4-O-Methyl honokiol

Cat. No.: HY-U00450

CAS No.: 68592-15-4

Molecular Formula: $C_{19}H_{20}O_2$

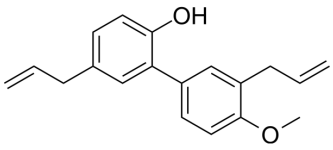
Molecular Weight: 280.36

Target: PPAR; NF-κB

Pathway: Cell Cycle/DNA Damage; Vitamin D Related/Nuclear Receptor; NF-κB

Storage:

Pure form	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (356.68 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	3.5668 mL	17.8342 mL	35.6684 mL
5 mM	0.7134 mL	3.5668 mL	7.1337 mL
10 mM	0.3567 mL	1.7834 mL	3.5668 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (8.92 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (8.92 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

4-O-Methyl honokiol is a natural neolignan isolated from Magnolia officinalis, acts as a PPARγ agonist, and inhibtis NF-κB activity, used for cancer and inflammation research.

IC_{50} & Target		
	PPARγ	NF-κB

In Vitro

4-O-Methyl honokiol is a natural neolignan isolated from Magnolia officinalis, acts as a PPARγ agonist, and inhibtis NF-κB activity. 4-O-Methyl honokiol (20 μM) increases the expression, transcription and DNA binding activities, and nuclear translocation of PPARγ in both in prostate PC-3 and LNCap cells. 4-O-Methyl honokiol (0-30 μM) inhibits LNCaP and PC-3 cancer cells growth, causes G0/G1 phase arrest and induces apoptotic cell death, and such effects can be reversed by PPARγ antagonist. 4-O-Methyl honokiol inhibits NF-κB activity and cancer cell growth, but such effects as well as its activation of

	PPARγ can be abolished by knock-down of p21[1]. 4-O-methylhonokiol (0.5, 1 and 2 μM) reduces LPS-induced release of NO, PGE2, ROS, TNF-α and IL-1β in cultured astrocytes, and amyloidogenesis in cultured astrocytes and microglial BV-2 cells[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	4-O-Methyl honokiol (40 or 80 mg/kg, i.p. everyday for 4 weeks) inhibits the growth of SW620 and PC3 tumours in SW620 and PC3 xenograft model. 4-O-Methyl honokiol significantly increases the expression of p21 and PPARγ in the tumour tissues[1]. 4-O-Methyl honokiol (0.5 or 1 mg/kg/day daily for 3 weeks) significantly ameliorates LPS-induced memory impairment, and inhibits LPS-induced iNOS and COX-2 expression in mice. 4-O-Methyl honokiol also shows inhibitory activities against the $A\beta_{1-42}$ accumulation, and activates astrocytes and microglia in LPS-injected mice brain[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [1]	Cells (5×10^4 cells per well) are plated onto 24-well plates. The cell growth inhibitory effect of 4-O-Methyl honokiol is evaluated in cells treated with 4-O-Methyl honokiol (0-30 μM) for 0-72 h, using an excluded trypan blue assay[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [1]	Six-week-old male BALB/c athymic nude mice are used in the assay. SW620 and PC3 cells are injected s.c. (1×10^7 cells in 0.1 mL PBS per animal) into the lower right flanks of mice. After 20 days, when the tumours have reached an average volume of 300-400 mm^3 or about 50 mm^3, the tumour-bearing nude mice are i.p. injected with 4-O-Methyl honokiol (40 and 80 mg/kg dissolved in 0.1% DMSO) twice per week for 3 weeks. Cisplatin (10 mg/kg) is also i.p. injected once a week as a positive control. The group treated with 0.1% DMSO is designated as the control. The tumour volumes are measured with vernier calipers and calculated by the following formula: $(A \times B^2)/2$, where A is the larger and B is the smaller of the two dimensions [1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Lee NJ, et al. 4-O-methylhonokiol, a PPARγ agonist, inhibits prostate tumour growth: p21-mediated suppression of NF-κB activity. Br J Pharmacol. 2013 Mar;168(5):1133-45.

[2]. Lee YJ, et al. Inhibitory effect of 4-O-methylhonokiol on lipopolysaccharide-induced neuroinflammation, amyloidogenesis and memory impairment via inhibition of nuclear factor-kappaB in vitro and in vivo models. J Neuroinflammation. 2012 Feb 19;9:35.

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