Macelignan

Cat. No.: HY-N0064

CAS No.: 107534-93-0

Molecular Formula: $C_{20}H_{24}O_4$

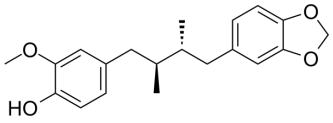
Molecular Weight: 328.4

Target: COX

Pathway: Immunology/Inflammation

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	2 years
	-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (304.51 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	3.0451 mL	15.2253 mL	30.4507 mL
	5 mM	0.6090 mL	3.0451 mL	6.0901 mL
	10 mM	0.3045 mL	1.5225 mL	3.0451 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 (7.61 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (7.61 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (7.61 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Macelignan ((+)-Anwulignan; Anwuligan) is an orally active lignan isolated from Myristica fragrans. Macelignan possesses many pharmacological activities, including anti-inflammatory, anti-cancer, anti-diabetes, and neuroprotective activities[1][2][3].

IC_{50} & Target

COX-2

In Vitro

Macelignan (1-50 μM; 72 hours) does not reduce cell viability alone, however, UVB treatment, even at the lowest dose of 30

mJ/cm^2, reduces HaCaT cell viability in a dose-dependent mannner,it reduces approximately 80% of control values at 100 μM in hacat cells[1].
Macelignan (0.1-1 μM; 24 hours) decreases COX-2 expression in a concentration-dependent manner,and at the highest concentration of macelignan (1 μM) , COX-2 expression is inhibited by almost 50% in hacat cells[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[1]

Cell Line:	Hacat cells
Concentration:	1 μM; 2.5 μM; 5 μM; 10 μM; 15 μM; 50 μM
Incubation Time:	72 hours
Result:	Induced cell death by UVB irradiation at 30 mJ/cm^2 from 10 μM.

Western Blot Analysis[1]

Cell Line:	Hacat cells
Concentration:	0.1 μM; 0.5 μM;1 μM
Incubation Time:	24 hours
Result:	Reduced UVB-induced COX-2 expression in cells.

In Vivo

Macelignan (oral administration; 15 mg/kg; every day for three weeks) exhibits in vivo anti-diabetic effects. The baseline (day 0) fasting blood glucose levels does not differ between groups; at the end of the experiment, the values of the Macelignan-treated group are significantly lower compared to the diabetic control group in C57BL/KsJ-db/db mice[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Male C57BL/KsJ-db/db mice[2]
Dosage:	15 mg/kg
Administration:	Oral administration; 15 mg/kg; every day for three weeks
Result:	Significantly reduced the blood glucose levels in mice.

CUSTOMER VALIDATION

- Phytomedicine. 2023 Oct 13, 155144.
- Biochem Biophys Res Commun. 2020 Jan 22;521(4):1070-1076.

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REFERENCES

[1]. Anggakusuma, et al. Effects of macelignan isolated from Myristica fragrans Houtt. on UVB-induced matrix metalloproteinase-9 and cyclooxygenase-2 in HaCaT cells. J Dermatol Sci

[2]. Jiyoung Yeo, et al. Effects of a multi-herbal extract on type 2 diabetes. Chin Med. 2011 Mar 4;6:10.

[3]. Chun-Ai Cui, et al. Macelignan attenuates LPS-induced inflammation and reduces LPS-induced spatial learning impairments in rats. Neurosci Lett. 2008 Dec 19;448(1):110-4.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com
Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA