Rosmarinic acid

Cat. No.: HY-N0529

CAS No.: 20283-92-5

Molecular Formula: $C_{18}H_{16}O_8$

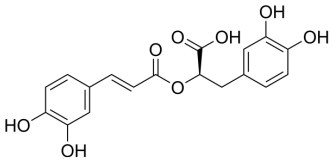
Molecular Weight: 360.31

Target: Monoamine Oxidase; Apoptosis; COMT; Endogenous Metabolite

Pathway: Neuronal Signaling; Apoptosis; Metabolic Enzyme/Protease

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 : 62.5 mg/mL (173.46 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	2.7754 mL	13.8769 mL	27.7539 mL
	5 mM	0.5551 mL	2.7754 mL	5.5508 mL
	10 mM	0.2775 mL	1.3877 mL	2.7754 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (5.77 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (5.77 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (5.77 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Rosmarinic acid is a widespread phenolic ester compound in the plants. Rosmarinic acid inhibits MAO-A, MAO-B and COMT enzymes with IC_{50}s of 50.1, 184.6 and 26.7 μM, respectively.

IC_{50} & Target

IC50: 50.1 μM (MAO-A), 184.6 μM (MAO-B), 26.7 μM (COMT)[1]

In Vitro

Rosmarinic acid (RA) shows an in vitro multifunctional profile characterized by antioxidant effects, and monoamine oxidases (MAO-A and MAO-B) and catechol-O-methyl transferase (COMT) inhibition. Rosmarinic acid shows antioxidant effects against

	hydroxyl (HO(•)) and nitric oxide (NO) radicals (IC_{50} of 29.4 and 140 μM, respectively), and inhibition of lipid peroxidation (IC_{50} of 19.6 μM)[1]. Rosmarinic acid (RA) exerts a significant cytoprotective effect by scavenging intracellular ROS induced by UVB. In H_2O_2-treated cells, 2.5 μM Rosmarinic acid scavenges 60% of intracellular ROS compared to 77% of intracellular ROS scavenging effect in N-acetyl-L-cysteine (NAC)[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Rosmarinic acid (RA) is a widespread phenolic ester compound in the plants, particularly those in the Labiatae family of herbs, such as Rosmarinus officinali, Salvia miltiorrhiza, and Prunella vulgaris. Rosmarinic acid suppresses colonic inflammation in dextran sulphate sodium (DSS)-induced mice via dual inhibition of NF-κB and STAT3 activation. In the DSS-induced colitis model, Treatment with Rosmarinic acid (30, 60 mg/kg, p.o.) markedly attenuates the production of cytokines [3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [2]	Human keratinocytes (HaCaT cells) are treated with Rosmarinic acid (0.625, 1.25, 2.5, or 5 μM) and exposed to UVB radiation 1 h later. They are then incubated at 37°C for 48 h. At this time, MTT is added to each well to obtain a total reaction volume of 200 μL. After 4 h incubation, the supernatant is removed by aspiration. The formazan crystals in each well are dissolved in dimethyl sulfoxide (DMSO; 150 μL), and the absorbance at 540 nm is measured on a scanning multi-well spectrophotometer [2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [3]	Mice[3] Experimental colitis is induced by giving mice drinking water ad libitum containing 5% (w/v) DSS for 7 days. Mice of each of the groups are monitored carefully every day to confirm that they have consumed an approximately equal volume of water containing DSS. For each experiment, the mice are divided into five experimental groups (n = 10/group). The first group is kept as the vehicle-treated control, and the second group is given drinking water with DSS only during the experimental period. The other three groups consist of mice receiving 5% DSS who are administrated 5-ASA (75 mg/kg/day p.o.) or Rosmarinic acid (30 or 60 mg/kg/day p.o.) daily for 7 days. Control groups are given the vehicle daily for 7 days as appropriate. Administration of each drug is initiated simultaneously with the DSS treatment. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- PLoS Biol. 2024 June 27.
- Food Chem. 2024 Jul 1:459:140298.
- Life Sci. 2023 Jul 7;121912.
- J Ethnopharmacol. 2024 Apr 15:330:118196.
- Chin Med. 2023 Oct 27;18(1):139.

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REFERENCES

[1]. Andrade JM, et al. Combining in vitro and in silico approaches to evaluate the multifunctional profile of rosmarinic acid from Blechnum brasiliense on targets related to neurodegeneration. Chem Biol Interact. 2016 Jul 25;254:135-45.

[2]. Fernando PM, et al. Rosmarinic Acid Attenuates Cell Damage against UVB Radiation-Induced Oxidative Stress via Enhancing Antioxidant Effects in Human HaCaT Cells.

Biomol Ther (Seoul). 2016 Jan;24(1):75-84.

[3]. Jin BR, et al. Rosmarinic acid suppresses colonic inflammation in dextran sulphate sodium (DSS)-induced mice via dual inhibition of NF-κB and STAT3 activation. Sci Rep. 2017 Apr 6;7:46252.

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