Ferutinin

Cat. No.: HY-125703

CAS No.: 41743-44-6

Molecular Formula: $C_{22}H_{30}O_4$

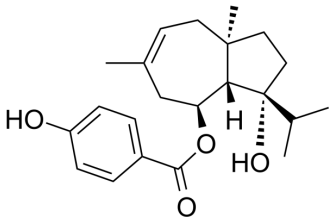
Molecular Weight: 358

Target: Estrogen Receptor/ERR; Apoptosis

Pathway: Vitamin D Related/Nuclear Receptor; Apoptosis

Storage:

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



SOLVENT & SOLUBILITY

In Vitro

DMSO : 50 mg/mL (139.66 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	2.7933 mL	13.9665 mL	27.9330 mL
	5 mM	0.5587 mL	2.7933 mL	5.5866 mL
	10 mM	0.2793 mL	1.3966 mL	2.7933 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 1.25 mg/mL (3.49 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: 1.25 mg/mL (3.49 mM); Suspended solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

Ferutinin, a natural terpenoid compound, is an estrogen receptor ERα agonist and estrogen ERβ-receptor agonist/antagonist with IC_{50}s of 33.1 nM and 180.5 nM, respectively. Ferutinin acts as an electrogenic Ca^{2+}-ionophore that increases calcium permeability of lipid bilayer membranes, mitochondria. Ferutinin possesses estrogenic, antitumor, antibacterial and antiinflammatory activities[1][2].

IC_{50} & Target

ERα	ERβ
33.1 nM (IC_{50})	180.5 nM (IC_{50})

In Vitro

Ferutinin manifested antiproliferative activity, inducing apoptosis in several cell types: MCF-7 estrogen-dependent cancer cells, leukemia T-cell line (Jurkat), human and mouse colon carcinoma cells (Caco-2, CT26, HT29), as well as bladder (TCC) cancer cells. Ferutinin potentiates bone mineralization, and is proposed to be used as an antiosteoporosis phytoestrogen[2].

Ferutinin considerably increases the permeability of artificial and cellular membranes to Ca^{2+}-ions and produces apoptotic cell death in different cell lines in a mitochondria-dependent manner. Ferutinin alone (10-60 μM) also dose-dependently dissipated membrane potential. In the presence of Ca^{2+}-ions, Ferutinin (10-60 μM) induces considerable depolarization of the inner mitochondrial membrane[2].

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

REFERENCES

[1]. Kazuhiro Ikeda, et al. Terpenoids found in the umbelliferae family act as agonists/antagonists for ER(alpha) and ERbeta: differential transcription activity between ferutinine-liganded ER(alpha) and ERbeta. Biochem Biophys Res Commun. 2002 Feb 22;291(2):3

[2]. Tatsiana Ilyich, et al. Ferutinin Induces Membrane Depolarization, Permeability Transition Pore Formation, and Respiration Uncoupling in Isolated Rat Liver Mitochondria by Stimulation of Ca 2+-Permeability. J Membr Biol. 2018 Aug;251(4):563-572.

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