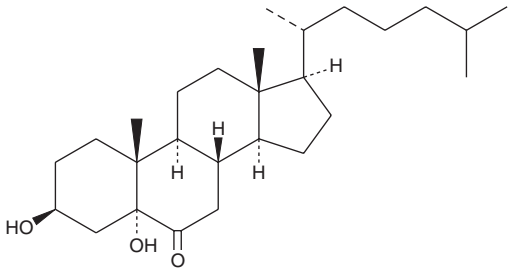
PRODUCT INFORMATION

5α-hydroxy-6-keto Cholesterol

Item No. 10007601

CAS Registry No.: 13027-33-3
Formal Name: 3β,5α-dihydroxy-cholestan-6-one
Synonyms: 6-Oxo-3,5-diol, Cholestane-6-oxo-3β,5α-diol
MF: $C_{27}H_{46}O_3$
FW: 418.7
Purity: ≥98%
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥2 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

5α-hydroxy-6-keto Cholesterol is supplied as a crystalline solid. A stock solution may be made by dissolving the 5α-hydroxy-6-keto cholesterol in the solvent of choice, which should be purged with an inert gas. 5α-hydroxy-6-keto Cholesterol is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of 5α-hydroxy-6-keto cholesterol in these solvents is approximately 5, 0.5, and 20 mg/ml, respectively.

Description

Cholesterol is the most abundant neutral lipid present in the surfactant of the lung epithelial lining fluid. The double bond between carbons 5 and 6 of cholesterol is susceptible to attack by ozone within this surfactant environment. 5α-hydroxy-6-keto Cholesterol (6-oxo-3,5,-diol) is a major metabolite of cholesterol formed during exposure of lung epithelial cells to ozone, with formation of 5β,6β-epoxycholesterol as a predominant precursor.[1] Exposure of C57BL/6J mice to 0.5-3 ppm ozone produced a dose-dependent formation of 6-oxo-3,5,-diol which was detectable in the bronchalveolar lavage fluid, lavaged cells, and lung homogenates.[2] 6-Oxo-3,5-diol is a potent inhibitor of cholesterol synthesis in human bronchial epithelial cells with an IC_{50} of 350 nM and exhibits significant cytotoxicity in the low µM range.[1] Therefore, the toxic effects of ozone may be mediated by formation oxysterols of this type.

References

1. Pulfer, M.K., and Murphy, R.C. Formation of biologically active oxysterols during ozonolysis of cholesterol present in lung surfactant. *J. Biol. Chem.* **279(25)**, 26331-26338 (2004).
2. Pulfer, M.K., Taube, C., Gelfand, E., *et al.* Ozone exposure in vivo and formation of biologically active oxysterols in the lung. *J. Pharmacol. Exp. Ther.* **312(1)**, 256-264 (2005).

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