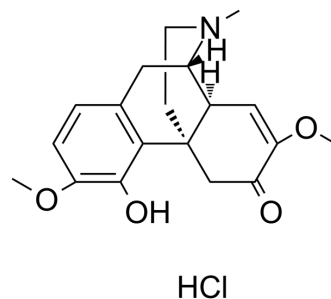


## Sinomenine hydrochloride

<b>Cat. No.:</b>	HY-15122A
<b>CAS No.:</b>	6080-33-7
<b>Molecular Formula:</b>	C <sub>19</sub> H <sub>24</sub> ClNO <sub>4</sub>
<b>Molecular Weight:</b>	365.85
<b>Target:</b>	NF-κB; Opioid Receptor; Autophagy; Apoptosis
<b>Pathway:</b>	NF-κB; GPCR/G Protein; Neuronal Signaling; Autophagy; Apoptosis
<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 : 100 mg/mL (273.34 mM; Need ultrasonic and warming)					
	H <sub>2</sub> O : 16.67 mg/mL (45.57 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>		2.7334 mL	13.6668 mL	27.3336 mL
<b>5 mM</b>			0.5467 mL	2.7334 mL	5.4667 mL	
<b>10 mM</b>		0.2733 mL	1.3667 mL	2.7334 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 (5.69 mM); Clear solution					
	2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: ≥ 2.08 mg/mL (5.69 mM); Clear solution					
	3. Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: ≥ 2.08 mg/mL (5.69 mM); Clear solution					

### BIOLOGICAL ACTIVITY

<b>Description</b>	Sinomenine hydrochloride (Cucoline hydrochloride), an alkaloid extracted from Sinomenium acutum, is a blocker of the NF-κB activation <sup>[1]</sup> . Sinomenine also is an activator of μ-opioid receptor <sup>[2]</sup> .	
<b>IC<sub>50</sub> &amp; Target</b>	NF-κB	μ-opioid receptor
<b>In Vitro</b>	Cell viability is gradually decreased with increasing Sinomenine hydrochloride concentration. The migration ability of MDA-MB-231 cells is significantly weakened by 0.25, 0.5, and 1 mM of Sinomenine hydrochloride treatment. The wound-healing assay reveals that 0.25 and 0.5 mM Sinomenine hydrochloride significantly suppress the healing of the wound. When the	

MDA-MB-231 cells are treated with 0.5 mM Sinomenine hydrochloride, the healing progress is about 50%, but in the group treated with 0.25 mM Sinomenine hydrochloride and the untreated control, the healing is about 80% and nearly 95%, respectively. The IB assay following inhibitor of NF- $\kappa$ B (I $\kappa$ B) antibody IP shows that the binding of NF- $\kappa$ B to I $\kappa$ B is inhibited by Sinomenine hydrochloride treatment in a dose-dependent manner<sup>[1]</sup>.

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

#### In Vivo

Sinomenine hydrochloride (i.p.) produces antinociception in the hot plate and tail flick tests in male rats at 40 mg/kg, but not at lower doses (10 or 20 mg/kg). At 10 to 40 mg/kg Sinomenine hydrochloride does not produce any observable side effect such as sedation, allergy or motor impairments. Sinomenine hydrochloride at 80 mg/kg i.p. does not produce any observable side effects in mice. I.p. or p.o. Sinomenine hydrochloride at 40 or 80 mg/kg dose-dependently reduces mechanical hypersensitivity in nerve injured mice. I.p. Sinomenine hydrochloride at 40 mg/kg, but not lower doses or vehicle, significantly decreases mechanical and cold allodynia for up to 240 min without producing motor deficits or sedation<sup>[3]</sup>. At doses of 10 to 40 mg/kg, Sinomenine hydrochloride dose-dependently increases the paw withdrawal threshold. In non-chronic constriction injury (CCI) healthy rats, Sinomenine hydrochloride at the dose range of 10 to 40 mg/kg does not change the immobility behavior in the forced swimming test<sup>[4]</sup>.

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## PROTOCOL

#### Cell Assay <sup>[1]</sup>

The MDA-MB-231 human triple negative and 4T1 mouse breast cancer cell lines are used in this study. For the experiments, the cells are grown in 24-well plates at  $3.5 \times 10^4$  cells/well. Following incubation for 24 or 48 h in medium containing different concentrations of Sinomenine hydrochloride, proliferation of the cells are detected with Cell Counting Kit-8 solution according to the manufacturer's instructions<sup>[1]</sup>.

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#### Animal Administration <sup>[4]</sup>

Male Sprague-Dawley rats weighing of 250 to 300 g are used in this experiment. For the duration of action of acute Sinomenine hydrochloride study, different doses of Sinomenine hydrochloride (10 to 40 mg/kg) are administered 1 day after surgery and then paw withdrawal threshold is measured every 30 min for 4 hours. For the study involving daily Sinomenine hydrochloride treatment, mechanical hyperalgesia measure is performed 3 h after daily drug treatment. For antagonist studies, antagonists are given 10 min prior to 40 mg/kg Sinomenine hydrochloride administration<sup>[4]</sup>.

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

## CUSTOMER VALIDATION

- Acta Pharm Sin B. 2021 Nov;11(11):3465-3480.
- Free Radic Biol Med. 2018 Jun 2;124:205-213.
- Exp Ther Med. 2021 Apr 18.

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## REFERENCES

[1]. Song L, et al. Sinomenine inhibits breast cancer cell invasion and migration by suppressing NF- $\kappa$ B activation mediated by IL-4/miR-324-5p/CUEDC2 axis. *Biochem Biophys Res Commun*. 2015 Aug 28;464(3):705-10.

[2]. Gao T, et al. Analgesic effect of sinomenine in rodents after inflammation and nerve injury. *Eur J Pharmacol*. 2013 Dec 5;721(1-3):5-11.

[3]. Zhu Q, et al. Antinociceptive effects of sinomenine in a rat model of neuropathic pain. *Sci Rep*. 2014 Dec 1;4:7270.

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

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