# Taurodeoxycholic acid

**Cat. No.:** HY-B1899

**CAS No.:** 516-50-7

**Molecular Formula:** $C_{26}H_{45}NO_6S$

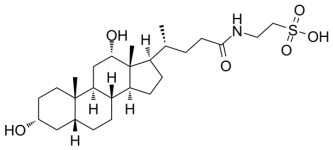
**Molecular Weight:** 499.7

**Target:** Endogenous Metabolite; Apoptosis

**Pathway:** Metabolic Enzyme/Protease; Apoptosis

**Storage:** -20°C, protect from light

* In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



## SOLVENT & SOLUBILITY

**In Vitro**

DMSO : 100 mg/mL (200.12 mM; Need ultrasonic)

| Preparing Stock Solutions | Mass / Solvent / Concentration | 1 mg | 5 mg | 10 mg |
|---|---|---|---|---|
| | 1 mM | 2.0012 mL | 10.0060 mL | 20.0120 mL |
| | 5 mM | 0.4002 mL | 2.0012 mL | 4.0024 mL |
| | 10 mM | 0.2001 mL | 1.0006 mL | 2.0012 mL |

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

**In Vivo**

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (5.00 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (5.00 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (5.00 mM); Clear solution

## BIOLOGICAL ACTIVITY

**Description**

Taurodeoxycholic acid, a bile acid, stabilizes the mitochondrial membrane, decreases free radical formation. Taurodeoxycholic acid inhibits apoptosis by blocking a calcium-mediated apoptotic pathway as well as caspase-12 activation. Taurodeoxycholic acid exhibits neuroprotective effect in 3-nitropropionic acid induced mouse model or genetic mouse model of Huntington's disease (HD)[1][2][3][4].

**$IC_{50}$ & Target**

Microbial Metabolite

**In Vitro**

Taurodeoxycholic acid (50 μM, 100 μM; 4 h) increases oligonucleosomal DNA cleavage and apoptotic nuclei in primary human hepatocytes[1].

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|---|---|
| | Taurodeoxycholic acid (400 μM; 18-24 h) increases DNA fragmentation and PARP cleavage in human liver-derived cell line Huh7 cells, thus induces apoptosis[2].<br>MCE has not independently confirmed the accuracy of these methods. They are for reference only. |
| **In Vivo** | Taurodeoxycholic acid (50 mg/kg; i.p.; once daliy for 34 d) prevents neuropathology and associated behavioral deficits in the 3-nitropropionic acid rat model of Huntington's disease (HD)[3].<br>Taurodeoxycholic acid (500 mg/kg; s.c.; once every 3 d for 7 weeks) leads to a significant reduction in striatal neuropathology of the R6/2 transgenic HD mouse[4].<br>MCE has not independently confirmed the accuracy of these methods. They are for reference only. |

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| Animal Model: | Huntington's disease model in mouse[3] |
| Dosage: | 50 mg/kg |
| Administration: | Intraperitoneal injection; once daliy for 34 d, injected 3-NP at 6 hr after Taurodeoxycholic acid treatment |
| Result: | Reduced striatal atrophy, decreased striatal apoptosis, as well as fewer and smaller size ubiquitinated neuronal intranuclear huntingtin inclusions.<br>Significantly improved locomotor and sensorimotor deficits. |

## REFERENCES


[1]. Benz C, et al. Effect of tauroursodeoxycholic acid on bile acid-induced apoptosis in primary human hepatocytes. Eur J Clin Invest. 2000 Mar;30(3):203-9.

[2]. Xie Q, et al. Effect of tauroursodeoxycholic acid on endoplasmic reticulum stress-induced caspase-12 activation. Hepatology. 2002 Sep;36(3):592-601.

[3]. Keene CD, et al. A bile acid protects against motor and cognitive deficits and reduces striatal degeneration in the 3-nitropropionic acid model of Huntington's disease. Exp Neurol. 2001 Oct;171(2):351-60.

[4]. Keene CD, et al. Tauroursodeoxycholic acid, a bile acid, is neuroprotective in a transgenic animal model of Huntington's disease. Proc Natl Acad Sci U S A. 2002 Aug 6;99(16):10671-6.





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