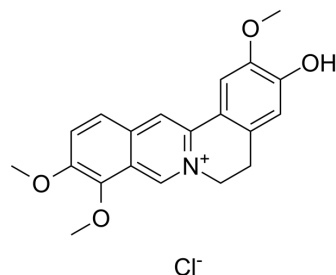


## Jatrorrhizine chloride

<b>Cat. No.:</b>	HY-N0740
<b>CAS No.:</b>	6681-15-8
<b>Molecular Formula:</b>	C <sub>20</sub> H <sub>20</sub> ClNO <sub>4</sub>
<b>Molecular Weight:</b>	373.83
<b>Target:</b>	Cholinesterase (ChE); 5-HT Receptor; Bacterial
<b>Pathway:</b>	Neuronal Signaling; GPCR/G Protein; Anti-infection
<b>Storage:</b>	4°C, sealed storage, away from moisture * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



### SOLVENT & SOLUBILITY

<b>In Vitro</b>	DMSO : 5 mg/mL (13.38 mM; Need ultrasonic)					
	<b>Preparing Stock Solutions</b>	<b>Solvent</b>	<b>Mass</b>	<b>1 mg</b>	<b>5 mg</b>	<b>10 mg</b>
		<b>Concentration</b>				
		<b>1 mM</b>		2.6750 mL	13.3751 mL	26.7501 mL
		<b>5 mM</b>		0.5350 mL	2.6750 mL	5.3500 mL
<b>10 mM</b>		0.2675 mL	1.3375 mL	2.6750 mL		
Please refer to the solubility information to select the appropriate solvent.						
<b>In Vivo</b>	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

<b>Description</b>	Jatrorrhizine chloride is an alkaloid isolated from <i>Coptis chinensis</i> with neuroprotective, antimicrobial, antiplasmodial and antioxidant activities <sup>[1]</sup> . Jatrorrhizine chloride is a potent and orally active inhibitor of AChE (IC <sub>50</sub> =872 nM) over >115-fold selectivity for BuChE <sup>[2]</sup> . Jatrorrhizine chloride reduces uptake of serotonin (5-HT) and norepinephrine (NE) via inhibition of uptake-2 transporters <sup>[3]</sup> .
<b>IC<sub>50</sub> &amp; Target</b>	AChE
<b>In Vitro</b>	Jatrorrhizine has antiplasmodial and antiamebic activity, it against <i>Plasmodium falciparum</i> and <i>E. histolytica</i> with IC <sub>50</sub> values of 3.15 and 82.7 μM, respectively <sup>[1]</sup> . The hOCT2 (organic cation transporter 2), hOCT3, and PMAT (plasma membrane monoamine transporter) are capable of transporting monoamine neurotransmitters in the brain <sup>[3]</sup> .

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<sup>+</sup> uptake with an IC<sub>50</sub> value of 1.05 μM and reduces 5-HT and NE uptake mediated by hOCT2, hOCT3, and hPMAT with IC<sub>50</sub> values of 0.1-1 μM (for OCT2 and OCT3) and 1-10 μM (for PMAT)<sup>[3]</sup>. 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 clearance thought to be the “NET”, has low affinity but high capacity to take up [3H]5-HT into brain slices. Jatrorrhizine significantly inhibited 5-HT and NE uptake in synaptosomes at 25 μM and 50 μM<sup>[3]</sup>. 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)<sup>[2]</sup>.

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

Animal Model:	Male ICR albino mice <sup>[2]</sup>
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, antiamebic, 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.**

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