Product Data Sheet

Product Name: Simvastatin (sodium salt)
Cat. No.: GC12285

Chemical Properties

Cas. No.	101314-97-0		
Chemical Name	(βR,δR,1S,2S,6R,8S,8aR)-8-(2,2-dimethyl-1-oxobutoxy)-1,2,6,7,8,8a-hexahydro-β,δ-dihydroxy-2,6-dimethyl-1-naphthaleneheptanoic acid, monosodium salt		
SMILES	OC(/C=C/C=C\CCCCC)C/C=C\C/C=C\CCCC(O)=O		
Formula	$C_{25}H_{39}O_6$ • Na	M.Wt	458.6
Solubility	≤10mg/ml in ethanol;10mg/ml in DMSO;10mg/ml in dimethyl formamide	Storage	Store at RT
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		
Structure	Simvastatin (sodium salt)		

Background

Ki: 0.12 nM

Simvastatin is a HMG-CoA reductase inhibitor.

HMG-CoA reductase has been found to be the rate-limiting enzyme in the cholesterol biosynthetic pathway and the target of the “statin” class of cholesterol-lowering drugs.

In vitro: Previous study found that simvastatin could inhibit the incorporation of 14C-acetate to 14C-sterol with an IC50 value of 15 nm in cultured Hep G2 cells. In addition, simvastatin was found to be a potent inhibitor of cholesterol synthesis in cultured liver cells, whereas pravastatin inhibited cholesterol synthesis in liver cells only after these cells had been digested by collagenase [1].

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In vivo: Animal study showd that rats orally dosed with simvastatin had lower plasma cholesterol levels after 4 days of treatment. At the level of 0.02% of the diet, simvastatin lowered plasma cholesterol levels in rats by 64%. Moreove, in dogs, simvastatin at a daily oral dosage of 8 mg/kg lower levels of plasma cholesterol. At this dosage, simvastatin was slightly more potent than lovastatin and the levels of plasma cholesterol in these dogs returned to pretreatment levels after stopping the treatment [1].

Clinical trial: Previous clinical study found that both atorvastatin and simvastatin had significant PD reduction and RAL gain than placebo. Atorvastatin group showed greater mean PD reduction and mean RAL gain as compared to simvastatin group. Furthermore, atorvastatin group exhibited a significantly greater percentage of radiographic defect depth reduction as compared to simvastatin at 6 and 9 months [2].

References:
[1] Chao, Y. ,Chen, J.S.,Hunt, V.M., et al. Lowering of plasma cholesterol levels in animals by lovastatin and simvastatin. European Journal of Clinical Pharmacology 40, S11-S14 (1991).
[2] S Martande S, Kumari M, Pradeep AR, Pal Singh S, Kumar Suke D. nComparative evaluation of efficacy of subgingivally delivered 1.2% Atorvastatin and 1.2% Simvastatin in the treatment of intrabony defects in chronic periodontitis: a randomized controlled trial. J Dent Res Dent Clin Dent Prospects. 2017 Winter;11(1):18-25.

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