# Tacrine

**Cat. No.:** HY-111338

**CAS No.:** 321-64-2

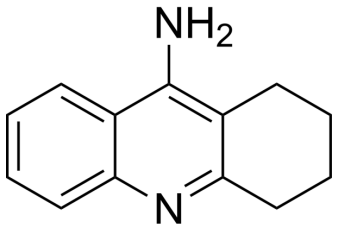
**Molecular Formula:** $C_{13}H_{14}N_2$

**Molecular Weight:** 198.26

**Target:** Cholinesterase (ChE)

**Pathway:** Neuronal Signaling

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




## SOLVENT & SOLUBILITY

**In Vitro**

DMSO : ≥ 100 mg/mL (504.39 mM)
* "≥" means soluble, but saturation unknown.

| Preparing Stock Solutions | Solvent / Mass / Concentration | 1 mg | 5 mg | 10 mg |
|---|---|---|---|---|
| | 1 mM | 5.0439 mL | 25.2194 mL | 50.4388 mL |
| | 5 mM | 1.0088 mL | 5.0439 mL | 10.0878 mL |
| | 10 mM | 0.5044 mL | 2.5219 mL | 5.0439 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 (12.61 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (12.61 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: 2.5 mg/mL (12.61 mM); Suspended solution; Need ultrasonic

## BIOLOGICAL ACTIVITY

**Description**

Tacrine is a potent acetylcholinesterse (AChE) inhibitor ($IC_{50}$=109 nM), also acting as a CYP1A2 substrate agent. Tacrine exhibits certain hepatotoxicity in some individuals. Tacrine can be used for researching Alzheimer's disease (AD)[1][2][3].

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

AChE

## REFERENCES

[1]. Patocka J, et al. Possible role of hydroxylated metabolites of tacrine in drug toxicity and therapy of Alzheimer's disease. Curr Drug Metab. 2008;9(4):332-335.

[2]. Bhatt S, et al. Assessment of the CYP1A2 Inhibition-Mediated Drug Interaction Potential for Pinocembrin Using In Silico, In Vitro, and In Vivo Approaches. ACS Omega. 2022;7(23):20321-20331. Published 2022 Jun 2.

[3]. Romero A, et al. Novel tacrine-related drugs as potential candidates for the treatment of Alzheimer's disease. Bioorg Med Chem Lett. 2013;23(7):1916-1922.



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