

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

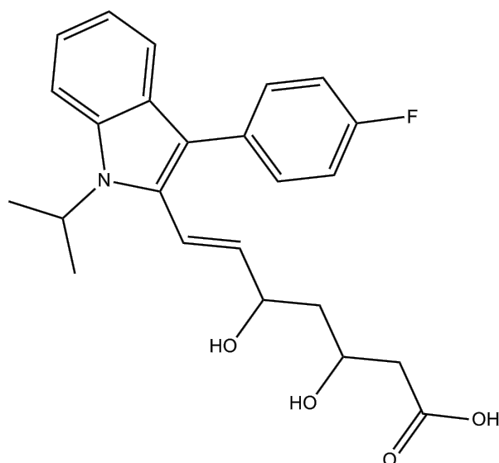
Solubility ≥ 20.57 mg/mL in DMSO, ≥ 42.2 mg/mL in EtOH with gentle warming,
 ≥ 32.53 mg/mL in Water with gentle warming

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% CO₂ 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 erythrosinate 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 20 μ M), 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 2.5 μ M 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].

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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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