

Product Information

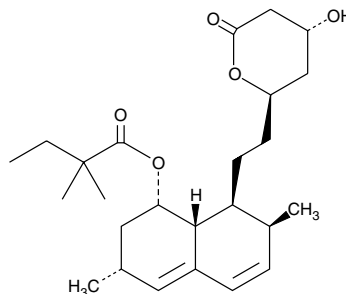


Simvastatin

Item No. 10010344

CAS Registry No.: 79902-63-9
Formal Name: 2,2-dimethyl-1S,2,3R,7S,8S,8aR-hexahydro-3,7-dimethyl-8-[2-[(2R,4R)-tetrahydro-4-hydroxy-6-oxo-2H-pyran-2-yl]ethyl]-1-naphthalenyl ester, butanoic acid

Synonyms: MK 733
MF: C₂₅H₃₈O₅
FW: 418.6
Purity: ≥98%
Stability: ≥2 years at -20°C
Supplied as: A crystalline solid
UV/Vis.: λ_{max}: 238 nm



Laboratory Procedures

For long term storage, we suggest that simvastatin be stored as supplied at -20°C. It will be stable for at least two years.

Simvastatin is supplied as a crystalline solid. A stock solution may be made by dissolving the simvastatin in an organic solvent purged with an inert gas. Simvastatin is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of simvastatin in these solvents is approximately 20 mg/ml.

Simvastatin is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, simvastatin should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. Simvastatin has a solubility of approximately 0.5 mg/ml in a 1:1 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Hydroxymethylglutaryl-coenzyme A (HMG-CoA) reductase is the rate-limiting enzyme in the cholesterol biosynthetic pathway and the target of the 'statin' class of cholesterol-lowering drugs.¹ Simvastatin is a competitive inhibitor of HMG-CoA reductase with a K_i value of 0.12 nM for the hydrolyzed, open ring form of the molecule.² Simvastatin is marketed under the trade name ZocorTM and is often prescribed in combination with ezetimibe (Zetia) to treat dyslipidemia. This drug combination is known commercially as VytorinTM or InegyTM. After 18 days of treatment with simvastatin in dogs at a dose of 8 mg/kg per day, plasma cholesterol levels were reduced by 33%.³ Simvastatin also suppresses TNF-induced NF-κB activation (IC₅₀ ~ 13 μM), which potentiates apoptosis in human myeloid leukemia cells and thus may be useful in treating cancer.⁴

References

1. Tobert, J.A. Lovastatin and beyond: The history of the HMG-CoA reductase inhibitors. *Nature Reviews Drug Discovery* **2**, 517-526 (2003).
2. Corsini, A., Maggi, F.M., and Catapano, A.L. Pharmacology of competitive inhibitors of HMG-CoA reductase. *Pharmacol. Res.* **31**(1), 9-27 (1995).
3. Chao, Y., Chen, J.S., Hunt, V.M., *et al.* Lowering of plasma cholesterol levels in animals by lovastatin and simvastatin. *Eur. J. Clin. Pharmacol.* **40**, S11-S14 (1991).
4. Ahn, K.S., Sethi, G., and Aggarwal, B.B. Reversal of chemoresistance and enhancement of apoptosis by statins through down-regulation of the NF-κB pathway. *Biochem. Pharmacol.* **75**, 907-913 (2008).

Related Products

For a list of related products please visit: www.caymanchem.com/catalog/10010344

WARNING: THIS PRODUCT IS NOT FOR HUMAN OR ANIMAL DISEASE DIAGNOSIS OR THERAPEUTIC DRUG USE.

MATERIAL SAFETY DATA

This material should be considered hazardous until information to the contrary becomes available. Do not ingest, swallow, or inhale. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. This information contains some, but not all, of the information required for the safe and proper use of this material. Before use, the user must review the complete Material Safety Data Sheet, which has been sent under separate cover to the MSDS supervisor at your institution.

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