Lupenone

Cat. No.: HY-N2590

CAS No.: 1617-70-5

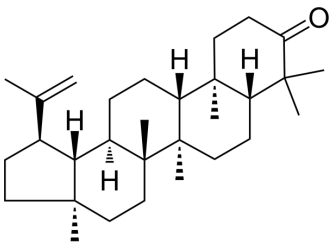
Molecular Formula: $C_{30}H_{48}O$

Molecular Weight: 424.7

Target: Parasite; PI3K; Akt; mTOR; NF-κB

Pathway: Anti-infection; PI3K/Akt/mTOR; NF-κB

Storage: 4°C, protect from light
* In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro

Ethanol : 10 mg/mL (23.55 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.3546 mL	11.7730 mL	23.5460 mL
	5 mM	0.4709 mL	2.3546 mL	4.7092 mL
	10 mM	0.2355 mL	1.1773 mL	2.3546 mL

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

In Vivo

1. Add each solvent one by one: 10% EtOH >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 1 mg/mL (2.35 mM); Clear solution
2. Add each solvent one by one: 10% EtOH >> 90% corn oil
   Solubility: ≥ 1 mg/mL (2.35 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Lupenone is an orally active lupine-type triterpenoid that can be isolated from Musa basjoo. Lupenone Lupenone plays a role through the PI3K/Akt/mTOR and NF-κB signaling pathways. Lupenone has anti-inflammatory, antiviral, antidiabetic and anticancer activities[1][2][3].

IC_{50} & Target

Trypanosoma

In Vitro

Lupenone (40 μM, 1 h) protects neuroblastoma SH-SY5y cells from methamphetamine-induced apoptotic cell death through PI3K/Akt/mTOR signaling pathway[1].

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

Cell Viability Assay[1]

Cell Line:	SH-SY5y
Concentration:	5, 10. 20, 40 μM
Incubation Time:	24 h
Result:	Did not cause significant cell death at different concentrations.

Apoptosis Analysis[1]

Cell Line:	SH-SY5y
Concentration:	40 μM
Incubation Time:	1 h
Result:	Reduced the population of annexinV/PI-positive cells (early apoptotic cells) and annexinV positive cells (total apoptotic cells).

Western Blot Analysis[1]

Cell Line:	SH-SY5y
Concentration:	40 μM
Incubation Time:	1 h
Result:	Increased the expression of anti-apoptotic proteins, including bcl-2 and caspases such as caspase 3, caspase 7, and caspase 8. Recuperate the phosphorylation level of PI3K and Akt. Inhibited the translocation of p65 from the cytosol to the nucleus, IκBα degradation, and I κBα phosphorylation.

In Vivo

Lupenone (6, 12, 24 mg/kg/day, gavage for 6 weeks) improves type 2 diabetic nephropathy by regulating NF-κB pathway-mediated inflammation and TGF-β1/Smad/ CTGF-related fibrosis[2].

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

Animal Model:	Spontaneous type 2 diabetic nephropathy db/db mouse models[1]
Dosage:	6, 12, 24 mg/kg
Administration:	i.g.
Result:	Maintained the fasting blood glucose. Reduced glycosylated hemoglobin, insulin, and 24 h proteinuria levels. Regulated changes in biochemical indicators

REFERENCES

[1]. Lee HS, et al. Lupenone Protects Neuroblastoma SH-SY5y Cells Against Methamphetamine-Induced Apoptotic Cell Death via PI3K/Akt/mTOR Signaling Pathway. Int J Mol Sci. 2020 Feb 27;21(5):1617.

[2]. Wu H, et al. Lupenone improves type 2 diabetic nephropathy by regulating NF-κB pathway-mediated inflammation and TGF-β1/Smad/CTGF-associated fibrosis. Phytomedicine. 2023 Sep;118:154959.

[3]. Mukerjee N, et al. Dynamics of natural product Lupenone as a potential fusion inhibitor against the spike complex of novel Semliki Forest Virus. PLoS One. 2022 Feb 25;17(2):e0263853.

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