

# PRODUCT INFORMATION



## Ursodeoxycholic Acid-d<sub>4</sub> MaxSpec<sup>®</sup> Standard

Item No. 31368

CAS Registry No.: 347841-46-7

Formal Name: (3 $\alpha$ ,5 $\beta$ ,7 $\beta$ )-3,7-dihydroxy-cholan-24-oic-2,2,4,4-d<sub>4</sub> acid

Synonym: UDCA-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%

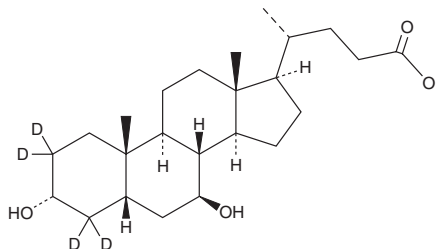
Supplied as: A solution in methanol; in a deactivated glass ampule

Concentration: 100  $\mu$ g/ml (nominal); 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

Ursodeoxycholic acid-d<sub>4</sub> (UDCA-d<sub>4</sub>) is intended for use as an internal standard for the quantification of UDCA (Item No. 15121) by GC- or LC-MS. UDCA is a secondary bile acid formed *via* epimerization of chenodeoxycholic acid (CDCA; Item No. 10011286).<sup>1,2</sup> UDCA is also a metabolite of lithocholic acid (LCA; Item No. 20253) in human liver microsomes.<sup>3</sup> It inhibits taurocholic acid (Item No. 16215) uptake in HeLa cells expressing recombinant sodium/taurocholate cotransporting polypeptide (NTCP) with an IC<sub>50</sub> value of 3.6  $\mu$ M.<sup>5</sup> UDCA (50  $\mu$ M) inhibits apoptosis induced by deoxycholic acid (DCA; Item Nos. 20756 | 18231) or ethanol in primary rat hepatocytes.<sup>4</sup> Dietary administration of UDCA blocks DCA-induced increases in the number of TUNEL-positive hepatocytes in rats. Formulations containing UDCA have been used in the treatment of primary biliary cirrhosis.

Ursodeoxycholic acid-d<sub>4</sub> MaxSpec<sup>®</sup> standard is a quantitative grade standard of ursodeoxycholic acid-d<sub>4</sub> (Item No. 21892) 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 ursodeoxycholic 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. Dawson, P.A. and Karpen, S.J. Intestinal transport and metabolism of bile acids. *J. Lipid Res.* **56(6)**, 1085-1099 (2015).
2. Chiang, J.Y.L. Bile acid metabolism and signaling in liver disease and therapy. *Liver Res.* **1(1)**, 3-9 (2017).
3. Deo, A.K. and Bandiera, S.M. 3-Ketocholanoic acid is the major *in vitro* human hepatic microsomal metabolite of lithocholic acid. *Drug Metab. Dispos.* **37(9)**, 1938-1947 (2009).
4. Rodrigues, C.M.P., Fan, G., Ma, X., *et al.* A novel role for ursodeoxycholic acid in inhibiting apoptosis by modulating mitochondrial membrane perturbation. *J. Clin. Invest.* **101(12)**, 2790-2799 (1998).
5. Kim, R.B., Leake, B., Cvetkovic, M., *et al.* Modulation by drugs of human hepatic sodium-dependent bile acid transporter (sodium taurocholate cotransporting polypeptide) activity. *J. Pharmacol. Exp. Ther.* **291(3)**, 1204-1209 (1999).

#### 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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