

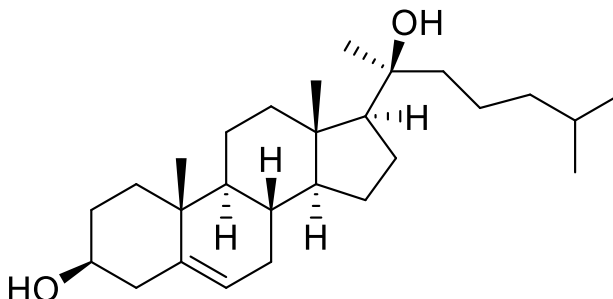
20 α -Hydroxycholesterol

Catalog number: L-6003

Molecular Formula: C₂₇H₄₆O₂

MW: 402.66

CAS#: 516-72-3



Alternate Names: (3S,8S,9S,10R,13S,14S,17S)-17-((S)-2-hydroxy-6-methylheptan-2-yl)-10,13-dimethyl-2,3,4,7,8,9,10,11,12,13,14,15,16,17-tetradecahydro-1H-cyclopenta[a]phenanthrene-3-ol

Solubility: ~200 mg/mL chloroform, 20 mg/mL ethanol

Storage and Handling: Store at 4 °C or below. Stock solution should be stored frozen (-20°C or below).

Background: 20 α -Hydroxycholesterol is a naturally occurring oxysterol that plays a key role in regulating lipid metabolism and cellular signaling. It is an endogenous agonist of liver X receptors (LXRs), which are involved in controlling genes responsible for cholesterol transport and efflux. It also activates the Hedgehog pathway by binding the Smoothened receptor which then influences bone formation and developmental processes. Substituting sterols for cholesterol in lipid nanoparticle (LNP) formulations can influence morphology, internal structure, and endosomal escape. These analogs can result in substantial increases in gene delivery via LNPs.

References:

- 1) D. Nedelcu, et al. "Oxysterol binding to the extracellular domain of smoothened in hedgehog signaling." Nat. Chem. Biol. 2021. 9(9), 557-564.
- 2) M. Herrera et al, "Illuminating endosomal escape of polymorphic lipid nanoparticles that boost mRNA delivery" Biomaterials Science, 2021, 9:4289-4300
- 3) S. Patel et al, "Naturally-occurring cholesterol analogues in lipid nanoparticles induce polymorphic shape and enhance intracellular delivery of mRNA" Nature communication, 2020, 11, 983

Hazardous Properties and Cautions: The toxicological and pharmacological properties of this compound are not fully known. For further information see the MSDS on request. This product is manufactured and shipped only in small quantities, intended for research and development in a laboratory utilizing prudent procedures for handling chemicals of unknown toxicity, under the supervision of persons technically qualified to evaluate potential risks and authorized to enforce appropriate health and safety measures. As with all research chemicals, precautions should be taken to avoid unnecessary exposures or risks.

Warranty and Disclaimer: Echelon warrants the product conforms to the specifications stated herein. In the event of nonconformity, Echelon will replace products or refund purchase price, at its sole option, and Echelon shall not be responsible for any other loss or damage, whether known or foreseeable to Echelon. No other warranties apply, express or implied, including but not limited to warranty of fitness for any purpose or implied warranty of merchantability. Purchaser is solely responsible for all consequences of its use of the product and Echelon assumes no responsibility therefore, including success of purchaser's research and development, or health or safety of any uses of the product.

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