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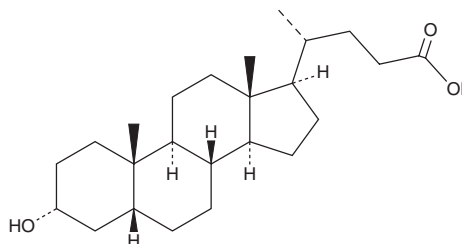
PRODUCT INFORMATION



Lithocholic Acid

Item No. 20253

CAS Registry No.: 434-13-9
Formal Name: (3 α ,5 β)-3-hydroxy-cholan-24-oic acid
Synonyms: 3 α -hydroxy Cholanic Acid, LCA, Lithocholate, NSC 683770
MF: C₂₄H₄₀O₃
FW: 376.6
Purity: \geq 95%
Supplied as: A crystalline solid
Storage: -20°C
Stability: \geq 2 years



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

Laboratory Procedures

Lithocholic acid is supplied as a crystalline solid. A stock solution may be made by dissolving the lithocholic acid in the solvent of choice. Lithocholic acid is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of lithocholic acid in ethanol and DMSO is approximately 20 mg/ml, and approximately 30 mg/ml in DMF.

Lithocholic acid is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, lithocholic acid should first be dissolved in DMF and then diluted with the aqueous buffer of choice. Lithocholic acid has a solubility of approximately 0.5 mg/ml in a 1:1 solution of DMF:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Lithocholic acid is a secondary bile acid that has been shown to cause cholestasis in animal models and has also been implicated in carcinogenesis.^{1,2} It is produced from chenodeoxycholic acid by bacterial action in the colon and can be conjugated with glycine or taurine. Whereas in normal colonic epithelium lithocholic acid promotes apoptosis, it has been shown to suppress apoptosis in pre-malignant colonic epithelium in the presence of a carcinogen.³ Lithocholic acid can activate the pregnane X receptor and the vitamin D receptor, which may serve as biological sensors to regulate lithocholic acid-induced toxicity.^{2,4,5}

References

1. Little, J.M., Zimniak, P., Shattuck, K.E., *et al.* Metabolism of lithocholic acid in the rat: Formation of lithocholic acid 3-O-glucuronide *in vivo*. *J. Lipid. Res.* **31(4)**, 615-622 (1990).
2. Makishima, M., Lu, T.T., Xie, W., *et al.* Vitamin D receptor as an intestinal bile acid sensor. *Science* **296**, 1313-1316 (2002).
3. Kozoni, V., Tsioulis, G., Shiff, S., *et al.* The effect of lithocholic acid on proliferation and apoptosis during the early stages of colon carcinogenesis: Differential effect on apoptosis in the presence of a colon carcinogen. *Carcinogenesis* **21(5)**, 999-1005 (2000).
4. Staudinger, J.L., Goodwin, B., Jones, S.A., *et al.* The nuclear receptor PXR is a lithocholic acid sensor that protects against liver toxicity. *Proc. Natl. Acad. Sci. USA* **98(6)**, 3369-3374 (2000).
5. Tan, K.P., Yang, M., and Ito, S. Activation of nuclear factor (erythroid-2 like) factor 2 by toxic bile acids provokes adaptive defense responses to enhance cell survival at the emergence of oxidative stress. *Mol. Pharmacol.* **72(5)**, 1380-1390 (2007).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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