Myricetin

Cat. No.: HY-15097

CAS No.: 529-44-2

Molecular Formula: $C_{15}H_{10}O_8$

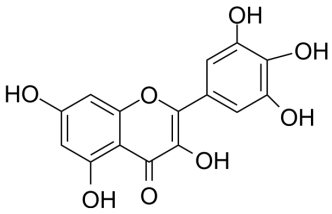
Molecular Weight: 318.24

Target: Apoptosis; Autophagy; Endogenous Metabolite

Pathway: Apoptosis; Autophagy; 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 : ≥ 31 mg/mL (97.41 mM)

Ethanol : 28.57 mg/mL (89.78 mM; Need ultrasonic)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	3.1423 mL	15.7114 mL	31.4228 mL
5 mM	0.6285 mL	3.1423 mL	6.2846 mL
10 mM	0.3142 mL	1.5711 mL	3.1423 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 (6.54 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (6.54 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Myricetin is a common plant-derived flavonoid with a wide range of activities including strong anti-oxidant, anticancer, antidiabetic and anti-inflammatory activities.

In Vitro

Myricetin exhibits the scavenging activity towards a number of radicals and ions. It displays poor activity (IC_{50} value=1.4 mg/mL) in a superoxide dismutase (SOD)-like activity assay[1]. It prevents cancer cell death via apoptosis via regulation of PI3K/Akt and MAPK signalling pathways[2].

Myricetin exhibits antiphotoaging effects by quenching causative free radicals in the skin. Myricetin is able to suppress UVB-induced COX-2 expression in mouse skin epidermal JB6 P+ cells. It inhibits UVB-induced initiation of activator protein-1 and

	NF-κβ, as well as Fyn kinase activity[1]. Myricetin inhibits viability of SKOV3 ovarian cancer cells in a dose-dependent manner. It induces DNA DSBs and ER stress, which leads to apoptosis in SKOV3 cells[3]. Myricetin inhibits human Hsp70 by more than 80% with IC_{50} values of 83, 11 and 12 μM, respectively[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Treatment of orthotopic pancreatic tumors with myricetin results in tumor regression and decreases metastatic spread[2]. Exposure to 150 μM myricetin causes 14%, 26%, 5% and 49% inhibition of rabbit platelet aggregation, induced by ADP, arachidonic acid, collagen and PAF, respectively[5]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [2]	Pancreatic cancer cells (MIA PaCa-2, Panc-1 or S2-013) or normal pancreatic ductal cells (PDCs) are treated with myricetin (12.5–200 μM). Cell viability is determined using the Dojindo Cell Counting Kit-8. Cells are seeded onto a 96-well plate at 1×10^4 cells per well and allowed to adhere overnight. After treatment with myricetin at various concentrations for 24 hours, 10 μL of the tetrazolium substrate is added to each well of the plate. Plates are incubated at 37°C for 1 hour, after which the absorbance at 450 nm is measured[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [2]	Mice: Mice are given daily intraperitoneal injections of myricetin (30mg/kg in the MIA PaCa-2 model and 50mg/kg in the S2-013 model) or vehicle (DMSO) for 35 days (MIA PaCa-2 model) or 18 days (S2-013 model). Ultrasound measurements are performed at regular intervals to monitor tumor growth. At the end of the in vivo experiment, tumor size is measured using calipers and tumor volume is calculated[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Nanoscale. 2020 Aug 20;12(32):16738-16754.
- Eur J Med Chem. 2020 Feb 1;187:111961.
- Front Pharmacol. 2021 Oct 18;12:709526.
- J Enzyme Inhib Med Chem. 2021 Dec;36(1):497-503.
- Int Immunopharmacol. 2019 Oct;75:105742.

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REFERENCES

[1]. Semwal DK, et al. Myricetin: A Dietary Molecule with Diverse Biological Activities. Nutrients. 2016 Feb 16;8(2):90.

[2]. Phillips PA, et al. Myricetin induces pancreatic cancer cell death via the induction of apoptosis and inhibition of thephosphatidylinositol 3-kinase (PI3K) signaling pathway. Cancer Lett. 2011 Sep 28;308(2):181-8.

[3]. Xu Y, et al. Myricetin induces apoptosis via endoplasmic reticulum stress and DNA double-strand breaks in human ovarian cancer cells. Mol Med Rep. 2016 Mar;13(3):2094-100.

[4]. Jinwal UK, et al. Chemical Manipulation of Hsp70 ATPase Activity Regulates Tau Stability. J Neurosci. 2009 Sep 30;29(39):12079-88.

[5]. Tzeng SH, et al. Inhibition of platelet aggregation by some flavonoids. Thromb Res. 1991 Oct 1;64(1):91-100.

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