Deoxycholic acid sodium salt

Cat. No.: HY-N0593A

CAS No.: 302-95-4

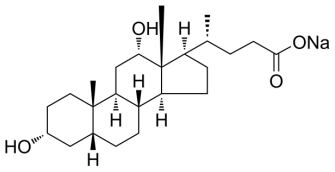
Molecular Formula: $C_{24}H_{39}NaO_4$

Molecular Weight: 414.55

Target: G protein-coupled Bile Acid Receptor 1; Endogenous Metabolite

Pathway: GPCR/G Protein; Metabolic Enzyme/Protease

Storage: 4°C, sealed storage, away from moisture
* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

H_2O : 333.33 mg/mL (804.08 mM; Need ultrasonic)
DMSO : 5.83 mg/mL (14.06 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.4123 mL	12.0613 mL	24.1225 mL
5 mM	0.4825 mL	2.4123 mL	4.8245 mL
10 mM	0.2412 mL	1.2061 mL	2.4123 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 50 mg/mL (120.61 mM); Clear solution; Need ultrasonic and warming and heat to 60°C
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 0.62 mg/mL (1.50 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 0.62 mg/mL (1.50 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 0.62 mg/mL (1.50 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Deoxycholic acid sodium salt (sodium deoxycholate), a bile acid, is a by-product of intestinal metabolism, that activates the G protein-coupled bile acid receptorTGR5[1][2].

IC_{50} & Target	Microbial Metabolite	Human Endogenous Metabolite

In Vitro

Deoxycholic acid sodium hydrate (DCA) (100 μM) induces the production of gastric cancer cell line MGC803 resistant to

acidified bile acids and enhances their survival and proliferation activity under bile acid stress[2].
Deoxycholic acid sodium hydrate (DCA) (100 μM)-induced resistant cells shows altered morphology, significantly elevated telomerase activity, better cell viability and reduces apoptosis compared to normal MGC803 cells[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [2]

MGC803 cells are cultured in Roswell Park Memorial Institute media supplemented with 10% fetal calf serum and 100 U/mL Penicillin and 100 mg/mL Streptomycin. To generate MGC803-resistant cells, the pH value of the MGC803 culture medium is adjusted to the experimental conditions using the hydrochloric acid (A). The bile acids GCDA and Deoxycholic acid are diluted to optimal working concentrations of 100 μM (B) with culture medium, and the overall pH (A+B) is adjusted to pH 5.5, simulating the gastric environment. Initially, MGC803 cells are chronically exposed to acidified medium with bile acids (A+B) for 10 min every 24 h. The experimental time and conditions are optimized in our preliminary experiments, which show that 10 min is enough and does not result in cell damage. This procedure is repeated and it takes 60 weeks for the MGC803 cells to survive and proliferate under the exposure of A+B for 120 min. Control untreated cells are cultured in neutral RPMI medium at pH 7.4 in parallel to the resistant cells for 60 weeks. The morphological changes in MGC803 cells exposed to acidified bile acids (A+B) are documented at 30 and 60 weeks[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Cell Res. 2019 Mar;29(3):193-205.
- Nat Cell Biol. 2018 Oct;20(10):1145-1158.
- Microbiome. 2019 Mar 20;7(1):43.
- Int J Biol Macromol. 2024 Mar 15:130939.
- Cell Death Discov. 2020 Jul 6;6:56.

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REFERENCES

[1]. Somm E, et al. β-Klotho deficiency protects against obesity through a crosstalk between liver, microbiota, and brown adipose tissue. JCI Insight. 2017 Apr 20;2(8). pii: 91809.

[2]. Wang X, et al. Acidified bile acids enhance tumor progression and telomerase activity of gastric cancer in micedependent on c-Myc expression. Cancer Med. 2017 Apr;6(4):788-797.

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