Data Sheet (Cat.No.T0687)

TargetMol

Simvastatin

Chemical Properties

CAS No. : 79902-63-9

Formula: C25H38O5

Molecular Weight: 418.57

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Simvastatin (MK 733) is an HMG-CoA reductase inhibitor (Ki=0.2 nM) with oral activity. Simvastatin has hypolipidemic activity, inhibits hepatic production of cholesterol, and is also used for the prevention of cardiovascular disease.
Targets(IC50)	Apoptosis,Mitophagy,Ferroptosis,HMG-CoA Reductase,Autophagy
In vitro	**METHODS**: BCa cells 5637, EJ and T24 were treated with Simvastatin (0.5-40 μM) for 48 h. Cell viability was measured by MTT assay. **RESULTS**: Simvastatin significantly inhibited the survival of the three BCa cells in a dose-dependent manner. [1] **METHODS**: Human fibroblast SAEC and four tumor cells MCF7, HepG2, NCH, NCI were treated with Simvastatin (20 μM) for 72 h. Apoptosis was detected by TUNEL. **RESULTS**: Simvastatin induced apoptosis in different types of human tumor cells, but not in SAEC cells. [2]
In vivo	**METHODS**: To study in vivo activity, Simvastatin (60 mg/kg, aqueous 2% DMSO+30% PEG 400+5% Tween 80) was administered by gavage to C57BL/6J mice once daily for six weeks on a CF diet. **RESULTS**: Simvastatin treatment reduced serum cholesterol levels by 18%, and retinal cholesterol and lipoprotein cholesterol levels by 24% and 21%, respectively. [3] **METHODS**: To assay antitumor activity in vivo, Simvastatin (5-50 mg/kg in methylcellulose) was administered to BALB/c nu/nu mice by gavage once daily for three days. Subsequently, colorectal cancer cells COLO205 were subcutaneously inoculated into the right side of the mice. **RESULTS**: Simvastatin inhibited tumor growth in a xenograft mouse model by inducing tumor cell apoptosis and inhibiting tumor angiogenesis. [4]
Kinase Assay	For assessment of Akt protein kinase activity in vitro, substrate (2 μg histone H2B or 25 μg eNOS peptide) is incubated with Akt immunoprecipitated from cell lysate using goat polyclonal anti-Akt1 antibody. Kinase reactions are initiated following the addition of reaction components to a final concentration of ATP (50 μM) containing 10 μCi of 32P-γATP, dithiotreitol (1 mM), HEPES buffer (20 mM, pH 7.4), MnCl2 (10 mM), MgCl2 (10 mM). After incubation for 30 min at 30°C, phosphorylated histone H2B is visualized after SDS-PAGE (15%) and autoradiography. To estimate the extent of 32P incorporation into eNOS peptides, each reaction mixture is measured by spotting onto phosphocellulose disc filter and the amount of phosphate incorporated is measured by Cerenkov counting. The wild-type peptide sequence is 1174-RIRTQSFSLQERHLRGAVPWA-1194, and the mutant

Kinase Assay	eNOS peptide is identical except that serine 1179 is substituted by alanine.

Solubility Information

Solubility	Ethanol: 100 mg/mL (238.91 mM),Sonication is recommended. DMSO: 50 mg/mL (119.45 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 5 mg/mL (11.95 mM),Solution. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.3891 mL	11.9454 mL	23.8909 mL
5 mM	0.4778 mL	2.3891 mL	4.7782 mL
10 mM	0.2389 mL	1.1945 mL	2.3891 mL
50 mM	0.0478 mL	0.2389 mL	0.4778 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

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