# wwPDB X-ray Structure Validation Summary Report (i)

May 1, 2024 – 01:28 am BST

| | | |
|---|---|---|
| PDB ID | : | 2UUZ |
| Title | : | Orthorhombic crystal form of GamS from bacteriophage lambda. |
| Authors | : | Court, R.I.; Cook, N.; Saikrishnan, K.; Wigley, D.B. |
| Deposited on | : | 2007-03-08 |
| Resolution | : | 2.30 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 | : | 4.02b-467 |
| Xtriage (Phenix) | : | 1.13 |
| EDS | : | 2.36.2 |
| Percentile statistics | : | 20191225.v01 (using entries in the PDB archive December 25th 2019) |
| 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) | : | 2.36.2 |

PERCENTILES INFOmissingINFO

# 1 Entry composition (i)

There are 2 unique types of molecules in this entry. The entry contains 1540 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 HOST-NUCLEASE INHIBITOR PROTEIN GAM.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | A | 90 | Total | C | N | O | S | 0 | 0 | 1 |
| | | | 741 | 455 | 137 | 145 | 4 | | | |
| 1 | B | 86 | Total | C | N | O | S | 0 | 0 | 1 |
| | | | 708 | 435 | 130 | 139 | 4 | | | |

There are 2 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| A | 79 | ILE | LEU | conflict | UNP P03702 |
| B | 79 | ILE | LEU | conflict | UNP P03702 |

- Molecule 2 is water.

| Mol | Chain | Residues | Atoms | | ZeroOcc | AltConf |
|---|---|---|---|---|---|---|
| 2 | A | 43 | Total | O | 0 | 0 |
| | | | 43 | 43 | | |
| 2 | B | 48 | Total | O | 0 | 0 |
| | | | 48 | 48 | | |

SEQUENCE-PLOTS INFOmissingINFO

## 2 Data and refinement statistics (i)

| Property | Value | Source |
|---|---|---|
| Space group | P 21 21 2 | Depositor |
| Cell constants<br>a, b, c, $\alpha$, $\beta$, $\gamma$ | 142.36Å 39.15Å 44.20Å<br>90.00° 90.00° 90.00° | Depositor |
| Resolution (Å) | 32.00 – 2.30<br>35.59 – 2.30 | Depositor<br>EDS |
| % Data completeness<br>(in resolution range) | 92.2 (32.00-2.30)<br>93.9 (35.59-2.30) | Depositor<br>EDS |
| $R_{merge}$ | 0.06 | Depositor |
| $R_{sym}$ | (Not available) | Depositor |
| $< I/\sigma(I) >$ [1] | 2.04 (at 2.29Å) | Xtriage |
| Refinement program | CNS 1.1 | Depositor |
| R, $R_{free}$ | 0.240 , 0.279<br>0.244 , (Not available) | Depositor<br>DCC |
| $R_{free}$ test set | No test flags present. | wwPDB-VP |
| Wilson B-factor (Å$^2$) | 39.1 | Xtriage |
| Anisotropy | 0.646 | Xtriage |
| Bulk solvent $k_{sol}$(e/Å$^3$), $B_{sol}$(Å$^2$) | 0.32 , 51.1 | EDS |
| L-test for twinning[2] | $< \|L\| > = 0.48$, $< L^2 > = 0.31$ | Xtriage |
| Estimated twinning fraction | No twinning to report. | Xtriage |
| $F_o$,$F_c$ correlation | 0.93 | EDS |
| Total number of atoms | 1540 | wwPDB-VP |
| Average B, all atoms (Å$^2$) | 55.0 | wwPDB-VP |

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 8.24% 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.

# 3 Model quality

## 3.1 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 | 0.39 | 0/755 | 0.56 | 0/1014 |
| 1 | B | 0.38 | 0/722 | 0.52 | 0/970 |
| All | All | 0.39 | 0/1477 | 0.54 | 0/1984 |

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

## 3.2 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 | 741 | 0 | 694 | 42 | 0 |
| 1 | B | 708 | 0 | 659 | 40 | 0 |
| 2 | A | 43 | 0 | 0 | 2 | 0 |
| 2 | B | 48 | 0 | 0 | 5 | 0 |
| All | All | 1540 | 0 | 1353 | 70 | 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 25.

The worst 5 of 70 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) |
|---|---|---|---|
| 1:B:70:GLU:OE1 | 2:B:2009:HOH:O | 1.79 | 1.00 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:B:79:ILE:HG22 | 1:B:84:PHE:HE2 | 1.28 | 0.98 |
| 1:B:79:ILE:HG22 | 1:B:84:PHE:CE2 | 2.06 | 0.90 |
| 1:A:92:LEU:HD21 | 1:B:79:ILE:CD1 | 2.03 | 0.88 |
| 1:B:79:ILE:CG2 | 1:B:84:PHE:CE2 | 2.62 | 0.83 |

There are no symmetry-related clashes.

## 3.3 Torsion angles (i)

### 3.3.1 Protein backbone (i)

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

### 3.3.2 Protein sidechains (i)

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

### 3.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

## 3.5 Carbohydrates (i)

There are no monosaccharides in this entry.

## 3.6 Ligand geometry (i)

There are no ligands in this entry.

## 3.7 Other polymers (i)

There are no such residues in this entry.

## 3.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

# 4 Fit of model and data

## 4.1 Protein, DNA and RNA chains

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, $95^{th}$ 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 | 90/99 (90%) | 0.66 | 7 (7%) | 13 | 17 | 32, 49, 83, 145 | 0 |
| 1 | B | 86/99 (86%) | 0.88 | 4 (4%) | 31 | 38 | 32, 50, 80, 138 | 0 |
| All | All | 176/198 (88%) | 0.77 | 11 (6%) | 20 | 25 | 32, 50, 85, 145 | 0 |

The worst 5 of 11 RSRZ outliers are listed below:

| Mol | Chain | Res | Type | RSRZ |
|---|---|---|---|---|
| 1 | B | 138 | VAL | 46.4 |
| 1 | A | 50 | LEU | 8.9 |
| 1 | A | 49 | ARG | 5.2 |
| 1 | B | 137 | GLU | 5.1 |
| 1 | A | 55 | TRP | 3.5 |

## 4.2 Non-standard residues in protein, DNA, RNA chains

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

## 4.3 Carbohydrates

There are no monosaccharides in this entry.

## 4.4 Ligands

There are no ligands in this entry.

## 4.5 Other polymers

There are no such residues in this entry.