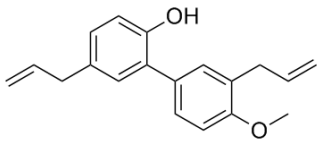
4-O-Methyl honokiol

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; NF-κB
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



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 $Aβ_{1-42}$ 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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