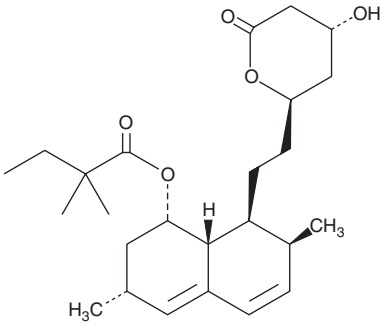
PRODUCT INFORMATION

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
Synonym:	MK-733
MF:	$C_{25}H_{38}O_5$
FW:	418.6
Purity:	≥98%
UV/Vis.:	λ_{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

Simvastatin is supplied as a crystalline solid. A stock solution may be made by dissolving the simvastatin in the solvent of choice. Simvastatin is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of simvastatin in ethanol is approximately 20 mg/ml and approximately 30 mg/ml in DMSO and DMF.

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.

Description

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.[1] After 18 days of treatment with simvastatin in dogs at a dose of 8 mg/kg/day, plasma cholesterol levels were reduced by 33%.[2] Simvastatin also suppresses TNF-induced NF-κB activation (IC_{50} ~ 13 µM), which potentiates apoptosis in human myeloid leukemia cells and thus may be useful in treating cancer.[3] Clinical formulations containing simvastatin are used in combination with ezetimibe to treat dyslipidemia.

References

1. Corsini, A., Maggi, F.M., and Catapano, A.L. Pharmacology of competitive inhibitors of HMG-CoA reductase. *Pharmacol. Res.* **31(1)**, 9-27 (1995).
2. 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(Suppl 1)**, S11-S14 (1991).
3. 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(4)**, 907-913 (2008).

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