3-O-Methylquercetin

Cat. No.: HY-N1860

CAS No.: 1486-70-0

Molecular Formula: $C_{16}H_{12}O_7$

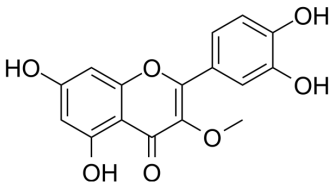
Molecular Weight: 316.26

Target: Phosphodiesterase (PDE); NO Synthase

Pathway: Metabolic Enzyme/Protease; Immunology/Inflammation

Storage:

Powder	-20°C	3 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 50 mg/mL (158.10 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	3.1620 mL	15.8098 mL	31.6196 mL
	5 mM	0.6324 mL	3.1620 mL	6.3239 mL
	10 mM	0.3162 mL	1.5810 mL	3.1620 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: 0.62 mg/mL (1.96 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 0.62 mg/mL (1.96 mM); Clear solution; Need ultrasonic
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: 0.62 mg/mL (1.96 mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

3-O-Methylquercetin is an inhibitor of cAMP and CGMP-phosphodiesterase (PDE) with IC_{50} at 13.8 μM and 14.3 μM, respectively. 3-O-Methylquercetin is an inhibitor of β-secretase with an IC_{50} of 6.5 μM. 3-O-Methylquercetin has a neuroprotective effect against neuronal death caused by oxidative damage. 3-O-Methylquercetin has strong antiviral activity against poliovirus, coxsackie virus and human rhinovirus. 3-O-Methylquercetin has anti-inflammatory and trachea-relaxing effects and can be used in the study of inflammatory diseases and asthma[1][2][3][4][5][6].

In Vitro

3-O-Methylquercetin (1-10 μM; 24 h) inhibits NO production (IC_{50}: 4.23μM) and the expression of iNOS protein and mRNA in a concentration-dependent manner in RAW 264.7 cells treated with LPS (HY-D1056)[1].

3-O-Methylquercetin (1-30 μM; 15 min) can relax the trachea of guinea pig[2].
3-o-methylquercetin (1-100 μM☒20-24 h) improves the survival rate of rat cortical cells treated with H_2O_2[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Western Blot Analysis[1]

Cell Line:	LPS (HY-D1056) treated RAW 264.7
Concentration:	1, 3 and 10 μM
Incubation Time:	24 h
Result:	Reduced the level of iNOS in a dose-dependent manner.

In Vivo

3-O-Methylquercetin (3-30 μmol/kg ≈ 0.95-9.5 mg/kg; Intraperitoneal injection; 3 times) shows improvement in airway hyperresponsiveness induced by oobumin (HY-W250978)[4].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Ovalbumin (HY-W250978) treated female BALB/c mice aged 8-12 weeks old[4]
Dosage:	3 and 30 μmol/kg ≈ 0.95 and 9.5 mg/kg
Administration:	Intraperitoneal injection (i.p.); 3 times
Result:	Significantly suppressed the enhanced pause value induced by aerosolized methacholine in sensitized mice after secondary allergen challenge. Significantly suppressed total inflammatory cells, macrophages, neutrophils, and eosinophils, but not lymphocytes. Significantly decreased the secretion of TNF-α, and at the highest dose even decreased the secretions of IL-4, IL-5, and TNF-α.

REFERENCES

[1]. Jiang JS, et al. Mechanisms of suppression of nitric oxide production by 3-O-methylquercetin in RAW 264.7 cells. J Ethnopharmacol. 2006 Jan 16;103(2):281-7.

[2]. Ko WC, et al. Mechanisms of relaxant action of 3-O-methylquercetin in isolated guinea pig trachea. Planta Med. 2002 Jan;68(1):30-5.

[3]. Ko WC, et al. Suppressive effects of 3-O-methylquercetin on ovalbumin-induced airway hyperresponsiveness. Planta Med. 2004 Dec;70(12):1123-7.

[4]. Mugabowindekwe, et al. Universiteit Antwerpen (Belgium) ProQuest Dissertations & Theses, 2004. 3141550.

[5]. Zhumanova K, et al. Inhibitory mechanism of O-methylated quercetins, highly potent β-secretase inhibitors isolated from Caragana balchaschensis (Kom.) Pojark. J Ethnopharmacol. 2021 May 23;272:113935.

[6]. Kim SH, et al. Glucose-containing flavones--their synthesis and antioxidant and neuroprotective activities. Bioorg Med Chem Lett. 2009 Nov 1;19(21):6009-13.

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