Lupeol

Cat. No.: HY-N0790

CAS No.: 545-47-1

Molecular Formula: $C_{30}H_{50}O$

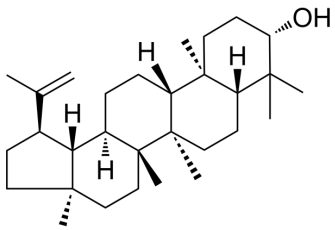
Molecular Weight: 426.72

Target: Androgen Receptor; Apoptosis

Pathway: Vitamin D Related/Nuclear Receptor; Apoptosis

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	2 years
	-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro

Ethanol : 14.29 mg/mL (33.49 mM; ultrasonic and warming and heat to 60°C)
DMSO : 2 mg/mL (4.69 mM; Need ultrasonic)

Preparing Stock Solutions

Concentration \ Solvent \ Mass	1 mg	5 mg	10 mg
1 mM	2.3435 mL	11.7173 mL	23.4346 mL
5 mM	0.4687 mL	2.3435 mL	4.6869 mL
10 mM	0.2343 mL	1.1717 mL	2.3435 mL

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

In Vivo

1. Add each solvent one by one: corn oil
   Solubility: 20 mg/mL (46.87 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% EtOH >> 90% corn oil
   Solubility: ≥ 1.43 mg/mL (3.35 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Lupeol (Clerodol; Monogynol B; Fagarasterol) is an active pentacyclic triterpenoid, has anti-oxidant, anti-mutagenic, anti-tumor and anti-inflammatory activity. Lupeol is a potent androgen receptor (AR) inhibitor and can be used for cancer research, especially prostate cancer of androgen-dependent phenotype (ADPC) and castration resistant phenotype (CRPC) [1].

IC_{50} & Target

Androgen receptor[1]

In Vitro

Lupeol, an effective AR inhibitor, can be developed as a potential agent to treat human prostate cancer (CaP). Lupeol (10–50 μM) treatment for 48 h results in a dose-dependent growth inhibition of androgen-dependent phenotype (ADPC) cells viz.,

	LAPC4 and LNCaP cells with an IC_{50} of 15.9 and 17.3 μM, respectively. Lupeol also inhibits the growth of 22Rv_1 with an IC_{50} of 19.1 μM. Further, Lupeol inhibits the growth of C4-2b cells with an IC_{50} of 25 μM. Lupeol has the potential to inhibit the growth of CaP cells of both ADPC and CRPC phenotype. Androgens by activating AR are known to drive the growth of CaP cells[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Lupeol is an effective agent that has the potential to inhibit the tumorigenicity of CaP cells in vivo. At the conclusion of the study on day 56, the total circulating serum-PSA levels (secreted by the implanted tumor cells) are measured. At 56thday post-implantation, PSA levels are observed between 11.95-12.79 ng/mL in control animals with LNCaP-tumors and C4-2b-tumors, respectively. However, Lupeol-treated counterpart animals exhibits reduced serum-PSA levels in a range of 4.25-7.09 ng/mL. Tumor tissues of animals receiving Lupeol treatment exhibits reduced serum-PSA levels as compared to control [1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [1]	LAPC4 (wild-functional AR/ADPC); LNCaP (mutant-functional AR/ADPC); 22Rv1 (mutant-functional AR/androgen-independent but responsive); C4-2b cells (mutant-functional AR/CRPC) and PC-3 and DU-145 (lack of endogenous AR) are grown under standard cell culture conditions at 37°C and 5% CO_2 environment. The cells (60-70% confluent) are treated with Lupeol (10-50 μM) for 48 h in complete growth medium. For combination set of experiments, cells are treated with either agonistic androgen-analogue R1881 (1 nM), or antagonist Bicalutamide (10 μM), and/or combination (R1881+Lupeol) for 48 h. After incubation for specified times at 37°C, MTT assay is performed. For sensitization studies, hormone refractory C4-2b cells are treated with Lupeol for 24 h. After 24 h, cells are incubated with Bicalutamide (10 μM) for further 24 h. Cells are assessed for viability[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [1]	Mice[1] Tumor studies are conducted in athymic nude mice and two cohorts of animals are created. 3×10^6 of cells are injected subcutaneously in the right flanks of each mouse. Each cohort receive a specific cell type either LNCaP or C4-2b. One week post-implantation, twenty mice (with visible tumors) in each cohort are randomly divided into two groups, with 10 animals in each group. The first group of animals receive intraperitoneal (i.p.) administration of corn oil (100 μL) and served as control. The second group of animals receive i.p. administration of Lupeol (40 mg/kg in 100 μL of corn oil) three times/week. Body weights and tumor volumes are recorded. All animals of group 1 and group 2 are sacrificed when tumors cross a pre-set endpoint volume of 1,000 mm^3. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Phytomedicine. 2023 Nov 8, 155193.
- Food Funct. 2022 May 10;13(9):4967-4976.
- Immunopharmacol Immunotoxicol. 2022 May 16;1-11.

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REFERENCES

[1]. Siddique HR, et al. Lupeol, a novel androgen receptor inhibitor: implications in prostate cancer therapy. Clin Cancer Res. 2011 Aug 15;17(16):5379-91.

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com
Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA