Hinokitiol

Cat. No.: HY-B2230

CAS No.: 499-44-5

Molecular Formula: $C_{10}H_{12}O_2$

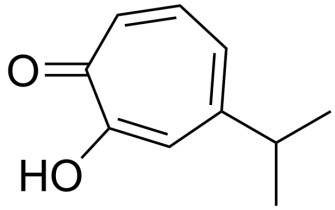
Molecular Weight: 164.2

Target: Keap1-Nrf2; DNA Methyltransferase; Virus Protease

Pathway: NF-κB; Epigenetics; Anti-infection

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 (609.01 mM; Need ultrasonic)

H_2O : < 0.1 mg/mL (insoluble)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	6.0901 mL	30.4507 mL	60.9013 mL
5 mM	1.2180 mL	6.0901 mL	12.1803 mL
10 mM	0.6090 mL	3.0451 mL	6.0901 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 (60.90 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 (15.23 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (15.23 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (15.23 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Hinokitiol is a component of essential oils isolated from Chymacyparis obtusa, reduces Nrf2 expression, and decreases DNMT1 and UHRF1 mRNA and protein expression, with anti-infective, anti-oxidative, and anti-tumor activities.

IC_{50} & Target		
	DNMT1	Nrf2

In Vitro	In U87MG and T98G glioma cell lines, hinokitiol demonstrates a dose-dependent decrease in viability, with IC_{50} values of 316.5 ± 35.5 and 152.5 ± 25.3 μM, respectively. Hinokitiol represses ALDH activity and self-renewal ability in glioma stem cells, and inhibits in vitro oncogenicity. Hinokitiol also reduces Nrf2 expression in glioma stem cells in a dose-dependent manner[1]. Hinokitiol (0-100 μM) inhibits colon cancer cell growth in a dose- and time-dependent manner. Hinokitiol (5, 10 μM) decreases DNMT1 and UHRF1 mRNA and protein expression, and increases TET1 expression via enhancement of 5hmC level in HCT-116 cells. Furthermore, hinokitiol reduces methylation status and restores mRNA expression of MGMT, CHST10, and BTG4 genes[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [1]	U87MG and T98G glioma cells are cultured in Dulbecco's modified Eagle's medium with Ham's F12 medium (DMEM/F-12) containing 10% fetal bovine serum. Cell viability is determined using MTT to evaluate the cytotoxicity of hinokitiol. Cells are seeded in 24-well plates (1×10^5 cells/well) in the presence of various concentration of hinokitiol or vehicle at 37°C for 24 h followed by incubation with MTT reagent. The blue formazan crystals of viable cells are dissolved in DMSO and then evaluated spectrophotometrically at 570 nm. DMSO-treated group is set as 100%, and data are presented as percentage of DMSO control. IC_{50} values are calculated by the GraFit software. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Int Immunopharmacol. 2021 Apr 5;96:107619.
- Eur J Pharmacol. 2024 Jan 18:176340.
- Cell Stress Chaperones. 2022 Nov 3.
- Research Square Print. 2022 Jul.
- Oxid Med Cell Longev. 2021 Feb 10;2021:6670497.

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REFERENCES

[1]. Ouyang WC, et al. Hinokitiol suppresses cancer stemness and oncogenicity in glioma stem cells by Nrf2 regulation. Cancer Chemother Pharmacol. 2017 Aug;80(2):411-419.

[2]. Seo JS, et al. Hinokitiol induces DNA demethylation via DNMT1 and UHRF1 inhibition in colon cancer cells. BMC Cell Biol. 2017 Feb 27;18(1):14.

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