Rutaecarpine

**Cat. No.:** HY-N0147

**CAS No.:** 84-26-4

**Molecular Formula:** C₁₈H₁₃N₃O

**Molecular Weight:** 287.32

**Target:** COX

**Pathway:** Immunology/Inflammation

**Storage:**
- Powder: -20°C, 3 years; 4°C, 2 years
- In solvent: -80°C, 6 months; -20°C, 1 month

### SOLVENT & SOLUBILITY

**In Vitro**
- **DMSO**: 50 mg/mL (174.02 mM; Need ultrasonic)
- **H₂O**: < 0.1 mg/mL (insoluble)

**Preparing Stock Solutions**

<table>
<thead>
<tr>
<th>Concentration</th>
<th>Mass (1 mg)</th>
<th>Mass (5 mg)</th>
<th>Mass (10 mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 mM</td>
<td>3.4804 mL</td>
<td>17.4022 mL</td>
<td>34.8044 mL</td>
</tr>
<tr>
<td>5 mM</td>
<td>0.6961 mL</td>
<td>3.4804 mL</td>
<td>6.9609 mL</td>
</tr>
<tr>
<td>10 mM</td>
<td>0.3480 mL</td>
<td>1.7402 mL</td>
<td>3.4804 mL</td>
</tr>
</tbody>
</table>

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

### BIOLOGICAL ACTIVITY

**Description**
Rutaecarpine, an alkaloid of *Evodia rutaecarpa*, is an inhibitor of **COX-2** with an **IC₅₀** value of 0.28 μM.

**IC₅₀ & Target**
- **COX-2**: 0.28 μM (IC₅₀, in BMMC)
- **COX-1**: 8.7 μM (IC₅₀, in BMMC)

**In Vitro**
Rutaecarpine has shown a variety of intriguing biological properties such as anti-thrombotic, anticancer, anti-inflammatory and analgesic, anti-obesity and thermoregulatory, vasorelaxing activity, as well as effects on the cardiovascular and endocrine systems[2]. Rutaecarpine inhibits COX-2 and COX-1 dependent phases of PGD₂ generation in BMMC in a concentration-dependent manner with an IC₅₀ of 0.28 μM and 8.7 μM, respectively. It inhibits COX-2-dependent conversion of exogenous arachidonic acid to PGE₂ in a dose-dependent manner by the COX-2-transfected HEK293 cells[1].

**In Vivo**
Rutaecarpine showed in vivo anti-inflammatory activity on rat l-carrageenan induced paw edema by intraperitoneal...
Rutaecarpine significantly decreases the number of antibody-forming cells and causes weight decrease in spleen in a dose-dependent manner. In addition, rutaecarpine administered mice exhibit reduced splenic cellularity, decreased numbers of total T cells, CD4+ cells, CD8+ cells, and B cells in spleen. IL-2, interferon and IL-10 mRNA expressions are suppressed significantly by rutaecarpine treatment. The number of CD4+IL-2+ cells is reduced significantly following administration of mice with rutaecarpine.

**PROTOCOL**

**Cell Assay**

Rutaecarpine is dissolved in DMSO and diluted with appropriate medium before use. COX-1 and COX-2 cDNA-transfected HEK293 cells are prepared. For measuring inhibitory activity on COX-1 and COX-2 by rutaecarpine, cells in 1 mL of culture medium are seeded into each well of 24-well. After culture for 4 days, the supernatants are removed and 250 mL of fresh medium is added to the cells with or without rutaecarpine. After preincubation for 5 h at 37°C, the cells are further incubated at 37°C for 30 min with 50 mM arachidonic acid. All reactions are stopped by centrifugation at 120 g at 4°C for 5 min. Concentrations of PGE2 in the supernatant are measured.

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

**Animal Administration**

**Rats:** Rutaecarpine is dissolved in 0.1% carboxymethyl cellulose and diluted with appropriate medium before use. Male Splugue-Dawley (SD) rats (180-220 g) are used in the study. Rutaecarpine administered intraperitoneally, and 1 h later, I-carrageenan solution is injected to right hind paw of rats. Paw volumes are measured using plethysmometer 5 h after I-carrageenan injection.

**Mice:** For the antibody response to SRBCs, rutaecarpine is administered at a single dose of 10 mg/kg, 20 mg/kg, 40 mg/kg or 80 mg/kg in 10 mL of 1% povidone solution intravenously. Control animals are given 1% povidone solution at 10 mL/kg. Specific pathogen-free female BALB/c mice are used in the study.

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**REFERENCES**


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