Amentoflavone

Cat. No.: HY-N0662

CAS No.: 1617-53-4

Molecular Formula: $C_{30}H_{18}O_{10}$

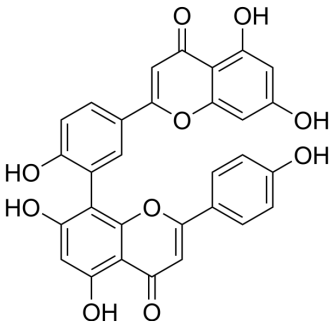
Molecular Weight: 538.46

Target: Reactive Oxygen Species; Apoptosis; Bacterial; Fungal; RSV; GABA Receptor

Pathway: Immunology/Inflammation; Metabolic Enzyme/Protease; NF-κB; Apoptosis; Anti-infection; Membrane Transporter/Ion Channel; Neuronal Signaling

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 : 125 mg/mL (232.14 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	1.8571 mL	9.2857 mL	18.5715 mL
5 mM	0.3714 mL	1.8571 mL	3.7143 mL
10 mM	0.1857 mL	0.9286 mL	1.8571 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 (4.64 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 2.5 mg/mL (4.64 mM); Suspended solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

Amentoflavone (Didemethyl-ginkgetin) is a potent and orally active GABA(A) negative modulator. Amentoflavone also shows anti-inflammatory, antioxidative, anti-viral, anti-tumor, anti-radiation, anti-fungal, antibacterial activity. Amentoflavone induces apoptosis and cell cycle arrest at sub-G1 phase[1][2][3][4].

In Vitro

Amentoflavone (1-60 μM) inhibits the production of nitric oxide in a concentration-dependent manner in RAW 264.7 cells[2].
?Amentoflavone (50-200 μM) inhibits the viability of U-87 MG cells with IC_{50} value of 100 μM at 48 h[3].
?Amentoflavone (0, 50, 100 μM; 48 h) induces apoptosis and cell cycle arrest at sub-G1 phase[3].
?Amentoflavone (0, 50, 100 μM; 48 h) inhibits NF-?B activation and decreases the expression of MCL1 and C-FLIP protein in U-87 MG cells[3].

?Amentoflavone (0-32 μg/ml) shows antibacterial activity with MICs of 8, 4, 32, 8, 16, 8 μg/ml for E. faecium ATCC 19434, S. aureus ATCC 25923, S. mutans ATCC 3065, E. coli O-157 ATCC 25922, E. coli ATCC 43895, P. aeruginosa ATCC 27853, respectively[4].

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

Cell Viability Assay[3]

Cell Line:	U-87 MG cells
Concentration:	0, 50, 75, 100, 200 μM
Incubation Time:	48 h
Result:	Significantly inhibited the viability of U-87 MG cells by 23-71% with an IC_{50} value of 100 μM at 48 h.

Apoptosis Analysis[3]

Cell Line:	U-87 MG cells
Concentration:	0, 50, 100 μM
Incubation Time:	48 h
Result:	Significantly induced the accumulation of cells in the sub-G1 population and increased the level of active caspase-3 by 14-52% and 24-42%, respectively, and significantly triggered the loss of Ψm and the expression of active caspase-8 by 23-53% and 25-50%, respectively.

Western Blot Analysis[3]

Cell Line:	U-87 MG cells
Concentration:	0, 50, 100 μM
Incubation Time:	48 h
Result:	Significantly reduced NF-κB activation in a dose-dependent manner by 25-87% and reduced protein expression of MCL1 and C-FLIP by 50-80% and 38-57%, respectively.

In Vivo

Amentoflavone (25 mg/kg; p.o.; once a day for 3 consecutive days) shows neuroprotective role in epilepsy via anti-inflammatory effects in mouse[1].

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

Animal Model:	5-6 weeks, 28-32 g, kunming mice[1]
Dosage:	25 mg/kg
Administration:	P.o.; once a day for 3 consecutive days
Result:	Inhibited activation and nuclear translocation of NF-κB subunits p65, decreased IL-6 and IL-1β production and significantly decreased NO and prostaglandin E2 production.

CUSTOMER VALIDATION

- Acta Pharm Sin B. 2021 Jan;11(1):143-155.

- Pharmacol Res. 2020 May;155:104751.
- Phytomedicine. 2023 Jun 10, 154922.
- J Med Chem. 2021 Aug 18.
- Life Sci. 2020 Apr 15;247:117425.

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REFERENCES

[1]. Zhang Z, et al. Amentoflavone protects hippocampal neurons: anti-inflammatory, antioxidative, and antiapoptotic effects. Neural Regen Res. 2015 Jul;10(7):1125-33.

[2]. Woo ER, et al. Amentoflavone inhibits the induction of nitric oxide synthase by inhibiting NF-kappaB activation in macrophages. Pharmacol Res. 2005 Jun;51(6):539-46.

[3]. Woo ER, et al. Amentoflavone inhibits the induction of nitric oxide synthase by inhibiting NF-kappaB activation in macrophages. Pharmacol Res. 2005 Jun;51(6):539-46.

[4]. Yen TH, et al. Amentoflavone Induces Apoptosis and Inhibits NF-κB-modulated Anti-apoptotic Signaling in Glioblastoma Cells. In Vivo. 2018 Mar-Apr;32(2):279-285.

[5]. Hwang JH, et al. Antibacterial effect of amentoflavone and its synergistic effect with antibiotics. J Microbiol Biotechnol. 2013;23(7):953-8.

[6]. Hanrahan JR, et al. Semisynthetic preparation of amentoflavone: A negative modulator at GABA(A) receptors. Bioorg Med Chem Lett. 2003 Jul 21;13(14):2281-4.

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