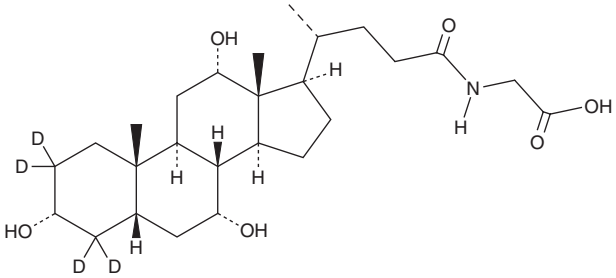
PRODUCT INFORMATION

Glycocholic Acid-d_4

Item No. 21889

CAS Registry No.: 1201918-15-1
Formal Name: N-[(3α,5β,7α,12α)-3,7,12-trihydroxy-24-oxocholan-24-yl-2,2,4,4-d_4]-glycine
Synonym: Cholylglycine-d_4
MF: $C_{26}H_{39}D_4NO_6$
FW: 469.7
Chemical Purity: ≥98% (Glycocholic 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

Glycocholic acid-d_4 is intended for use as an internal standard for the quantification of glycocholic acid (Item No. 20276) 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).

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

Description

Glycocholic acid is a glycine-conjugated form of the primary bile acid cholic acid (Item No. 20250) and has roles in the emulsification of fats.[1,2] It reduces expression of the gene encoding the farnesoid X receptor (FXR) and increases expression of the genes encoding the bile acid receptors TGR5 and S1PR2 in SNU-245 cells when used at a concentration of 1.6 µmol/ml.[3] Glycocholic acid (250 µM) increases the intracellular accumulation and cytotoxicity of epirubicin (Item No. 12091) in Caco-2 cells, as well as decreases expression of the genes encoding multidrug resistance protein 1 (MDR1), MDR-associated protein 1 (MRP1), and MRP2 when used alone or in combination with epirubicin.[4] It increases absorption of epirubicin into everted sacs of rat ileum and jejunum when used at a concentration of 250 µM. The bile acid composition ratio of glycocholic acid is elevated in bile of patients with cholangiocarcinoma compared with patients with pancreatic cancer or benign biliary diseases.[3] Serum levels of glycocholic acid are elevated in patients with hepatocellular carcinoma compared with healthy individuals.[2]

References

1. Lefebvre, P., Cariou, B., Lien, F., *et al. Physiol. Rev.* **89(1)**, 147-191 (2009).
2. Guo, C., Xie, C., Ding, P., *et al. J. Chromatogr. B. Analyt. Technol. Biomed. Life Sci.* **1072**, 315-319 (2018).
3. Song, W.-S., Park, H.-M., Ha, J.M., *et al. Sci. Rep.* **8(1)**, 11088 (2018).
4. Lo, Y.L., Ho, C.T., and Tsai, F.L. *Eur. J. Pharm. Sci.* **35(1-2)**, 52-67 (2008).

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