24-Hydroxycholesterol

Cat. No.: HY-N2370

CAS No.: 30271-38-6

Molecular Formula: $C_{27}H_{46}O_2$

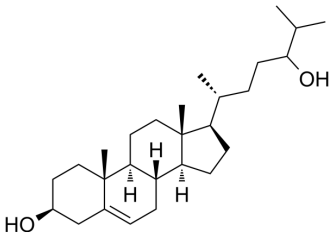
Molecular Weight: 402.65

Target: iGluR; LXR

Pathway: Membrane Transporter/Ion Channel; Neuronal Signaling; Metabolic Enzyme/Protease; Vitamin D Related/Nuclear Receptor

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

Ethanol : 60 mg/mL (149.01 mM; Need ultrasonic)

DMSO : 3.67 mg/mL (9.11 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions

Mass / Solvent / Concentration	1 mg	5 mg	10 mg
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

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: 2.5 mg/mL (6.21 mM); Suspended solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (6.21 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (6.21 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

24-Hydroxycholesterol is a natural sterol, which serves as a positive allosteric modulator of N-Methyl-d-Aspartate (NMDA) receptorsR, and a potent activator of the transcription factors LXR.

IC_{50} & Target

NMDA Receptor

In Vitro	24S-hydroxycholesterol oxysterol-generating enzyme Cyp46a1 is overexpressed during the angiogenic switch in rat insulin promoter 1-T-antigen 2 (RIP1-Tag2) pNET formation[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Hypoxia inducible factor-1a (HIF-1α) controls the overexpression of the enzyme Cyp46a1, which generates the oxysterol 24-hydroxycholesterol in a pancreatic neuroendocrine tumor (pNET) model commonly used to study neoangiogenesis. The activation of the HIF-1α-24S-HC axis ultimately leads to the induction of the angiogenic switch through the positioning of proangiogenic neutrophils in proximity to Cyp46a1^{+} islets[1]. 24-hydroxycholesterol levels are increased at 2-4 months in the untreated 5XFAD mouse brain and then became similar to those in the B6SJL mouse brain[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Soncini M, et al. 24-Hydroxycholesterol participates in pancreatic neuroendocrine tumor development. Proc Natl Acad Sci U S A. 2016 Oct 11;113(41):E6219-E6227. Epub 2016 Sep 26.

[2]. Mast N, et al. Cholesterol-metabolizing enzyme cytochrome P450 46A1 as a pharmacologic target for Alzheimer's disease. Neuropharmacology. 2017 Sep 1;123:465-476.

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