

Alpinumisoflavone

Chemical Properties

CAS No. :	34086-50-5
Formula:	C ₂₀ H ₁₆ O ₅
Molecular Weight:	336.34
Storage:	Powder: -20°C for 3 years In solvent: -80°C for 1 year Actual storage temperature shall be subject to the COA.

Biological Description

Description	Alpinumisoflavone is a natural isopentenyl isoflavone extracted from Laburnum alpinum. Alpinumisoflavone exerts anti-inflammatory and antioxidant effects by inhibiting the NF-κB, MAPK, and NLRP3 inflammasome pathways. Alpinumisoflavone also exhibits antitumor activity.
Targets(IC50)	ERK,NF-κB,MEK,MAPK,Antifection,LDL
In vitro	<p>Methods: RAW264.7 cells were pretreated with different concentrations of Alpinumisoflavone (1, 5, 10 µg/mL) for 1 hour, then stimulated with LPS (100 ng/mL) for 24 hours; Culture supernatants were collected, and NO levels were measured using the Griess method; TNF-α, IL-6, IL-1β, and IL-17 levels were measured using ELISA; and ICAM-1 protein expression was assessed by Western blot.</p> <p>Results: Alpinumisoflavone dose-dependently inhibited LPS-induced production of NO, TNF-α, IL-6, IL-1β, and ICAM-1, with inhibition rates reaching 60%–80% at 10 µg/mL (p < 0.001). [1]</p> <p>Methods: RAW264.7 cells were pretreated with Alpinumisoflavone (1, 5, 10 µg/mL) for 1 hour, then stimulated with LPS (100 ng/mL) for 24 hours; Intracellular ROS levels were measured using the DCFH-DA fluorescence assay, and protein expression of CAT, HO-1, GPx, SOD, TLR4, iNOS, and COX-2 was assessed by Western blot.</p> <p>Results: Alpinumisoflavone dose-dependently upregulated the expression of the antioxidant enzymes CAT, HO-1, GPx, and SOD (p < 0.01); significantly inhibited LPS-induced intracellular ROS production, with ROS levels reduced by approximately 50% at 10 µg/mL (p < 0.001). [1]</p> <p>Methods: The CCK-8 assay was used to assess the effects of different concentrations of Alpinumisoflavone (0–20 µM) on the viability of HepG2, SMMC 7721, Huh7, and Bel7402 hepatocellular carcinoma cells, as well as normal LO2 hepatocytes, with treatment durations of 24 and 48 hours.</p> <p>Results: Alpinumisoflavone exhibited selective cytotoxicity toward hepatocellular carcinoma cells and very low cytotoxicity toward normal LO2 cells (IC₅₀ at 48 hours = 151.32 µM). [2]</p>
In vivo	<p>Methods: Six-week-old male ICR mice were administered 5 mg/kg of LPS via intratracheal instillation. One hour prior to stimulation, Alpinumisoflavone (1, 5, or 10 mg/kg) was administered via intraperitoneal injection. The mice were sacrificed 6 hours after LPS stimulation.</p> <p>Results: Alpinumisoflavone pretreatment significantly alleviated LPS-induced interstitial</p>

In vivo	<p>edema, alveolar wall thickening, hemorrhage, and massive inflammatory cell infiltration in mouse lung tissue. [1]</p> <p>Methods: Huh7 cells (1×10^6 cells/mouse) were subcutaneously inoculated into the backs of nude mice. When tumor volume reached approximately 100 mm³, the mice were randomly divided into 3 groups (n = 6/group): control group (gavaged with saline), low-dose Alpinumisoflavone group (20 mg/kg/day by gavage), and high-dose Alpinumisoflavone group (40 mg/kg/day by gavage). Tumor volume and mouse body weight were measured every 3 days. After 30 consecutive days of treatment, the mice were euthanized, and the tumors were excised and weighed.</p> <p>Results: Alpinumisoflavone exhibited dose-dependent inhibition of tumor growth; in the high-dose group, tumor volume and weight were reduced by approximately 60% and 55%, respectively, compared to the control group (p<0.01). There were no significant differences in body weight among the groups, and no obvious pathological changes were observed in major organs such as the heart, liver, spleen, lungs, and kidneys, indicating that Alpinumisoflavone has good in vivo safety.[2]</p>
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Solubility Information

Solubility	DMSO: 80 mg/mL (237.85 mM), Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
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Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.9732 mL	14.8659 mL	29.7318 mL
5 mM	0.5946 mL	2.9732 mL	5.9464 mL
10 mM	0.2973 mL	1.4866 mL	2.9732 mL
50 mM	0.0595 mL	0.2973 mL	0.5946 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Li PY, et al. Alpinumisoflavone attenuates lipopolysaccharide-induced acute lung injury by regulating the effects of anti-oxidation and anti-inflammation both in vitro and in vivo. RSC Adv. 2018;8(55):31515-31528. Published 2018 Sep 7.

Zhang Y, et al. Alpinumisoflavone suppresses hepatocellular carcinoma cell growth and metastasis via NLRP3 inflammasome-mediated pyroptosis. Pharmacol Rep. 2020;72(5):1370-1382.

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Tel:781-999-4286 E_mail:info@targetmol.com Address:34 Washington Street,Wellesley Hills,MA 02481