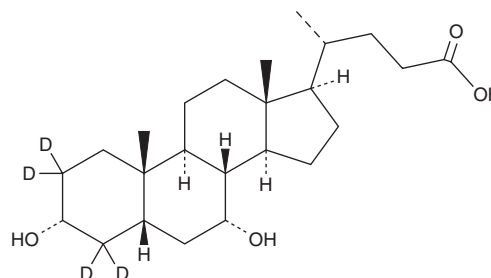


# PRODUCT INFORMATION



## Chenodeoxycholic Acid-d<sub>4</sub> MaxSpec<sup>®</sup> Standard Item No. 31366

**CAS Registry No.:** 99102-69-9  
**Formal Name:** (3 $\alpha$ ,5 $\beta$ ,7 $\alpha$ )-3,7-dihydroxy-cholan-24-oic-2,2,4,4-d<sub>4</sub> acid  
**Synonym:** CDCA-d<sub>4</sub>  
**MF:** C<sub>24</sub>H<sub>36</sub>D<sub>4</sub>O<sub>4</sub>  
**FW:** 396.6  
**Purity:**  $\geq$ 95%  
**Supplied as:** A solution in methanol; in a deactivated glass ampule  
**Concentration:** 100  $\mu$ g/ml; see certificate of analysis for verified concentration  
**Storage:** -20°C  
**Stability:**  $\geq$ 5 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

Chenodeoxycholic acid-d<sub>4</sub> (CDCA-d<sub>4</sub>) is intended for use as an internal standard for the quantification of CDCA (Item No. 10011286) by GC- or LC-MS. CDCA is a hydrophobic primary bile acid.<sup>1</sup> It is formed from cholesterol in the liver via a multistep process catalyzed by the cytochrome P450 (CYP) isoforms CYP7A1, CYP8B1, and CYP27A1. CDCA is a farnesoid X receptor (FXR) agonist that binds to FXRs in a TR-FRET assay (EC<sub>50</sub> = 13  $\mu$ M) and induces FXR transactivation in a reporter assay.<sup>2,3</sup> It induces transcription of the gene encoding the Nrf2 target glutamate cysteine ligase (GCL) in primary hepatocytes and HepG2 cells when used at concentrations ranging from 25 to 100  $\mu$ M.<sup>4</sup>

CDCA-d<sub>4</sub> MaxSpec<sup>®</sup> standard is a quantitative grade standard of CDCA-d<sub>4</sub> (Item No. 20848) 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. The verified concentration is provided on the certificate of analysis. This CDCA-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. Fiorucci, S. and Distrutti, E. Chenodeoxycholic acid: An update on its therapeutic applications. *Bile acids and their receptors. Handbook of experimental pharmacology*. Fiorucci, S. and Distrutti, E., editors, 1<sup>st</sup> edition, Springer (2019).
2. Ohinata, Y., Payer, B., O'Carroll, D., et al. Blimp1 is a critical determinant of the germ cell lineage in mice. *Nature* **436(7048)**, 207-213 (2005).
3. Urizar, N.L., Liverman, A.B., Dodds, D.T., et al. A natural product that lowers cholesterol as an antagonist ligand for FXR. *Science* **296(5573)**, 1703-1706 (2002).
4. 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.

#### 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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