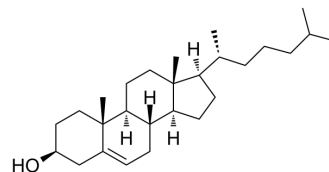


## Cholesterol

<b>Cat. No.:</b>	HY-N0322												
<b>CAS No.:</b>	57-88-5												
<b>Molecular Formula:</b>	C <sub>27</sub> H <sub>46</sub> O												
<b>Molecular Weight:</b>	386.65												
<b>Target:</b>	Estrogen Receptor/ERR; Endogenous Metabolite												
<b>Pathway:</b>	Others; Metabolic Enzyme/Protease												
<b>Storage:</b>	<table border="0"> <tr> <td>Powder</td> <td>-20°C</td> <td>3 years</td> </tr> <tr> <td></td> <td>4°C</td> <td>2 years</td> </tr> <tr> <td>In solvent</td> <td>-80°C</td> <td>6 months</td> </tr> <tr> <td></td> <td>-20°C</td> <td>1 month</td> </tr> </table>	Powder	-20°C	3 years		4°C	2 years	In solvent	-80°C	6 months		-20°C	1 month
Powder	-20°C	3 years											
	4°C	2 years											
In solvent	-80°C	6 months											
	-20°C	1 month											



### SOLVENT & SOLUBILITY

#### In Vitro

Ethanol : 25 mg/mL (64.66 mM; Need ultrasonic)

Concentration	Mass		
	1 mg	5 mg	10 mg
1 mM	2.5863 mL	12.9316 mL	25.8632 mL
5 mM	0.5173 mL	2.5863 mL	5.1726 mL
10 mM	0.2586 mL	1.2932 mL	2.5863 mL

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

#### In Vivo

- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline  
Solubility: ≥ 3.43 mg/mL (8.87 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)  
Solubility: ≥ 3.43 mg/mL (8.87 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil  
Solubility: ≥ 3.43 mg/mL (8.87 mM); Clear solution
- Add each solvent one by one: 10% EtOH >> 90% corn oil  
Solubility: ≥ 2.5 mg/mL (6.47 mM); Clear solution

### BIOLOGICAL ACTIVITY

#### Description

Cholesterol is the major sterol in mammals and is makes up 20-25% of structural component of the plasma membrane. Plasma membranes are highly permeable to water but relatively impermeable to ions and protons. Cholesterol plays an important role in determining the fluidity and permeability characteristics of the membrane as well as the function of both the transporters and signaling proteins<sup>[1][2]</sup>. Cholesterol is also an endogenous estrogen-related receptor α (ERRα) agonist<sup>[3]</sup>.

IC <sub>50</sub> & Target	Microbial Metabolite	Human Endogenous Metabolite
In Vitro	GT1-7 hypothalamic cells subjected to Cholesterol depletion in vitro produced 20-31% reductions in cellular Cholesterol content. All Cholesterol-depleted neuron-derived cells, exhibit decreased phosphorylation/activation of IRS-1 and AKT following stimulation by insulin, insulin-like growth factor-1, or the neurotrophins (NGF and BDNF). Reduction in cellular Cholesterol also results in increased basal autophagy and impairment of induction of autophagy by glucose deprivation <sup>[1]</sup> . MCE has not independently confirmed the accuracy of these methods. They are for reference only.	
In Vivo	<p>Insulin-deficient diabetes in mice can lead to a reduction in brain Cholesterol synthesis, which occurs through a change in expression of Cholesterol synthesis enzymes and their upstream regulators SREBP2 and SCAP1<sup>[1]</sup>.</p> <p>The pool of Cholesterol in the whole animal is 2,200 mg/kg body weight. This is true for essentially all species from the mouse to the primate and indicates that the average concentration of Cholesterol in the whole animal is 2.2 mg/g fresh tissue<sup>[2]</sup>.</p> <p>The basal metabolic rate in the mouse is 170 kilocalories (kcal)/day/kg, and the flow of Cholesterol from all peripheral organs to the liver is greater than 100 mg/day/kg<sup>[2]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>	

## CUSTOMER VALIDATION

- Nat Nanotechnol. 2021 Oct;16(10):1150-1160.
- Theranostics. 2021 Jan 1;11(2):841-860.
- Sci China Life Sci. 2021 May 27;1-21.
- Biochem Biophys Res Commun. 2020 Feb 19;522(4):862-868.
- Life Sci Alliance. 2022 Jan 4;5(3):e202101256.

See more customer validations on [www.MedChemExpress.com](http://www.MedChemExpress.com)

## REFERENCES

- [1]. Fukui K, et al. Effect of Cholesterol Reduction on Receptor Signaling in Neurons. J Biol Chem. 2015 Sep 14.
- [2]. Dietschy JM, et al. Thematic review series: brain Lipids. Cholesterol metabolism in the central nervous system during early development and in the mature animal. J Lipid Res. 2004 Aug;45(8):1375-97.
- [3]. Casaburi I, et al. Cholesterol as an Endogenous ERR $\alpha$  Agonist: A New Perspective to Cancer Treatment. Front Endocrinol (Lausanne). 2018 Sep 11;9:525.

**Caution: Product has not been fully validated for medical applications. For research use only**

India Contact:  
Life Technologies (India) Pvt. Ltd.  
306, Aggarwal City Mall, Opposite M2K Pitampura, Delhi – 110034 (INDIA). Ph: +91-11-42208000, 42208111, 42208222, Mobile: +91-9810521400, Fax: +91-11-42208444  
Email: [customerservice@lifetechindia.com](mailto:customerservice@lifetechindia.com) Website: [www.lifetechindia.com](http://www.lifetechindia.com)