

Product Data Sheet

Product Name: Taurochenodeoxycholic acid (12-Deoxycholytaurine)

Cat. No.: GC33825

Chemical Properties

Cas. No. 516-35-8

SMILES C[C@@]1([C@@]2([H])[C@H](C)CCC(NCCS(=O)(O)=O)[C@](CC2)([H])[C@@]([C@@H](C[C@]3([H])C[C@H](O)CC4O)([H])[C@]([C@]34C)([H])CC1

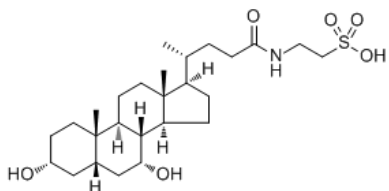
Formula $C_{26}H_{45}NO_6S$ M.Wt 499.7

Solubility DMSO : ≥ 25 mg/mL (50.03 mM) Storage Store at RT

General tips For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.

Structure



Protocol

Cell experiment [1]:

Cell lines NR8383 cells

Caution: Product has not been fully validated for medical applications. For research use only.

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Preparation Method	FITC Annexin V and Propidium Iodide (PI) binding was used to identify the existence of apoptosis. Cells were treated with different concentrations of Taurochenodeoxycholic acid (100μM, 10μM, 1μM) for 48h, while control NR8383 cells were incubated in DMEM alone.
Reaction Conditions	1-100μM; 48h
Applications	Taurochenodeoxycholic acid treatment enhanced the apoptosis rate of NR8383 cells.
Animal experiment [2]:	
Animal models	Experimental autoimmune encephalomyelitis (EAE) mice model
Preparation Method	C57BL/6 mice (female, 5-week-old) for 12h daily light at 25 ± 1°C on a free diet and water, and they were divided into the Control, EAE, EAE + Taurochenodeoxycholic acid (TCDCA) 50mg/kg, EAE + TCDCA 25mg/kg, and EAE + Methylprednisolone groups. For EAE induction, each mouse except that in the Control group was subcutaneously injected with the emulsion of Freund's adjuvant which contained heat-killed Mycobacterium tuberculosis H37RA (500μg/mouse) and MOG ₃₅₋₅₅ (300μg/mouse). Afterward, the mice were intraperitoneally injected with pertussis toxin (PTX, 250ng/mouse) immediately and again after 48h. The Control group was only injected with the emulsion of Freund's adjuvant without MOG ₃₅₋₅₅ .
Dosage form	25mg/kg, 50mg/kg; po; 23d
Applications	Taurochenodeoxycholic acid administration could improve the nerve damage of EAE mice.

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References:

- [1]. Wang X, Zhang Z, He X, et al. Taurochenodeoxycholic acid induces NR8383 cells apoptosis via PKC/JNK-dependent pathway[J]. European Journal of Pharmacology, 2016, 786: 109-115.
- [2]. Xu N, Bai Y, Han X, et al. Taurochenodeoxycholic acid reduces astrocytic neuroinflammation and alleviates experimental autoimmune encephalomyelitis in mice[J]. Immunobiology, 2023, 228(3): 152388.

Background

Taurochenodeoxycholic acid (12-Deoxycholytaurine) is a taurine-conjugated bile acid [1]. Taurochenodeoxycholic acid activates receptors such as FXR (farnesoid X receptor) and TGR5, regulating liver, intestinal and systemic metabolism [2-3]. Taurochenodeoxycholic acid is mainly studied in glucose metabolism, lipid metabolism, and inflammatory response [4].

In NR8383 cells, Taurochenodeoxycholic acid (1-100 μ M; 48h) treatment enhanced the apoptosis rate of cells [5]. In fibroblast-like synoviocytes, Taurochenodeoxycholic acid (50-400 μ g/mL; 48h) induces apoptosis of cells [6]. In SGC-7901 cells, aurochenodeoxycholic acid (0-100 μ g/mL; 12-48h) inhibits the proliferation and invasion of gastric cancer and induces its apoptosis [7].

In experimental autoimmune encephalomyelitis (EAE) mice model, Taurochenodeoxycholic acid (25mg/kg, 50mg/kg; po; 23d) administration could improve the nerve damage of EAE mice [8]. In Staphylococcus aureus-infected mice, Taurochenodeoxycholic acid (0.1 μ g/g; ip; 1h) reduced secretion levels of inflammatory mediators and lung injury in Staphylococcus aureus-infected mice via TLR2 [9].

References:

- [1]. Uchida A, Yamada T, Hayakawa T, et al. Taurochenodeoxycholic acid ameliorates and ursodeoxycholic acid exacerbates small intestinal inflammation[J]. American Journal of Physiology-Gastrointestinal and Liver Physiology, 1997, 272(5): G1249-G1257.
- [2]. Song G, Weng F, Zou B, et al. Potential therapeutic action of tauroursodeoxycholic acid against cholestatic liver injury via hepatic Fxr/Nrf2 and CHOP-DR5-caspase-8 pathway[J]. Clinical Science, 2023, 137(7): 561-577.

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- [3]. Qi Y, Shi L, Duan G, et al. Taurochenodeoxycholic acid increases cAMP content via specially interacting with bile acid receptor TGR5[J]. *Molecules*, 2021, 26(23): 7066.
- [4]. Bao L, Hao D, Wang X, et al. Transcriptome investigation of anti-inflammation and immunoregulation mechanism of taurochenodeoxycholic acid[J]. *BMC Pharmacology and Toxicology*, 2021, 22(1): 23.
- [5]. Wang X, Zhang Z, He X, et al. Taurochenodeoxycholic acid induces NR8383 cells apoptosis via PKC/JNK-dependent pathway[J]. *European Journal of Pharmacology*, 2016, 786: 109-115.
- [6]. Li L, Liu C, Liu M, et al. Taurochenodeoxycholic acid induces apoptosis of fibroblast-like synoviocytes[J]. *European journal of pharmacology*, 2013, 706(1-3): 36-40.
- [7]. Zhang D, Zhu Y, Su Y, et al. Taurochenodeoxycholic acid inhibits the proliferation and invasion of gastric cancer and induces its apoptosis[J]. *Journal of Food Biochemistry*, 2022, 46(3): e13866.
- [8]. Xu N, Bai Y, Han X, et al. Taurochenodeoxycholic acid reduces astrocytic neuroinflammation and alleviates experimental autoimmune encephalomyelitis in mice[J]. *Immunobiology*, 2023, 228(3): 152388.
- [9]. Gong Z, Mao W, Ren P, et al. Taurochenodeoxycholic acid ameliorates the *Staphylococcus aureus* infection-induced acute lung injury through toll-like receptor 2 in mice[J]. *International Immunopharmacology*, 2024, 142: 113228.

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