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.

**In Vivo**
Evodiamine inhibits the metabolism of dapoxetine. Compared to the control group, the pharmacokinetic parameter of t1/2, AUC(0-∞) 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-∞) of desmethyl dapoxetine. Evodiamine suppresses tumor growth in a subcutaneous H22 xenograft model. Evodiamine attenuates VEGF-induced angiogenesis in vivo.

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### SOLVENT & SOLUBILITY

<table>
<thead>
<tr>
<th>Solvent</th>
<th>1 mg</th>
<th>5 mg</th>
<th>10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 mM</td>
<td>3.2964 mL</td>
<td>16.4821 mL</td>
<td>32.9641 mL</td>
</tr>
<tr>
<td>5 mM</td>
<td>0.6593 mL</td>
<td>3.2964 mL</td>
<td>6.5928 mL</td>
</tr>
<tr>
<td>10 mM</td>
<td>0.3296 mL</td>
<td>1.6482 mL</td>
<td>3.2964 mL</td>
</tr>
</tbody>
</table>

DMSO: ≥ 37 mg/mL (121.97 mM)

*“≥” means soluble, but saturation unknown.*

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**Description**
Evodiamine is an alkaloid isolated from the fruit of Evodia rutaecarpa Bentham with diverse biological activities including anti-inflammatory, anti-obesity, and antitumor.
## 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 camptothecin are used as reference drugs[1].

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

### 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-flourouracil (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].

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

## REFERENCES

