Full wwPDB X-ray Structure Validation Report

Mar 31, 2022 – 11:21 AM EDT

PDB ID : 7MHO
Title : Ensemble refinement structure of SARS-CoV-2 main protease (Mpro) at 298 K
Deposited on : 2021-04-15
Resolution : 1.88 Å (reported)

This is a Full wwPDB X-ray Structure Validation 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 symbol.

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

- MolProbity : FAILED
- 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) : 2.27
1 Overall quality at a glance

The following experimental techniques were used to determine the structure: 
\textit{X-RAY DIFFRACTION}

The reported resolution of this entry is 1.88 Å.

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

ENTRY-COMPOSITION INFO missing INFO
SEQUENCE-PLOTS INFO missing INFO
2 Data and refinement statistics

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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Space group</td>
<td>C 1 2 1</td>
<td>Depositor</td>
</tr>
<tr>
<td>Cell constants</td>
<td>114.97Å 54.62Å 45.19Å</td>
<td>Depositor</td>
</tr>
<tr>
<td>a, b, c, α, β, γ</td>
<td>90.00° 101.67° 90.00°</td>
<td>Depositor</td>
</tr>
<tr>
<td>Resolution (Å)</td>
<td>49.14 – 1.88</td>
<td>Depositor</td>
</tr>
<tr>
<td>% Data completeness (in resolution range)</td>
<td>99.2 (49.14-1.88)</td>
<td>Depositor</td>
</tr>
<tr>
<td>R&lt;sub&gt;merge&lt;/sub&gt;</td>
<td>0.18</td>
<td>Depositor</td>
</tr>
<tr>
<td>R&lt;sub&gt;sym&lt;/sub&gt;</td>
<td>(Not available)</td>
<td>Depositor</td>
</tr>
<tr>
<td>&lt;I/σ(I)&gt;&lt;sup&gt;1&lt;/sup&gt;</td>
<td>0.38 (at 1.88Å)</td>
<td>Xtriage</td>
</tr>
<tr>
<td>Refinement program</td>
<td>PHENIX (phenix.ensemble_refinement:1.19.2_4158)</td>
<td>Depositor</td>
</tr>
<tr>
<td>R, R&lt;sub&gt;free&lt;/sub&gt;</td>
<td>0.150 , 0.208</td>
<td>Depositor</td>
</tr>
<tr>
<td>Wilson B-factor (Å&lt;sup&gt;2&lt;/sup&gt;)</td>
<td>29.6</td>
<td>Xtriage</td>
</tr>
<tr>
<td>Anisotropy</td>
<td>0.174</td>
<td>Xtriage</td>
</tr>
<tr>
<td>L-test for twinning&lt;sup&gt;2&lt;/sup&gt;</td>
<td>&lt;</td>
<td>L</td>
</tr>
<tr>
<td>Estimated twinning fraction</td>
<td>No twinning to report.</td>
<td>Xtriage</td>
</tr>
<tr>
<td>Total number of atoms</td>
<td>355880</td>
<td>wwPDB-VP</td>
</tr>
<tr>
<td>Average B, all atoms (Å&lt;sup&gt;2&lt;/sup&gt;)</td>
<td>38.0</td>
<td>wwPDB-VP</td>
</tr>
</tbody>
</table>

Xtriage’s analysis on translational NCS is as follows: The largest off-origin peak in the Patterson function is 9.28% of the height of the origin peak. No significant pseudotranslation is detected.

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<sup>1</sup> Intensities estimated from amplitudes.

<sup>2</sup> Theoretical values of < |L| >, < L<sup>2</sup> > 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

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

3.2 Too-close contacts

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

3.3 Torsion angles

3.3.1 Protein backbone

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

3.3.2 Protein sidechains

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

3.3.3 RNA

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

3.4 Non-standard residues in protein, DNA, RNA chains

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

3.5 Carbohydrates

There are no monosaccharides in this entry.

3.6 Ligand geometry

Of 225 ligands modelled in this entry, 225 could not be matched to an existing wwPDB Chemical Component Dictionary definition at this stage - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.
There are no chirality outliers.
There are no torsion outliers.
There are no ring outliers.
No monomer is involved in short contacts.

3.7 Other polymers

There are no such residues in this entry.

3.8 Polymer linkage issues

There are no chain breaks in this entry.
4 Fit of model and data

4.1 Protein, DNA and RNA chains
EDS failed to run properly - this section is therefore empty.

4.2 Non-standard residues in protein, DNA, RNA chains
EDS failed to run properly - this section is therefore empty.

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

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

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