4′-Demethylnobiletin

Cat. No.: HY-142066

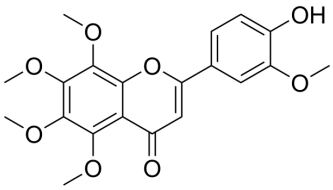
CAS No.: 34810-62-3

Molecular Formula: $C_{20}H_{20}O_8$

Molecular Weight: 388.37

Target: PKA; ERK; iGluR

Pathway: Stem Cell/Wnt; TGF-beta/Smad; MAPK/ERK Pathway; Membrane Transporter/Ion Channel; Neuronal Signaling



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 : 100 mg/mL (257.49 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.5749 mL	12.8743 mL	25.7486 mL
	5 mM	0.5150 mL	2.5749 mL	5.1497 mL
	10 mM	0.2575 mL	1.2874 mL	2.5749 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 (6.44 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: 2.5 mg/mL (6.44 mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

4′-Demethylnobiletin is a bioactive metabolite that activates the PKA/ERK/CREB signaling pathway, enhances CRE-mediated transcription in hippocampal neurons, and reverses memory impairment associated with NMDA receptor antagonism by stimulating ERK signaling[1].

In Vitro

4′-Demethylnobiletin (1-100 μM, 0-60 min) can activate the phosphorylation of ERK and CREB in rat hippocampal neurons in a time- and concentration-dependent manner, and in a PKA/MEK/ERK pathway-dependent manner, It can also stimulate CRE-mediated transcription by activating PKA/MEK/ERK-dependent signaling pathways[1].

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

In Vivo	4′-Demethylnobiletin (10 or 50 mg/kg, ip, once daily for seven consecutive days) dose-dependently reverses MK-801-induced learning impairment in male ddY mice without affecting the mice's mobility . Mice treated with MK-801 shows less freezing than control mice and induced inhibition of ERK learning activation in the hippocampus of mice, which is also reversed by 4′-Demethylnobiletin[1]. 4′-Demethylnobiletin (10 or 50 mg/kg, ip, once daily for seven consecutive days) reverses the inhibition of MK-801 on NMDA-stimulated phosphorylation of ERK and PKA substrates in hippocampal neurons[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Md Al Rahim, et al. 4'-Demethylnobiletin, a bioactive metabolite of nobiletin enhancing PKA/ERK/CREB signaling, rescues learning impairment associated with NMDA receptor antagonism via stimulation of the ERK cascade. Biochemistry. 2009 Aug 18;48(32):7713-21.

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