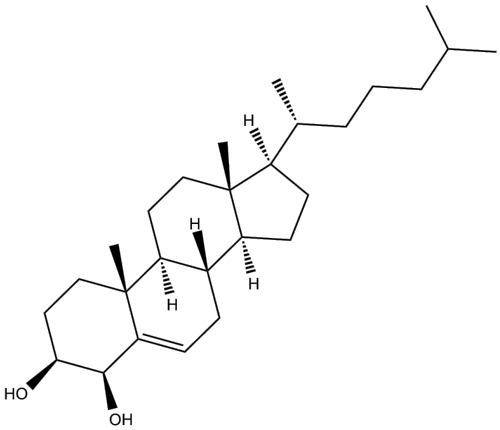
Product Data Sheet

Product Name: 4β-hydroxy Cholesterol
Cat. No.: GC10762

Chemical Properties

Cas. No.	17320-10-4		
Chemical Name	5 cholesten-3β,4β-diol		
SMILES	O[C@H]([C@@H]1O)CC[C@@]2(C)C1=CC[C@]3([H])[C@]2([H])CC[C@@]4(C)[C@@]3([H])CC[C@]4([H])[C@H](C)CCCC(C)C		
Formula	$C_{27}H_{46}O_2$	M.Wt	402.7
Solubility	≤20mg/ml in ethanol;0.1mg/ml in DMSO;2mg/ml in dimethyl formamide	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



Background

Caution: Product has not been fully validated for medical applications. For research use only.
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4β-hydroxy Cholesterol is an endogenous marker for CYP3A4/5 activity [1].

Cytochome P450 3A4 (CYP3A4) and CYP3A5 are important drug-metabolizing enzymes that oxidize small foreign organic molecules, such as toxins or drugs, and remove them from the body. They exhibit a large variation in hepatic expression and biological activity between different individuals. Patients treated with drugs known to be strong inducers of CYP3A4/5 have highly elevated levels of 4β-hydroxycholesterol in the circulation [1].

4β-hydroxy Cholesterol, an endogenous oxysterol found in human circulation, is formed from cholesterol by cytochrome P450 (CYP) 3A4 and CYP3A5. In 12 different occasions during a 3-month period, The CVs for 4β-hydroxycholesterol ranged from 4.8 to 13.2% with an average CV of 7.1% at an average concentration of 30.8 ng/ml. In 24 volunteers treated with rifampicin, a strong CYP3A4/5 inducer, 4β-hydroxycholesterol increased in a dose-dependent way, while the isomer 4α-hydroycholesterol was not influenced by rifampicin treatment. These results suggested that 4β-hydroxy Cholesterol is an endogenous marker for CYP3A4/5 activity [1].

Reference:
[1]. Diczfalusy U, Kanebratt KP, Bredberg E, et al. 4beta-hydroxycholesterol as an endogenous marker for CYP3A4/5 activity. Stability and half-life of elimination after induction with rifampicin. Br J Clin Pharmacol. 2009 Jan;67(1):38-43.

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