Jatrorrhizine chloride

Cat. No.: HY-N0740

CAS No.: 6681-15-8

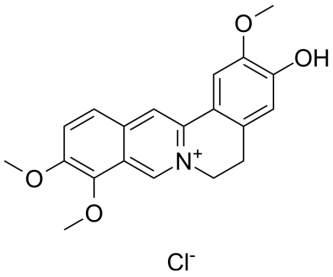
Molecular Formula: $C_{20}H_{20}ClNO_4$

Molecular Weight: 373.83

Target: Cholinesterase (ChE); 5-HT Receptor; Bacterial

Pathway: Neuronal Signaling; GPCR/G Protein; Anti-infection

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 : 5 mg/mL (13.38 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	2.6750 mL	13.3751 mL	26.7501 mL
	5 mM	0.5350 mL	2.6750 mL	5.3500 mL
	10 mM	0.2675 mL	1.3375 mL	2.6750 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: ≥ 2.08 mg/mL (5.56 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (5.56 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Jatrorrhizine chloride is an alkaloid isolated from Coptis chinensis with neuroprotective, antimicrobial, antiplasmodial and antioxidant activities[1]. Jatrorrhizine chloride is a potent and orally active inhibitor of AChE (IC_{50}=872 nM) over >115-fold selectivity for BuChE[2]. Jatrorrhizine chloride reduces uptake of serotonin (5-HT) and norepinephrine (NE) via inhibition of uptake-2 transporters[3].

IC_{50} & Target

AChE

In Vitro

Jatrorrhizine has antiplasmodial and antiamoebic activity, it against Plasmodium falciparum and E. histolytica with IC_{50} values of 3.15 and 82.7 μM, respectively[1].
The hOCT2 (organic cation transporter 2), hOCT3, and PMAT (plasma membrane monoamine transporter) are capable of transporting monoamine neurotransmitters in the brain[3].

Jatrorrhizine has the inhibitory potency of jatrorrhizine on 5-HT and NE uptake in hOCT2-, hOCT3-, and PMAT-transfected cells. Jatrorrhizine strongly inhibits PMAT-mediated MPP^+ uptake with an IC_{50} value of 1.05 μM and reduces 5-HT and NE uptake mediated by hOCT2, hOCT3, and hPMAT with IC_{50} values of 0.1-1 μM (for OCT2 and OCT3) and 1-10 μM (for PMAT)[3]. Clearance of neurotransmitters released into the synaptic cleft is defined by two distinct processes. Uptake-1, the common target of current applied antidepressants, is comprised of the serotonin transporter (SERT), the "SERT", had a high affinity but low capacity to take up [3H]5-HT. Uptake-2 transporters are an important supplementary regulation system in monoamine clearancethought to be the "NET", has low affinity but high capacity to take up [^{3}H]5-HT into brain slices. Jatrorrhizine significantly inhibited 5-HT and NE uptake in synaptosomes at 25 μM and 50 μM[3].

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

In Vivo

Jatrorrhizine chloride (intraperitoneal injection; 5, 10, 20 mg/kg) can significantly reduce the duration of immobility when compared with vehicle control group in tail suspension test (TST)[2].

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

Animal Model:	Male ICR albino mice[2]
Dosage:	5, 10, 20 mg/kg
Administration:	Intraperitoneal injection; 5, 10, 20 mg/kg
Result:	Reduced immobility period in tail suspension test.

REFERENCES

[1]. Sun S, et al. Jatrorrhizine reduces 5-HT and NE uptake via inhibition of uptake-2 transporters and produces antidepressant-like action in mice. Xenobiotica. 2019 Oct;49(10):1237-1243.

[2]. Xiaofei Jiang, et al. Synthesis and Biological Evaluation of Novel Jatrorrhizine Derivatives with Amino Groups Linked at the 3-Position as Inhibitors of Acetylcholinesterase. Research Article Volume 2017

[3]. C W Wright, et al. In vitro antiplasmodial, antiamoebic, and cytotoxic activities of some monomeric isoquinoline alkaloids. J Nat Prod. 2000 Dec;63(12):1638-40.

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

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA