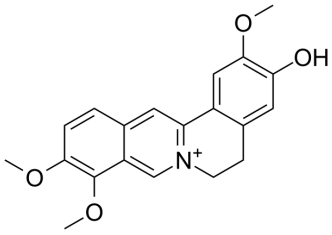
Jatrorrhizine

Cat. No.:	HY-N0749
CAS No.:	3621-38-3
Molecular Formula:	$C_{20}H_{20}NO_4$+
Molecular Weight:	338.38
Target:	AChE; 5-HT Receptor; Bacterial
Pathway:	Neuronal Signaling; GPCR/G Protein; Anti-infection
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



SOLVENT & SOLUBILITY

In Vitro

H_2O : 5 mg/mL (14.78 mM; Need ultrasonic)
DMSO : 3.33 mg/mL (9.84 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.9553 mL	14.7763 mL	29.5526 mL
5 mM	0.5911 mL	2.9553 mL	5.9105 mL
10 mM	0.2955 mL	1.4776 mL	2.9553 mL

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

BIOLOGICAL ACTIVITY

Description

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

IC_{50} & Target

IC50: 872 nM (AChE)[1]

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 (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.

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