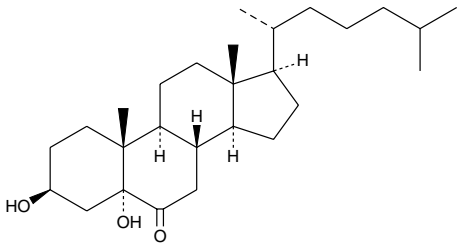
Product Information

5α-hydroxy-6-keto Cholesterol

Item No. 10007601

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



Laboratory Procedures

For long term storage, we suggest that 5α-hydroxy-6-keto cholesterol (6-oxo-3,5-diol) be stored as supplied at -20°C. It should be stable for at least two years.

6-Oxo-3,5-diol is supplied as a crystalline solid. A stock solution may be made by dissolving the 6-oxo-3,5-diol in an organic solvent purged with an inert gas. 6-Oxo-3,5-diol is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of 6-oxo-3,5-diol in these solvents is approximately 5, 0.5, and 20 mg/ml, respectively.

6-Oxo-3,5-diol is sparingly soluble in aqueous buffers. Therefore, further dilutions of the organic solvent solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. We do not recommend storing the aqueous solution for more than one day.

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. 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 precusor.[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 bronchoalveolar 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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