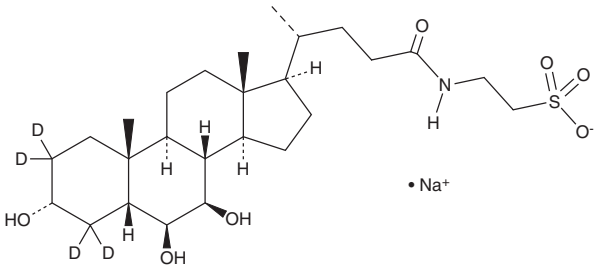
# PRODUCT INFORMATION

## Tauro-β-muricholic Acid-$d_4$ (sodium salt)

*Item No. 27040*

**Formal Name:** 2-[[(3α,5β,6β,7β)-3,6,7-trihydroxy-24-oxocholan-24-yl-2,2,4,4-$d_4$]amino]-ethanesulfonic acid, monosodium salt
**Synonyms:** Tauro-β-muricholate-$d_4$, TβMCA-$d_4$
**MF:** $C_{26}H_{40}D_4NO_7S \bullet Na$
**FW:** 541.7
**Chemical Purity:** ≥95% (Tauro-β-muricholic Acid)
**Deuterium Incorporation:** ≥99% deuterated forms ($d_1$-$d_4$); ≤1% $d_0$
**Supplied as:** A crystalline solid
**Storage:** -20°C
**Stability:** ≥2 years




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

### Laboratory Procedures

Tauro-β-muricholic acid-$d_4$ (TβMCA-$d_4$) (sodium salt) is intended for use as an internal standard for the quantification of TβMCA (Item No. 20289) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated *versus* unlabeled).

TβMCA-$d_4$ (sodium salt) is supplied as a crystalline solid. A stock solution may be made by dissolving the TβMCA-$d_4$ (sodium salt) in the solvent of choice, which should be purged with an inert gas. TβMCA-$d_4$ (sodium salt) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of TβMCA-$d_4$ (sodium salt) in ethanol is approximately 1 mg/ml and approximately 10 mg/ml in DMSO and DMF.

### Description

TβMCA is a competitive and reversible antagonist of the farnesoid X receptor (FXR; $IC_{50}$ = 40 µM) and a taurine-conjugated form of the murine-specific primary bile acid β-muricholic acid (Item No. 20287).[1] TβMCA accumulates in germ-free mice under normal conditions but is reduced after colonization with feces from a human donor.[1,2] TβMCA is increased in the intestines of mice resistant to high-fat diet-induced obesity, fatty liver, and diabetes.[3]

### References


1. Sayin, S.I., Wahlström, A., Felin, J., *et al.* Gut microbiota regulates bile acid metabolism by reducing the levels of tauro-beta-muricholic acid, a naturally occurring FXR antagonist. *Cell Metab.* **17(2)**, 225-235 (2013).
2. Wahlström, A., Kovatcheva-Datchary, P., Ståhlman, M., *et al.* Induction of farnesoid X receptor signaling in germ-free mice colonized with a human microbiota. *J. Lipid. Res.* **58(2)**, 412-419 (2017).
3. Qi, Y., Jiang, C., Cheng, J., *et al.* Bile acid signaling in lipid metabolism: Metabolomic and lipidomic analysis of lipid and bile acid markers linked to anti-obesity and anti-diabetes in mice. *Biochim. Biophys. Acta.* **1851(1)**, 19-29 (2015).





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