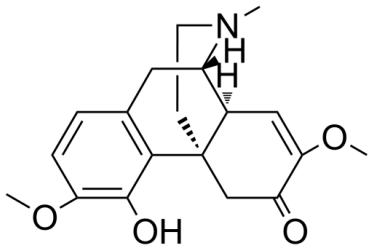
Data Sheet

Product Name:	Sinomenine
Cat. No.:	CS-0003778
CAS No.:	115-53-7
Molecular Formula:	$C_{19}H_{23}NO_4$
Molecular Weight:	329.39
Target:	Apoptosis; Autophagy; NF-κB; Opioid Receptor
Pathway:	Apoptosis; Autophagy; GPCR/G Protein; Neuronal Signaling; NF-κB
Solubility:	DMSO : 50 mg/mL (ultrasonic);1M HCl : 25 mg/mL (ultrasonic;adjust pH to 1 with HCl)



BIOLOGICAL ACTIVITY:

Sinomenine, an alkaloid extracted from ***Sinomenium acutum***, is a blocker of the **NF-κB** activation[1]. Sinomenine also is an activator of **μ-opioid receptor**[2]. IC50 & Target: NF-κB[1], μ-opioid receptor[2] ***In Vitro:*** Cell viability gradually decreased with increasing Sinomenine concentration. The migration ability of MDA-MB-231 cells is significantly weakened by 0.25, 0.5, and 1 mM of Sinomenine treatment. The wound-healing assay reveals that 0.25 and 0.5 mM Sinomenine significantly suppress the healing of the wound. When the MDA-MB-231 cells are treated with 0.5 mM Sinomenine, the healing progress is about 50%, but in the group treated with 0.25 mM Sinomenine and the untreated control, the healing is about 80% and nearly 95%, respectively. The IB assay following inhibitor of NF-κB (IκB) antibody IP shows that the binding of NF-κB to IκB is inhibited by Sinomenine treatment in a dose-dependent manne[1]. ***In Vivo:*** Sinomenine (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 does not produce any observable side effect such as sedation, allergy or motor impairments. Antinociception is also seen mice at 60 min following 80 mg/kg i.p. Sinomenine, but not at lower doses (20 or 40 mg/kg), in the tail flick test. Sinomenine at 80 mg/kg i.p. does not produce any observable side effects in mice. I.p or p.o. Sinomenine at 40 or 80 mg/kg dose-dependently reduces mechanical hypersensitivity in nerve injured mice. I.p. Sinomenine 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[3]. At doses of 10 to 40 mg/kg, Sinomenine dose-dependently increases the paw withdrawal threshold. In non-chronic constriction injury (CCI) healthy rats, Sinomenine at the dose range of 10 to 40 mg/kg does not change the immobility behavior in the forced swimming test[4].

PROTOCOL (Extracted from published papers and Only for reference)

Cell Assay: Sinomenine is dissolved in DMSO and diluted to different concentrations in the medium.[1]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 3.5×10^4/well. Following incubation for 24 or 48 h in medium containing different concentrations of Sinomenine, proliferation of the cells are detected with Cell Counting Kit-8 solution according to the manufacturer's instructions[1]. **Animal Administration:** [4] Male Sprague-Dawley rats weighing of 250 to 300 g are used in this experiment. For the duration of action of acute Sinomenine study, different doses of Sinomenine (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 treatment, mechanical hyperalgesia measure is performed 3 h after daily drug treatment. For antagonist studies, antagonists were given 10 min prior to 40 mg/kg Sinomenine administration[3].

References:

[1]. Song L, et al. Sinomenine inhibits breast cancer cell invasion and migration by suppressing NF-κB 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.

[4]. Wang MH, et al. Activation of opioid mu-receptor by sinomenine in cell and mice.Neurosci Lett. 2008 Oct 10;443(3):209-12.

CAIndexNames:

Morphinan-6-one, 7,8-didehydro-4-hydroxy-3,7-dimethoxy-17-methyl-, (9α,13α,14α)-

SMILES:

OC(C1=C2C[C@@]3([H])[C@](C=C4OC)([H])[C@@]1(CCN3C)CC4=O)=C(C=C2)OC

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