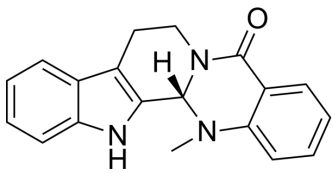
Evodiamine

Cat. No.:	HY-N0114
CAS No.:	518-17-2
Molecular Formula:	$C_{19}H_{17}N_3O$
Molecular Weight:	303.36
Target:	Others
Pathway:	Others
Storage:	Powder -20°C 3 years 4°C 2 years In solvent -80°C 1 year -20°C 6 months



SOLVENT & SOLUBILITY

In Vitro

DMSO : 10 mg/mL (32.96 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	3.2964 mL	16.4821 mL	32.9641 mL
5 mM	0.6593 mL	3.2964 mL	6.5928 mL
10 mM	0.3296 mL	1.6482 mL	3.2964 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 1 mg/mL (3.30 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Evodiamine is an alkaloid isolated from the fruit of Evodia rutaecarpa Bentham with diverse biological activities including anti-inflammatory, anti-obesity, and antitumor.

In Vitro

Evodiamine shows cytotoxicity against a variety of human cancer cell-lines by inducing apoptosis. Moreover, it is a naturally multi-targeting antitumor molecule, which exerts the antitumor activity by various molecular mechanism such as caspase-dependent and -independent pathways, sphingomyelin pathway, calcium/JNK signaling, PI3K/Akt/caspase and Fas-L/NF-κB signaling pathways[1].

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

In Vivo

Evodiamine inhibits the metabolism of dapoxetine. Compared to the control group, the pharmacokinetic parameter of t1/2, AUC($0^{-\infty}$) and Tmax of dapoxetine in evodiamine group is significantly increased by 63.3%, 44.8% and 50.4%, respectively. Moreover, evodiamine has significantly decreased the pharmacokinetic parameter of t1/2 and AUC($0^{-\infty}$) of desmethyl

dapoxetine[2]. Evodiamine suppresses tumor growth in a subcutaneous H22 xenograft model. Evodiamine attenuates VEGF-induced angiogenesis in vivo[3].

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PROTOCOL

Cell Assay [1]

Evodiamine is dissolved in DMSO and diluted with appropriate medium before use. The evodiamine-inspired new scaffolds are assayed for growth inhibitory activities toward human cancer cell-lines A549 (lung cancer), MDA-MB-435 (breast cancer) and HCT116 (colon cancer) using the MTT assay. Evodiamine and camptithecin are used as reference drugs[1].

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Animal Administration [2][3]

Rats: Twelve healthy male Sprague-Dawley rats are randomly divided into 2 groups: the control group (received oral 10 mg/kg dapoxetine alone) and the combination group (10 mg/kg dapoxetine orally co-administered with 100 mg/kg evodiamine). The plasma concentration of dapoxetine and desmethyl dapoxetine are estimated by ultra-performance liquid chromatography-tandem mass spectrometry (UPLC-MS/MS), and different pharmacokinetic parameters are calculated[2].

Mice: A nude mouse xenograft model is established by using 4–6-week-old male BALB/c nude mice. Mice are dosed daily with 20 mg/kg (10 mL/kg) of evodiamine intragastrically, six mice are dosed intraperitoneally with 10 mg/kg of 5-flurouracil (5-FU) twice a week, and six mice are not treated. The tumor volumes are determined by measuring two dimensions, with tumor volume=length×width×width/2. After 2 or 3 weeks of treatment, mice are sacrificed by cervical dislocation under anesthesia with ether, and the tumor tissues are collected[3].

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CUSTOMER VALIDATION

- Pharmacol Res. 2020 May;155:104751.
- Phytomedicine. 10 October 2022, 154493.
- Phytother Res. 2021 Mar 3.
- ACS Appl Nano Mater. 2024 Mar 8.
- J Ethnopharmacol. 2022 Aug 2;115586.

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REFERENCES

[1]. Wang S, et al. Scaffold Diversity Inspired by the Natural Product Evodiamine: Discovery of Highly Potent and Multitargeting Antitumor Agents. J Med Chem. 2015 Aug 27;58(16):6678-96.

[2]. Li RF,et al. Effects of Evodiamine on the Pharmacokinetics of Dapoxetine and Its Metabolite Desmethyl Dapoxetine inRats. Pharmacology. 2016;97(1-2):43-7.

[3]. Shi L, et al. Evodiamine exerts anti-tumor effects against hepatocellular carcinoma through inhibiting β-catenin-mediated angiogenesis. Tumour Biol. 2016 Sep;37(9):12791-12803.

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

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