	UNP P63088

- Molecule 2 is a protein called Protein phosphatase inhibitor 2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	I	59	Total	C	N	O	S	0	0	0
			495	309	93	91	2			
2	J	58	Total	C	N	O	S	0	0	0
			487	305	92	88	2			

- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	47	Total 47	O 47	0	0
3	I	5	Total 5	O 5	0	0
3	B	38	Total 38	O 38	0	0
3	J	10	Total 10	O 10	0	0

3 Residue-property plots ⓘ

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

Note EDS failed to run properly.

• Molecule 1: Serine/threonine-protein phosphatase PP1-gamma catalytic subunit

Chain A:

• Molecule 1: Serine/threonine-protein phosphatase PP1-gamma catalytic subunit

Chain B:

• Molecule 2: Protein phosphatase inhibitor 2

Chain I:

• Molecule 2: Protein phosphatase inhibitor 2

Chain J:

MET ALA ALA SER THR ALA SER HIS ARG PRO ILE K12 N17 LYS THR SER ALA ALA SER PRO PRO VAL VAL PRO SER ALA GLU GLN PRO ARG PRO ILE VAL GLU GLU GLU LEU SER LYS K44 K47 T56 TYR HIS PRO ALA ASP LYS ASP TYR GLY LEU MET LYS ILE ASP GLU

PRO ASN THR PRO TYR HIS ASN MET ILE GLY ASP ASP GLU ASP ALA TYR SER ASP SER GLU GLY ASN GLU VAL MET THR PRO ASP ILE LEU ALA LYS LYS LEU ALA ALA GLU GLY SER GLU PRO LYS TYR ARG THR ARG GLU GLN GLU SER SER GLY GLU GLU ASP ASN ASP L130 S131

E134 R135 K144 D165 D168 ASP ASP GLU ASP GLU GLU MET ALA GLU THR ALA ASP GLY ASP SER MET ASN VAL GLU GLU SER SER GLN GLY SER THR THR SER ASP HIS LEU GLN HIS LYS SER GLN SER SER

4 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	95.46Å 103.81Å 151.38Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	41.70 – 2.61	Depositor
% Data completeness (in resolution range)	95.4 (41.70-2.61)	Depositor
R_{merge}	0.09	Depositor
R_{sym}	(Not available)	Depositor
$<I/\sigma(I)>$ [1]	3.00 (at 2.61Å)	Xtriage
Refinement program	REFMAC	Depositor
R, R_{free}	0.216 , 0.254	Depositor
Wilson B-factor (Å^2)	45.7	Xtriage
Anisotropy	0.387	Xtriage
L-test for twinning[2]	$<|L|> = 0.48$, $<L^2> = 0.31$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
Total number of atoms	5842	wwPDB-VP
Average B, all atoms (Å^2)	47.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.36% 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.

5 Model quality ⓘ

5.1 Standard geometry ⓘ

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	0.47	0/2434	0.76	8/3286 (0.2%)
1	B	0.47	0/2434	0.77	9/3286 (0.3%)
2	I	0.51	0/499	0.71	1/658 (0.2%)
2	J	0.51	0/491	0.75	2/647 (0.3%)
All	All	0.48	0/5858	0.76	20/7877 (0.3%)

There are no bond length outliers.

The worst 5 of 20 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	286	ASP	CB-CG-OD2	7.43	124.99	118.30
1	B	208	ASP	CB-CG-OD2	6.32	123.99	118.30
1	B	138	ASP	CB-CG-OD2	6.28	123.96	118.30
1	B	240	ASP	CB-CG-OD2	6.16	123.84	118.30
1	A	138	ASP	CB-CG-OD2	6.03	123.72	118.30

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts ⓘ

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	2380	0	2351	17	0
1	B	2380	0	2351	16	0
2	I	495	0	507	8	0
2	J	487	0	503	7	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	A	47	0	0	1	0
3	B	38	0	0	0	0
3	I	5	0	0	0	0
3	J	10	0	0	2	0
All	All	5842	0	5712	45	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 4.

The worst 5 of 45 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:J:131:SER:HB3	2:J:134:GLU:HB2	1.73	0.69
1:B:286:ASP:OD1	1:B:290:MET:HB3	1.97	0.65
1:A:284:SER:HB2	1:A:294:GLN:HE22	1.61	0.64
2:I:131:SER:HB2	2:I:134:GLU:HB2	1.78	0.64
2:I:52:ASN:O	2:I:56:THR:HG23	1.99	0.61

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

There are no protein backbone outliers to report in this entry.

5.3.2 Protein sidechains ⓘ

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

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no monosaccharides in this entry.

5.6 Ligand geometry ⓘ

There are no ligands in this entry.

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

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

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

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

6.3 Carbohydrates ⓘ

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

6.4 Ligands ⓘ

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

6.5 Other polymers ⓘ

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