

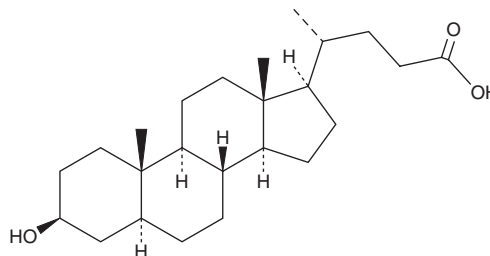
# PRODUCT INFORMATION



## Alloisolithocholic Acid

Item No. 29542

**CAS Registry No.:** 2276-93-9  
**Formal Name:** (5 $\alpha$ )-3 $\beta$ -hydroxy-cholan-24-oic acid  
**Synonyms:** AILCA, AlloisoLCA,  
3 $\beta$ -hydroxy-5-Cholenoic Acid,  
IsoalloLCA, Isoallolithocholic Acid,  
NSC 18169  
**MF:** C<sub>24</sub>H<sub>40</sub>O<sub>3</sub>  
**FW:** 376.6  
**Purity:**  $\geq$ 95%  
**Supplied as:** A solid  
**Storage:** -20°C  
**Stability:**  $\geq$ 4 years



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

### Laboratory Procedures

Alloisolithocholic acid (AILCA) is supplied as a solid. A stock solution may be made by dissolving the AILCA in the solvent of choice, which should be purged with an inert gas. AILCA is soluble in the organic solvent dimethyl formamide (DMF) at a concentration of approximately 1 mg/ml.

AILCA is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, AILCA should first be dissolved in DMF and then diluted with the aqueous buffer of choice. AILCA has a solubility of approximately 0.25 mg/ml in a 1:3 solution of DMF:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

### Description

AILCA is a metabolite of the secondary bile acid metabolite 3-oxo lithocholic acid (dehydroolithocholic acid; Item No. 29544).<sup>1</sup> It is formed from 3-oxo lithocholic acid by gut microbiota.<sup>1</sup> AILCA (20  $\mu$ M) increases the association of the nuclear hormone receptor nerve growth factor 1B (Nr4a1) to the gene encoding forkhead box protein P3 (*Foxp3*) in isolated mouse CD4<sup>+</sup> T cells. It induces the differentiation of isolated mouse T cells into regulatory T cells (Tregs) and the production of mitochondrial reactive oxygen species (ROS) in isolated mouse CD4<sup>+</sup> T cells when used at a concentration of 20  $\mu$ M.<sup>2</sup> AILCA (6 mg/kg) reduces hepatic bile flow and bile salt, cholesterol, and phospholipid secretion, as well as induces loss of microvilli and dilation of canaliculi in hepatocytes, markers of cholestasis, in rats.<sup>3</sup> Fecal levels of AILCA are reduced in patients with Crohn's disease or ulcerative colitis.<sup>1</sup>

### References

1. Li, W., Hang, S., Fang, Y., *et al.* A bacterial bile acid metabolite modulates T<sub>reg</sub> activity through the nuclear hormone receptor NR4A1. *Cell Host Microbe* **29(9)**, 1366-1377.e9 (2021).
2. Hang, S., Paik, D., Yao, L., *et al.* Bile acid metabolites control TH<sub>17</sub> and T<sub>reg</sub> cell differentiation. *Nature* **576(7785)**, 143-148 (2019).
3. Vonk, R.J., Tuchweber, B., Massé, D., *et al.* Intrahepatic cholestasis induced by allo monohydroxy bile acid in rats. *Gastroenterology* **80(2)**, 242-249 (1981).

#### 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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