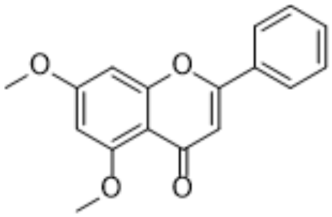
5,7-Dimethoxyflavone

Cat. No.:	HY-N5011
CAS No.:	21392-57-4
Molecular Formula:	$C_{17}H_{14}O_4$
Molecular Weight:	282.29
Target:	Cytochrome P450
Pathway:	Metabolic Enzyme/Protease
Storage:	4°C, protect from light * In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 62.5 mg/mL (221.40 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions

Mass / Solvent / Concentration	1 mg	5 mg	10 mg
1 mM	3.5425 mL	17.7123 mL	35.4246 mL
5 mM	0.7085 mL	3.5425 mL	7.0849 mL
10 mM	0.3542 mL	1.7712 mL	3.5425 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 (8.86 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (8.86 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (7.37 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

5,7-Dimethoxyflavone is one of the major components of Kaempferia parviflora, has anti-obesity, anti-inflammatory, and antineoplastic effects. 5,7-Dimethoxyflavone inhibits cytochrome P450 (CYP) 3As. 5,7-Dimethoxyflavone is also a potent Breast Cancer Resistance Protein (BCRP) inhibitor[1][2].

IC_{50} & Target

CYP3A | Breast Cancer Resistance Protein (BCRP)

In Vitro

5,7-Dimethoxyflavone (5 and 50 μM, 1 h) inhibits Bcrp1-mediated Sorafenib efflux in MDCK/Bcrp1 cells[2].
5,7-Dimethoxyflavone (0-25 μM, 48 h) induces melanogenesis by increasing cAMP in B16F10 melanoma cells[4].
5,7-Dimethoxyflavone (0-20 μM, 8 days) inhibits lipid accumulation by reducing TG accumulation in 3T3-L1 adipocytes, and

inhibits adipocyte differentiation[5].
5,7-Dimethoxyflavone (0-100 μM, 48 h) inhibits proliferation, induces oxidative stress and induces apoptosis in VK2/E6E7 and End1/E6E7 cells[6].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Western Blot Analysis[4]

Cell Line:	B16F10 melanoma cells
Concentration:	0-25 μM
Incubation Time:	48 h
Result:	Induced CREB phosphorylation, and inhibited Akt and GSK-3β phosphorylation.

In Vivo

5,7-Dimethoxyflavone (10 mg/kg, p.o., once a day for 10 days) reduces liver CYP3A11 and CYP3A25 protein expression levels in mice[1].
5,7-Dimethoxyflavone (25 and 50 mg/kg, p.o.) inhibits sarcopenia in aged mice[3].
5,7-Dimethoxyflavone (50 mg/kg/day, p.o., for 6 weeks) decreases body weight gain and inhibits fatty liver in HFD mice[5].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Aged mice[3]
Dosage:	25 and 50 mg/kg
Administration:	p.o.
Result:	Increased grip strength and the running endurance. Increased muscle volume, weights, and cross-sectional area. Decreased serum and gastrocnemius muscle levels of IL-6 and TNF-α.

REFERENCES

[1]. Kim C, Hwang JK. The 5,7-Dimethoxyflavone Suppresses Sarcopenia by Regulating Protein Turnover and Mitochondria Biogenesis-Related Pathways. Nutrients. 2020 Apr 13;12(4):1079.

[2]. Kang YG, et al. 5,7-dimethoxyflavone induces melanogenesis in B16F10 melanoma cells through cAMP-dependent signalling. Exp Dermatol. 2011 May;20(5):445-7.

[3]. Song Y, et al. 5,7-Dimethoxyflavone Attenuates Obesity by Inhibiting Adipogenesis in 3T3-L1 Adipocytes and High-Fat Diet-Induced Obese C57BL/6J Mice. J Med Food. 2016 Dec;19(12):1111-1119.

[4]. Park W, et al. 5,7-Dimethoxyflavone induces apoptotic cell death in human endometriosis cell lines by activating the endoplasmic reticulum stress pathway. Phytother Res. 2020 Sep;34(9):2275-2286.

[5]. Ochiai W, et al. Effect of the active ingredient of Kaempferia parviflora, 5,7-dimethoxyflavone, on the pharmacokinetics of midazolam. J Nat Med. 2018 Jun;72(3):607-614.

[6]. Bae S, et al. Effect of 5,7-dimethoxyflavone on Bcrp1-mediated transport of sorafenib in vitro and in vivo in mice. Eur J Pharm Sci. 2018 May 30;117:27-34.

Caution: Product has not been fully validated for medical applications. For research use only.

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