Ipriflavone

Cat. No.: HY-N0094

CAS No.: 35212-22-7

Molecular Formula: $C_{18}H_{16}O_3$

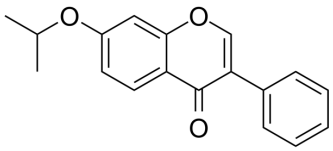
Molecular Weight: 280.32

Target: Others

Pathway: Others

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 : 33.33 mg/mL (118.90 mM; Need ultrasonic)

H_2O : < 0.1 mg/mL (insoluble)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	3.5674 mL	17.8368 mL	35.6735 mL
5 mM	0.7135 mL	3.5674 mL	7.1347 mL
10 mM	0.3567 mL	1.7837 mL	3.5674 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (8.92 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Ipriflavone is a synthetic isoflavone derivative used to suppress bone resorption.

In Vitro

Ipriflavone inhibits the proliferation and DNA synthesis of MDA-231 cells and blocks the ligand-induced phosphorylation of Tyr(845) of the EGFR. Ipriflavone does not promote apoptosis of MDA-231 cells[1]. Ipriflavone also promotes the deposition of calcium and the formation of mineralized nodules by newborn rat calvarial osteoblast-like cells as well as the activity of alkaline phosphatase[2].

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

In Vivo

Daily oral administration of ipriflavone at 12 mg/mouse significantly inhibits the development of new osteolytic bone metastases and the progression of established osteolytic lesions, prolonging the life of tumor-bearing mice. Ipriflavone reduces the number of osteoclasts at the bone-cancer interface with no severe adverse effects on the host[1]. 1-month

	treatment with ipriflavone increases bone density and improves the biomechanical properties of adult rat male bones without altering mineral composition[3] MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [1]	Ipriflavone is dissolved in absolute ethanol and added to the medium at 1-50 μM. The final ethanol concentrations are <0.5% (v/v). MDA-231 cells are seeded in 35 mm culture dishes in DMEM supplemented with 10% FBS in the presence of ipriflavone (1, 10 or 50 μM) or ethanol. After 48 hr incubation, the medium is changed with fresh medium containing the same concentrations of ipriflavone or ethanol. After incubation for 24, 48, 72 and 96 hr from the initial seeding, cells are treated with trypan blue to estimate the number of viable cells[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [1][3]	Rats: To assess the potential impact of ipriflavone on the biomechanical properties and mineral composition of bone, adult male rats are orally administered two doses (200 or 400 mg/kg bw) of ipriflavone for 1 month. Bone biomechanics are evaluated by vibration damping, an index of strain energy loss, and impact strength[3]. Mice: Ipriflavone is suspended in water containing 0.5% (w/v) methylcellulose and given to mice orally at 6 or 12 mg/0.2 mL daily, which is equivalent to 200 or 400 mg/kg body weight. MDA-231 cells are injected s.c. into the interscapular space of nude mice (on day 0), which are then given ipriflavone (6 or 12 mg/mouse) or the methylcellulose solution orally from day 1 to day 27. Tumor growth is analyzed twice a week by measuring the tumor volume[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Acta Pharm Sin B. 2021 Jan;11(1):143-155.
- J Clin Periodontol. 2022 May 15.

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REFERENCES

[1]. Iisaki T, et al. Ipriflavone inhibits osteolytic bone metastasis of human breast cancer cells in a nude mouse model. Int J Cancer. 2002 Aug 1;100(4):381-7.

[2]. Hagiwara H, et al. Ipriflavone down-regulates endothelin receptor levels during differentiation of rat calvarial osteoblast-like cells. J Biochem. 1999 Jul;126(1):168-73.

[3]. Civitelli R, et al. Ipriflavone improves bone density and biomechanical properties of adult male rat bones. Calcif Tissue Int. 1995 Mar;56(3):215-9.

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