Physostigmine salicylate

Cat. No.: HY-B1266

CAS No.: 57-64-7

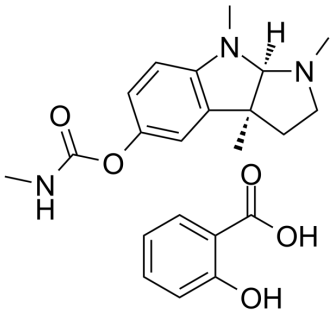
Molecular Formula: $C_{22}H_{27}N_3O_5$

Molecular Weight: 413.47

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 : 125 mg/mL (302.32 mM; Need ultrasonic)
H_2O : 33.33 mg/mL (80.61 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.4186 mL	12.0928 mL	24.1856 mL
5 mM	0.4837 mL	2.4186 mL	4.8371 mL
10 mM	0.2419 mL	1.2093 mL	2.4186 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 5 mg/mL (12.09 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: ≥ 2.08 mg/mL (5.03 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (5.03 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (5.03 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Physostigmine salicylate (Eserine salicylate) is a reversible acetylcholinesterase (AChE) inhibitor. Physostigmine salicylate crosses the blood-brain barrier and stimulates central cholinergic neurotransmission. Physostigmine salicylate can reverse memory deficits in transgenic mice with Alzheimer's disease. Physostigmine salicylate is also an antidote for anticholinergic poisoning[1][2][3][4].

In Vivo

Physostigmine salicylate (Eserine salicylate; 0.03-0.3 mg/kg; s.c.; daily for 6 weeks) improves deficits in contextual and cued memory in Tg(+) mice[2].

Physostigmine salicylate (IV; 0.1, 0.2 mg/kg) delays time to emergence from isoflurane anesthesia at doses ≥0.2 mg/kg in male Sprague-Dawley rats[4].

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

Animal Model:	Heterozygous transgenic mice (Tg(+) mice)[2]
Dosage:	0.03, 0.1, and 0.3 mg/kg
Administration:	SC; daily for 6 weeks
Result:	Tended to normalize the contextual memory deficit in Tg(+) animals so that they became more similar to Tg(-) animals.

CUSTOMER VALIDATION

- bioRxiv. 2024 Mar 29.

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REFERENCES

[1]. Jonathan D Kenny, et al. Physostigmine and Methylphenidate Induce Distinct Arousal States During Isoflurane General Anesthesia in Rats. Anesth Analg. 2016 Nov;123(5):1210-1219.

[2]. Haase U, et al. Pharmakotherapie--physostigmin post OP [Pharmacotherapy--physostigmine administered post-operatively]. Anasthesiol Intensivmed Notfallmed Schmerzther. 2007;42(3):188-189.

[3]. Dong H, et al, Bertchume A, Vallera D, Csernansky JG. Acetylcholinesterase inhibitors ameliorate behavioral deficits in the Tg2576 mouse model of Alzheimer's disease. Psychopharmacology (Berl). 2005;181(1):145-152.

[4]. Frascogna N. Physostigmine: is there a role for this antidote in pediatric poisonings?. Curr Opin Pediatr. 2007;19(2):201-205.

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