Mangiferin

Cat. No.: HY-N0290

CAS No.: 4773-96-0

Molecular Formula: $C_{19}H_{18}O_{11}$

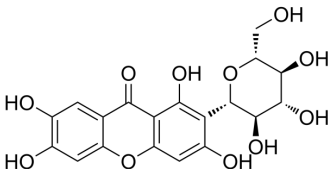
Molecular Weight: 422.34

Target: NF-κB; Keap1-Nrf2; Apoptosis

Pathway: NF-κB; Apoptosis

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 : 31.25 mg/mL (73.99 mM; ultrasonic and warming and heat to 80°C)

H_2O : < 0.1 mg/mL (ultrasonic) (insoluble)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.3678 mL	11.8388 mL	23.6776 mL
5 mM	0.4736 mL	2.3678 mL	4.7355 mL
10 mM	0.2368 mL	1.1839 mL	2.3678 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: ≥ 2.5 mg/mL (5.92 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (5.92 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (5.92 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Mangiferin is a Nrf2 activator. Mangiferin suppresses nuclear translocation of the NF-κB subunits p65 and p50. Mangiferin exhibits antioxidant, antidiabetic, antihyperuricemic, antiviral, anticancer and antiinflammatory activities[1][2][3].

IC_{50} & Target	p65	p50	Nrf2

In Vitro

Mangiferin is glucosylxanthone extracted from plants of the Anacardiaceae and Gentianaceae families. Mangiferin (50 μM)

significantly increases Nrf2 protein accumulation in HL-60 cells, particularly in the nucleus. Mangiferin also enhances the binding of Nrf2 to an antioxidant response element (ARE), significantly up-regulates NAD(P)H:quinone oxidoreductase 1 (NQO1) expression and reduces intracellular ROS in HL60 cells. Mangiferin alone dose-dependently inhibits the proliferation of HL-60 cells. In mononuclear cells (MNCs), Mangiferin significantly relieves oxidative stress, but attenuates etoposide-induced cytotoxicity[1]. Mangiferin is a natural phytopolyphenol that exhibits various pharmacological properties. Mangiferin is present in several plant species such as Mangifera indica, Iris unguicularis, and Anemarrhena asphodeloides. Mangiferin downregulates TNF-α-induced MMP-9 mRNA and protein expression by suppressing NF-κB activity, consequently suppressing the invasion of LNCaP cells.To assess whether Mangiferin influences the viability of LNCaP cells, MTT assay is performed 24 h after treatment with different concentrations of Mangiferin in the presence or absence of TNF-α in serum and serum-free conditions. There are no cytotoxic evident in LNCaP cells treated with up to 400 μM of Mangiferin alone under both serum and serum-free conditions. Additionally, in the presence of TNF-α (20 ng/mL), Mangiferin does not affect cell viability. Mangiferin (400 μM) treatment significantly decreases the NF-κB luciferase activity in TNF-α-stimulated LNCaP cells. Pretreatment with Mangiferin (400 μM) for 1 h significantly decreases TNF-α-induced NF-κB activity. The RT-PCR shows that Mangiferin (400 μM) significantly suppresses the TNF-α-induced MMP-9 expression in LNCaP cells[2].

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

PROTOCOL

Cell Assay [2]

LNCaP cells are cultured at 37°C in 5% CO_2 in RPMI supplemented with 10% FBS and antibiotics. Cell viability is determined by an MTT assay. Briefly, LNCaP cells (1×10^5 cells/mL) are plated onto 24 well plates and incubated overnight in serum and serum-free RPMI media. The cells are treated with the indicated concentrations of Mangiferin (100, 200, and 400 μM) for 1 h and then stimulated with TNF-α (20 ng/mL) for 24 h. Then, the cells are incubated with a solution of 0.5 mg/mL MTT and incubation for 45 min at 37°C and 5% CO_2. Supernatant is removed and the formation of formazan is observed by monitoring the signal at 540 nm using a microplate reader[2].

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

CUSTOMER VALIDATION

- Phytother Res. 2022 Jul 2.
- J Ethnopharmacol. 8 November 2021, 114786.
- Chin Med. 2024 Jan 5;19(1):5.
- Biochem Biophys Res Commun. 2018 Sep 3;503(1):297-303.
- University of Paris. 2022 Sep 19.

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REFERENCES

[1]. Zhang BP, et al. Mangiferin activates Nrf2-antioxidant response element signaling without reducing the sensitivity to etoposide of human myeloid leukemia cells in vitro. Acta Pharmacol Sin. 2014 Feb;35(2):257-66.

[2]. Dilshara MG, et al. Mangiferin inhibits tumor necrosis factor-α-induced matrix metalloproteinase-9 expression and cellular invasion by suppressing nuclear factor-κB activity. BMB Rep. 2015 Oct;48(10):559-64.

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

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com
Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA