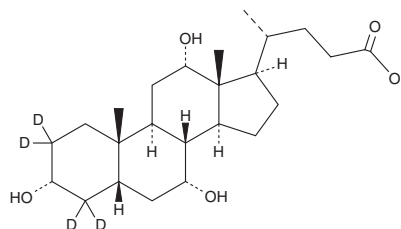


# PRODUCT INFORMATION



## Cholic Acid-d<sub>4</sub> MaxSpec<sup>®</sup> Standard Item No. 31348

**CAS Registry No.:** 116380-66-6  
**Formal Name:** (3 $\alpha$ ,5 $\beta$ ,7 $\alpha$ ,12 $\alpha$ )-3,7,12-trihydroxy-cholan-24-oic-2,2,4,4-d<sub>4</sub> acid  
**Synonyms:** CA-d<sub>4</sub>, Cholalic Acid-d<sub>4</sub>, Cholalin-d<sub>4</sub>  
**MF:** C<sub>24</sub>H<sub>36</sub>D<sub>4</sub>O<sub>5</sub>  
**FW:** 412.6  
**Purity:** >95%  
**Supplied as:** A solution in methanol; in a deactivated glass ampule  
**Concentration:** 100  $\mu$ g/ml (nominal); see certificate of analysis for verified concentration  
**Storage:** -20°C  
**Stability:**  $\geq$ 7 years; *Stability testing is ongoing to ensure concentration accuracy. The certificate of analysis and product expiry date will be updated upon completion of testing.*  
**Special Conditions:** Store upright and unopened at -20°C. Warm to room temperature prior to opening. Light sensitive.



### Description

Cholic acid-d<sub>4</sub> is intended for use as an internal standard for the quantification of cholic acid (Item No. 20250) by GC- or LC-MS. Cholic acid is a primary bile acid.<sup>1</sup> It is formed from cholesterol *via* a multistep process catalyzed by the cytochrome P450 (CYP) isoforms CYP7A1, CYP8B1, and CYP27A1. Cholic acid is conjugated to glycine or taurine by bile acid-CoA:amino acid N-acyltransferase (BAAT) to produce glycocholic acid (GCA; Item No. 20276) and taurocholic acid (TCA; Item No. 16215), respectively, in the liver, and is transformed into the secondary bile acid deoxycholic acid (DCA; Item No. 20756) by intestinal microbiota.<sup>1-3</sup> It induces *C. difficile* colony formation in an agar dilution assay when used at a concentration of 0.1% w/v.<sup>4</sup> Dietary administration of cholic acid (0.4% w/w) increases serum cholesterol levels, biliary phospholipid secretion, and fecal DCA levels in rats.<sup>5</sup>

Cholic acid-d<sub>4</sub> MaxSpec<sup>®</sup> standard is a quantitative grade standard of cholic acid-d<sub>4</sub> (Item No. 20849) that has been prepared specifically for mass spectrometry or any application where quantitative reproducibility is required. The solution has been prepared gravimetrically and is supplied in a deactivated glass ampule sealed under argon. The concentration was verified by comparison to an independently prepared calibration standard. This Cholic acid-d<sub>4</sub> MaxSpec<sup>®</sup> standard is guaranteed to meet identity, purity, stability, and concentration specifications and is provided with a batch-specific certificate of analysis. Ongoing stability testing is performed to ensure the concentration remains accurate throughout the shelf life of the product. **Note:** *The amount of solution added to the vial is in excess of the listed amount. Therefore, it is necessary to accurately measure volumes for preparation of calibration standards. Follow recommended storage and handling conditions to maintain product quality.*

### References

1. Šarenac, T.M. and Mikov, M. *Front. Pharmacol.* **9**, 939 (2018).
2. Hunt, M.C., Siponen, M.I., and Alexson, S.E.H. *Biochim. Biophys. Acta* **1822(9)**, 1397-1410 (2012).
3. Staley, C., Weingarden, A.R., Khoruts, A., et al. *Appl. Microbiol. Biotechnol.* **101(1)**, 47-64 (2017).
4. Sorg, J.A. and Sonenshein, A.L. *J. Bacteriol.* **190(7)**, 2505-2012 (2008).
5. Uchida, K., Nomura, Y., and Takeuchi, N. *J. Biochem.* **87(1)**, 187-194 (1980).

**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.

**WARRANTY AND LIMITATION OF REMEDY**  
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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