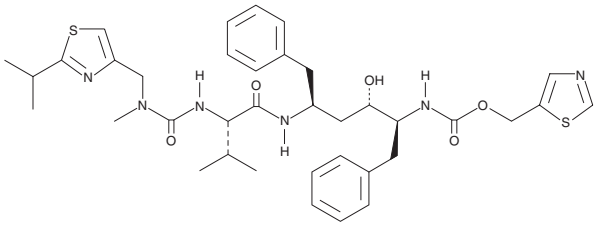
# PRODUCT INFORMATION

## Ritonavir

*Item No. 13872*

**CAS Registry No.:** 155213-67-5
**Formal Name:** (3S,4S,6S,9S)-4-hydroxy-12-methyl-9-(1-methylethyl)-13-[2-(1-methylethyl)-4-thiazolyl]-8,11-dioxo-3,6-bis(phenylmethyl)-2,7,10,12-tetraazatridecanoic acid, 5-thiazolylmethyl ester
**Synonyms:** A-84538, ABT-538, NSC 693184, RTV
**MF:** $C_{37}H_{48}N_6O_5S_2$
**FW:** 720.9
**Purity:** ≥98%
**UV/Vis.:** $\lambda_{max}$: 238 nm
**Supplied as:** A crystalline solid
**Storage:** -20°C
**Stability:** ≥2 years



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

### Laboratory Procedures

Ritonavir is supplied as a crystalline solid. A stock solution may be made by dissolving the ritonavir in the solvent of choice. Ritonavir is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of ritonavir in ethanol is approximately 5 mg/ml and approximately 15 mg/ml in DMSO and DMF.

Ritonavir is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, ritonavir should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. Ritonavir has a solubility of approximately 0.1 mg/ml in a 1:2 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

### Description

Ritonavir is an HIV protease inhibitor.[1] It inhibits recombinant HIV-1 protease by 79% when used at a concentration of 0.5 nM. It inhibits HIV-$1_{3B}$-induced cell death in MT-4 human T cell leukemia cells ($EC_{50}$ = 25 nM) as well as cell death induced by HIV-$1_{LAI}$, HIV-$2_{ROD}$, and HIV-$2_{EHO}$ in human MT-2 cells ($IC_{50}$s = 0.045, 0.13, and 0.24 µM, respectively).[1,2] Ritonavir also inhibits the cytochrome P450 (CYP) isoform CYP3A ($IC_{50}$ = 0.14 µM).[3] It inhibits CYP-mediated oxidative metabolism of the HIV protease inhibitors saquinavir (Item No. 9001893), indinavir (Item No. 15150), nelfinavir (Item No. 15369) in rat and human liver microsomes in a concentration-dependent manner.[4] Ritonavir (10 mg/kg) also prevents decreases in plasma levels of these four compounds in rats. Formulations containing ritonavir have been used in the treatment of HIV-1 infection.

### References


1. Kempf, D.J., Shan, H.L., Marsh, K.C., *et al. J. Med. Chem.* **41(4)**, 602-617 (1998).
2. Koh, Y., Nakata, H., Maeda, K., *et al. Antimicrob. Agents Chemother.* **47(10)**, 3123-3129 (2003).
3. Kumar, G.N., Dykstra, J., Roberts, E.M., *et al. Drug Metab. Dispos.* **27(8)**, 902-908 (1999).
4. Kempf, D.J., Marsh, K.C., Kumar, G., *et al. Antimicrob. Agents Chemother.* **41(3)**, 654-660 (1997).





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