

27-Hydroxycholesterol

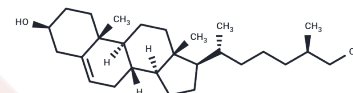
Chemical Properties

CAS No. : 20380-11-4

Formula: C₂₇H₄₆O₂

Molecular Weight: 402.65

Storage: Keep away from direct sunlight, Store at low temperature, Store under nitrogen
 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	27-Hydroxycholesterol (25(R)-27-hydroxy Cholesterol) is a selective modulator of estrogen receptor and an agonist of the liver X receptor.
Targets(IC50)	Estrogen Receptor/ERR, Estrogen/progestogen Receptor, Endogenous Metabolite, Liver X Receptor
In vitro	27-Hydroxycholesterol activates estrogen receptors, adversely impacting prostate cancer cell lines by significantly enhancing cell proliferation in LNCaP and PC3 cells. This proliferation can be mitigated by estrogen receptor inhibitors [1]. As an endogenous selective estrogen receptor modulator, 27-Hydroxycholesterol exhibits substantial partial agonist activity across various cellular models, notably increasing gene transcription and cell proliferation in breast cancer contexts [2]. Produced from cholesterol by the enzyme CYP27A1, it plays a vital role in regulating intracellular cholesterol equilibrium. Its pro-tumorigenic effects can be diminished by either statins or directly inhibiting CYP27A1 [3]. Furthermore, 27-Hydroxycholesterol's conversion from cholesterol is crucial for LXR activation when faced with cholesterol excess [4].

Solubility Information

Solubility	DMF: 2 mg/mL (4.97 mM), Sonication is recommended. DMSO: 0.1 mg/mL (0.25 mM), Sonication is recommended. Ethanol: ≤ 20 mg/mL (49.66 mM), Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% EtOH+90% Corn Oil: 1 mg/mL (2.48 mM), Sonication is recommended. <i>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.</i>

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.4835 mL	12.4177 mL	24.8355 mL
5 mM	0.4967 mL	2.4835 mL	4.9671 mL
10 mM	0.2484 mL	1.2418 mL	2.4835 mL
50 mM	0.0497 mL	0.2484 mL	0.4967 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

- Raza S, et al. The cholesterol metabolite 27-hydroxycholesterol stimulates cell proliferation via ER β in prostate cancer cells. *Cancer Cell Int.* 2017 May 11;17:52.
- DuSell CD, et al. 27-hydroxycholesterol is an endogenous selective estrogen receptor modulator. *Mol Endocrinol.* 2008 Jan;22(1):65-77.
- Kimbung S, et al. Impact of 27-hydroxylase (CYP27A1) and 27-hydroxycholesterol in breast cancer. *Endocr Relat Cancer.* 2017 Jul;24(7):339-349.
- Fu X, et al. 27-hydroxycholesterol is an endogenous ligand for liver X receptor in cholesterol-loaded cells. *J Biol Chem.* 2001 Oct 19;276(42):38378-87.

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