Protriptyline hydrochloride

Cat. No.: HY-B0949

CAS No.: 1225-55-4

Molecular Formula: $C_{19}H_{22}ClN$

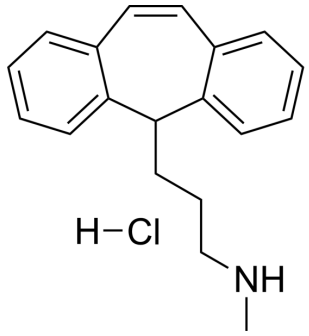
Molecular Weight: 299.84

Target: Cholinesterase (ChE)

Pathway: Neuronal Signaling

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

DMSO : 100 mg/mL (333.51 mM; Need ultrasonic)

H_2O : 100 mg/mL (333.51 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	3.3351 mL	16.6756 mL	33.3511 mL
5 mM	0.6670 mL	3.3351 mL	6.6702 mL
10 mM	0.3335 mL	1.6676 mL	3.3351 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 100 mg/mL (333.51 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (6.94 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (6.94 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (6.94 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Protriptyline hydrochloride is a tricyclic antidepressant (TCA), specifically a secondary amine, for the treatment of depression and ADHD. Unique among the TCAs, protriptyline tends to be energizing instead of sedating, used for narcolepsy to achieve a wakefulness-promoting effect.

In Vitro

Protriptyline hydrochloride (0-70 μM; 24 hours; PC3 cells) causes cytotoxicity in PC3 cells[2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Cytotoxicity Assay[2]

Cell Line:	PC3 cells
Concentration:	50, 60 and 70 μM
Incubation Time:	24 hours
Result:	Decreased cell viability in a concentration-dependent manner.

In Vivo

Protriptyline hydrochloride (10 mg/kg; i.p.; for 21 days; rat model of AD) improves spatial learning and retention memory in STZ treated rats[3].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Rat model of AD[3]
Dosage:	10 mg/kg
Administration:	Intraperitoneal injection; for 21 days.
Result:	Reduced pTau, Aβ42 and BACE-1 levels, neurodegeneration, oxidative stress and glial activation. Improved p-ERK/ERK ratio and enhanced BDNF and CREB levels by reducing NF κB and GFAP expression.

CUSTOMER VALIDATION

- Cell Commun Signal. 2023 May 25;21(1):123.
- Biochem Biophys Res Commun. 2022 Dec 31;637:181-188.
- Biochem Biophys Res Commun. 2022.

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REFERENCES

[1]. Bansode SB, et, al. Molecular investigations of protriptyline as a multi-target directed ligand in Alzheimer's disease. PLoS One. 2014 Aug 20;9(8):e105196.

[2]. Chang HT, et, al. The mechanism of protriptyline-induced Ca2+ movement and non-Ca2+-triggered cell death in PC3 human prostate cancer cells. J Recept Signal Transduct Res. 2015;35(5):429-34.

[3]. Tiwari V, et, al. Protriptyline improves spatial memory and reduces oxidative damage by regulating NFκB-BDNF/CREB signaling axis in streptozotocin-induced rat model of Alzheimer's disease. Brain Res. 2021 Mar 1;1754:147261.

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