Diosmetin

Cat. No.: HY-N0125

CAS No.: 520-34-3

Molecular Formula: $C_{16}H_{12}O_6$

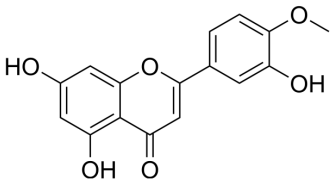
Molecular Weight: 300.26

Target: Cytochrome P450

Pathway: 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 : 100 mg/mL (333.04 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	3.3304 mL	16.6521 mL	33.3041 mL
	5 mM	0.6661 mL	3.3304 mL	6.6608 mL
	10 mM	0.3330 mL	1.6652 mL	3.3304 mL

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

In Vivo

1. Add each solvent one by one: 0.5% CMC-Na/saline water
   Solubility: 10 mg/mL (33.30 mM); Suspended solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (8.33 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Diosmetin is a natural flavonoid which inhibits human CYP1A enzyme activity with an IC_{50} of 40 μM in HepG2 cell.

IC_{50} & Target

CYP1

In Vitro

Diosmetin inhibits cell proliferation in HepG2 cells in a concentration-dependent manner. Untreated HepG2 cells grow well and are observed to have with normal skeletons, whereas cells treated with diosmetin are distorted and a number of them become round and floating[1].

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

In Vivo

Pretreatment with diosmetin significantly reduces serum levels of amylase and lipase; the histological injury; the secretion

	of tumor necrosis factor (TNF)-α, interleukin (IL)-1β, and IL-6; myeloperoxidase (MPO) activity, trypsinogen activation peptide (TAP) level, the expression of inducible nitric oxide synthase (iNOS); and the nuclear factor (NF)-κB activation in cerulein-induced acute pancreatitis[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [1]	Diosmetin is dissolved in DMSO which is maintained at a constant concentration in control samples (2%). HepG2 cells are maintained in a humidified atmosphere of 5% CO_2 at 37°C, and cultured in RPMI-1640 medium supplemented with 10% (v/v) fetal bovine serum, 100 U/mL penicillin and 100 U/mL streptomycin. HepG2 cell density is adjusted to 2×10^4 cells/100 μL, and the cells are seeded into 96-well plates and placed in an incubator overnight (37°C in 5% CO_2) to allow for attachment and recovery. MTT analyses are performed. Briefly, cells are pretreated with 5, 10, 15 and 20 μg/mL diosmetin for 24 h. A total of 20 μL MTT solution (5 mg/mL in PBS) solution is transferred to each well to yield a final 120 μL/well and to separate wells a total of 10 μL CCK8 (5 mg/mL in PBS) is transferred. The plates are incubated for 4 h at 37°C in 5% CO_2 and the absorbance is recorded at wavelengths of 595 nm and 450 nm, respectively. The half maximal inhibitory concentration (IC_{50}) of diosmetin is calculated[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [2]	Experimental acute pancreatitis is induced in mice by seven intraperitoneal injection of cerulein (50 μg/kg) at hourly intervals. Diosmetin (100 mg/kg) or vehicle is pretreated 2 h before the first cerulein injection. After 6 h, 9 h, 12 h of the first cerulein injection, the severity of acute pancreatitis is evaluated biochemically and morphologically[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Chemosphere. 2021, 131347.
- Biomed Pharmacother. 2023 Dec 26:170:116067.
- Int Immunopharmacol. 2020 Nov;88:106965.
- Food Chem Toxicol. 2022 Sep 15;113431.
- Biol Pharm Bull. 2022;45(8):1116-1123.

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REFERENCES

[1]. Liu B, et al. Diosmetin induces apoptosis by upregulating p53 via the TGF-β signal pathway in HepG2 hepatoma cells. Mol Med Rep. 2016 Jul;14(1):159-64.

[2]. Yu G, et al. Diosmetin ameliorates the severity of cerulein-induced acute pancreatitis in mice by inhibiting the activation of the nuclear factor-κB. Int J Clin Exp Pathol. 2014 Apr 15;7(5):2133-42.

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