

# PRODUCT INFORMATION



## Lopinavir

Item No. 13854

**CAS Registry No.:** 192725-17-0  
**Formal Name:** N-[(1S,3S,4S)-4-[[2-(2,6-dimethylphenoxy)acetyl]amino]-3-hydroxy-5-phenyl-1-(phenylmethyl)pentyl]tetrahydro- $\alpha$ S-(1-methylethyl)-2-oxo-1(2H)-pyrimidineacetamide

**Synonyms:** A-157378.0, ABT-378

**MF:** C<sub>37</sub>H<sub>48</sub>N<sub>4</sub>O<sub>5</sub>

**FW:** 628.8

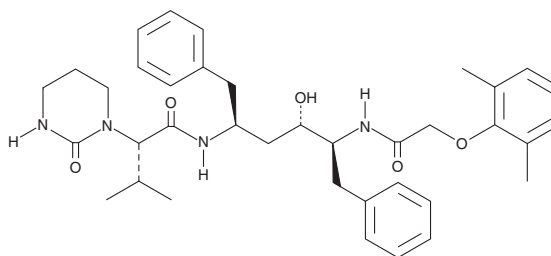
**Purity:**  $\geq$ 98%

**UV/Vis.:**  $\lambda_{\text{max}}$ : 259 nm

**Supplied as:** A crystalline solid

**Storage:** -20°C

**Stability:**  $\geq$ 2 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Laboratory Procedures

Lopinavir is supplied as a crystalline solid. A stock solution may be made by dissolving the lopinavir in the solvent of choice, which should be purged with an inert gas. Lopinavir is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of lopinavir in ethanol is approximately 20 mg/ml and approximately 14 mg/ml in DMSO and DMF.

Lopinavir is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, lopinavir should first be dissolved in ethanol and then diluted with the aqueous buffer of choice. Lopinavir has a solubility of approximately 0.2 mg/ml in a 1:4 solution of ethanol:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

### Description

Lopinavir is a potent HIV-1 protease inhibitor ( $K_i = 1.3$  pM for wild-type enzyme).<sup>1</sup> It inhibits the replication of clinical isolates of HIV-1 ( $EC_{50}$ s = 5-52 nM). Lopinavir reduces the infectious virus yield and viral RNA copy numbers in the culture supernatant of Vero E6 cells infected with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2;  $EC_{50}$ s = 26.63 and 26.10  $\mu$ M, respectively).<sup>2</sup> It reduces lung and kidney viral load, bronchointerstitial pneumonia, and pulmonary inflammatory cell infiltration in a marmoset model of Middle East respiratory syndrome coronavirus (MERS-CoV) infection when administered in combination with ritonavir (Item No. 13872).<sup>3</sup>

### References

1. Sham, H.L., Kempf, D.J., Molla, A., *et al.* ABT-378, a highly potent inhibitor of the human immunodeficiency virus protease. *Antimicrob. Agents Chemother.* **42**(12), 3218-3224 (1998).
2. Choy, K.-T., Wong, A.-Y., Kaewpreedee, P., *et al.* Remdesivir, lopinavir, emetine, and homoharringtonine inhibit SARS-CoV-2 replication *in vitro*. *Antiviral Res.* **178**:104786 (2020).
3. Chan, J.-F., Yao, Y., Yeung, M.-L., *et al.* Treatment with lopinavir/ritonavir or interferon- $\beta$ 1b improves outcome of MERS-CoV infection in a nonhuman primate model of common marmoset. *J. Infect. Dis.* **212**(12), 1904-1913 (2015).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

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#### CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD  
ANN ARBOR, MI 48108 · USA

**PHONE:** [800] 364-9897

[734] 971-3335

**FAX:** [734] 971-3640

CUSTSERV@CAYMANCHEM.COM

WWW.CAYMANCHEM.COM