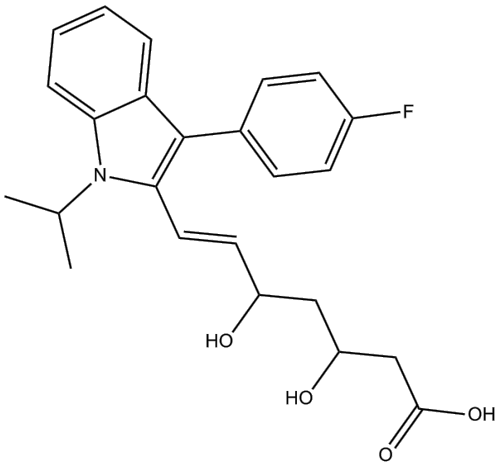
Product Data Sheet

Product Name: Fluvastatin
Cat. No.: GC13535

Chemical Properties

Cas. No.	93957-54-1		
Chemical Name	(E,3R,5S)-7-[3-(4-fluorophenyl)-1-propan-2-ylindol-2-yl]-3,5-dihydroxyhept-6-enoic acid		
SMILES	CC(C)N1C2=CC=CC=C2C(=C1C=CC(CC(CC(=O)O)O)O)C3=CC=C(C=C3)F		
Formula	$C_{24}H_{26}FNO_4$	M.Wt	411.47
Solubility	≥ 20.57 mg/mL in DMSO, ≥ 42.2 mg/mL in EtOH with gentle warming, ≥ 32.53 mg/mL in Water with gentle warming	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C 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



Protocol

Cell experiment [1]:

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Cell lines	Human endometrial cancer (EC) cell lines (RL95-2 and KLE)
Preparation Method	Cells were maintained at 37°C with 5% CO_2 and cultivated in DMEM containing 10% FBS. 48h later, Fluvastatin with different concentrations (5, 10, 20μM) was employed to incubate cells for 72h for the following experiments.
Reaction Conditions	5, 10, 20μM; 72h
Applications	Fluvastatin inhibited the viability and proliferation of KLE and RL95-2 endometrial cancer cells in a concentration-dependent manner, while markedly suppressing their migratory and invasive capacities. Fluvastatin dose-dependently triggered apoptosis in KLE and RL95-2 cells, accompanied by progressive increases in p53 and cleaved caspase-3 levels.

Animal experiment [2]:

Animal models	Female C57BL/6J mice
Preparation Method	Female C57BL/6J mice received 10mg/kg Fluvastatin or vehicle (DMSO diluted in PBS to match Fluvastatin solvent) daily by intraperitoneal injection for 4 days. Mice were sacrificed, and peritoneal lavage was harvested and analyzed for mast cells by staining for CD45+ cells and gating on FcεRI+/c-Kit+ cells. Cross sections of the small intestine were also analyzed by histology, using staining with pinacyanol erythosinate to identify mast cells.
Dosage form	10mg/kg; intraperitoneal injection

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Applications	Fluvastatin did not reduce total peritoneal cells but greatly reduced the proportion and total number of mast cells found in peritoneal lavage.

References:
[1] Cai Y, Zhao F. Fluvastatin suppresses the proliferation, invasion, and migration and promotes the apoptosis of endometrial cancer cells by upregulating Sirtuin 6 (SIRT6). *Bioengineered*. 2021;12(2):12509-12520.
[2] Paez PA, Kolawole M, Taruselli MT, et al. Fluvastatin Induces Apoptosis in Primary and Transformed Mast Cells. J Pharmacol Exp Ther. 2020;374(1):104-112.

Background

Fluvastatin, a lipophilic 3-hydroxy-3-methylglutaryl-coenzyme A (HMG-CoA) reductase inhibitor, suppresses proliferation and induces apoptosis in various cancer cells[1-2]. Fluvastatin, which structurally mimics HMG-CoA to competitively block the enzyme's active site, lowers total and low-density lipoprotein (LDL) cholesterol while exerting anti-atherogenic, antithrombotic, and antioxidant effects and improving vascular function[2-3].

In vitro, after 72h of treatment with the increasing concentrations of Fluvastatin (5, 10, and 20μM), human endometrial cancer (EC) cells exhibited a concentration-dependent decline in viability and proliferation, markedly reduced migration and invasion, and elevated apoptosis accompanied by progressive up-regulation of p53 and cleaved caspase-3[4]. A 24h incubation with 2.5μM Fluvastatin reproducibly gave over 50% inhibition of thrombin-induced von Willebrand factor (vWF) secretion, was more effective than shorter incubation times, did not disrupt the human umbilical-vein endothelial cells (HUVEC) culture monolayer, and did not change vWF antigen levels measured in cell lysates[5].

In vivo, after four daily intraperitoneal injections of 10mg/kg Fluvastatin in female C57BL/6J mice, total peritoneal cell counts remained unchanged, yet the proportion and absolute number of mast cells recovered from peritoneal lavage were markedly reduced[6]. The rats treated by gavage with 10mg/kg Fluvastatin showed a reduced number of polymorphonuclear neutrophils (PMN) compared to the control rats at 4h postinjection[7].

References:

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[1] Zhang W, Wu J, Zhou L, et al. Fluvastatin, a lipophilic statin, induces apoptosis in human hepatocellular carcinoma cells through mitochondria-operated pathway. *Indian J Exp Biol*. 2010;48(12):1167-1174.
[2] Langtry HD, Markham A. Fluvastatin: a review of its use in lipid disorders. *Drugs*. 1999;57(4):583-606.
[3] Bonds M, Bordoni B. Fluvastatin. In: StatPearls. StatPearls Publishing; 2023.
[4] Cai Y, Zhao F. Fluvastatin suppresses the proliferation, invasion, and migration and promotes the apoptosis of endometrial cancer cells by upregulating Sirtuin 6 (SIRT6). *Bioengineered*. 2021;12(2):12509-12520.
[5] Fish RJ, Yang H, Viglino C, et al. Fluvastatin inhibits regulated secretion of endothelial cell von Willebrand factor in response to diverse secretagogues. Biochem J. 2007;405(3):597-604.
[6] Paez PA, Kolawole M, Taruselli MT, et al. Fluvastatin Induces Apoptosis in Primary and Transformed Mast Cells. J Pharmacol Exp Ther. 2020;374(1):104-112.
[7] Fischetti F, Carretta R, Borotto G, et al. Fluvastatin treatment inhibits leucocyte adhesion and extravasation in models of complement-mediated acute inflammation. *Clin Exp Immunol*. 2004;135(2):186-193.

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