Rutaecarpine

Cat. No.: HY-N0147

CAS No.: 84-26-4

Molecular Formula: $C_{18}H_{13}N_3O$

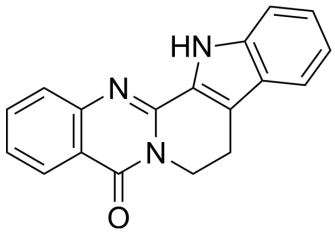
Molecular Weight: 287.32

Target: COX

Pathway: Immunology/Inflammation

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	2 years
	-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : 50 mg/mL (174.02 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	3.4804 mL	17.4022 mL	34.8044 mL
5 mM	0.6961 mL	3.4804 mL	6.9609 mL
10 mM	0.3480 mL	1.7402 mL	3.4804 mL

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 IC_{50} value of 0.28 μM.

IC_{50} & Target

COX-2	COX-1
0.28 μM (IC_{50}, in BMMC)	8.7 μM (IC_{50}, 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 IC_{50} of 0.28 μM and 8.7 μM, respectively. It inhibits COX-2-dependent conversion of exogenous arachidonic acid to PGE_2 in a dose-dependent manner by the COX-2-transfected HEK293 cells[1].

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

In Vivo

Rutaecarpine showed in vivo anti-inflammatory activity on rat l-carrageenan induced paw edema by intraperitoneal administration[1]. 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[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [1]	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[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [1][3]	Rats: Rutaecarpine is dissolved in 0.1% carboxymethyl cellulose and diluted with appropriate medium before use. Male Splague-Dawley (SD) rats (180-220 g) are used in the study. Rutaecarpine administered intraperitoneally and, 1 h later, l-carrageenan solution is injected to right hind paw of rats. Paw volumes are measured using plethysmometer 5 h after l-carrageenan injection[1]. 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[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Phytother Res. 2021 Oct 18.
- Int Immunopharmacol. 2023 Jan 25;116:109747.
- J Ethnopharmacol. 2022 Aug 2;115586.
- Arch Pharm (Weinheim). 2022 Feb 7;e202100467.
- BMC Complement Med Ther. 2023 Dec 1;23(1):433.

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REFERENCES

[1]. Moon TC, et al. A new class of COX-2 inhibitor, rutaecarpine from Evodia rutaecarpa. Inflamm Res. 1999 Dec;48(12):621-5.

[2]. Lee SH, et al. Progress in the studies on rutaecarpine. Molecules. 2008 Feb 6;13(2):272-300.

[3]. Jeon TW, et al. Immunosuppressive effects of rutaecarpine in female BALB/c mice.Toxicol Lett. 2006 Jul 1;164(2):155-66.

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

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