alpha-Bisabolol

Cat. No.: HY-121222

CAS No.: 515-69-5

Molecular Formula: $C_{15}H_{26}O$

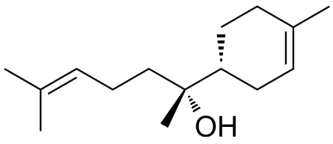
Molecular Weight: 222.37

Target: Apoptosis; PI3K

Pathway: Apoptosis; PI3K/Akt/mTOR

Storage:

Pure form	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (449.70 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	4.4970 mL	22.4850 mL	44.9701 mL
5 mM	0.8994 mL	4.4970 mL	8.9940 mL
10 mM	0.4497 mL	2.2485 mL	4.4970 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (11.24 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (11.24 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (11.24 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

alpha-Bisabolol, an orally active sesquiterpene alcohol, induces cell cycle arrest, mitochondrial apoptosis and inhibition of PI3K/Akt signalling pathways. alpha-Bisabolol exerts a protective action against Cisplatin (HY-17394)-induced nephrotoxicity by mitigating inflammation and oxidative stress through the inhibition of NFκB activation. alpha-Bisabolol exhibits anti-inflammatory, analgesic, antibiotic and anticancer activities[1][2].

IC_{50} & Target

PI3K

In Vitro

alpha-Bisabolol (3.2-120 μM; 24 h) exerts antiproliferative effects on A549 cells[1].
alpha-Bisabolol (7.5-30 μM; 24 h) caused apoptosis in A549 cells in a concentration-dependent manner[1].
alpha-Bisabolol (7.5-30 μM; 24 h) induces G2/M cell cycle arrest of A549 cells[1].
alpha-Bisabolol (15 μM; 24 h) reduces the motility and migration of the of A549 cells in a dose-dependent manner[1].
alpha-Bisabolol (15 μM; 24 h) exhibits a dose-dependent downregulation of p-PI3K and p-AKT proteins[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[1]

Cell Line:	A549 NSCLC cell line
Concentration:	3.2, 7.5, 15, 30, 60, 120 μM
Incubation Time:	24 h
Result:	Displayed significant anticancer effects against A549 cells with an observed IC_{50} 15 μM.

Apoptosis Analysis[1]

Cell Line:	A549 NSCLC cell line
Concentration:	7.5, 15, 30 μM
Incubation Time:	24 h
Result:	The percentage of apoptotic cells increased from 2.15% in the control to 48.5% at 30 μM concentration.

Cell Cycle Analysis[1]

Cell Line:	A549 NSCLC cell line
Concentration:	7.5, 15, 30 μM
Incubation Time:	24 h
Result:	The number of cells at G2 phase increased in a dose-dependent manner causing cell cycle arrest.

Cell Migration Assay [1]

Cell Line:	A549 NSCLC cell line
Concentration:	15 μM
Incubation Time:	24 h
Result:	Reduced the motility and migration of the of A549 cells in a dose-dependent manner.

Western Blot Analysis[1]

Cell Line:	A549 NSCLC cell line
Concentration:	15 μM
Incubation Time:	24 h
Result:	Exhibited a dose-dependent downregulation of p-PI3K and p-AKT proteins.

In Vivo

reduces the Cisplatin (HY-17394)-induced renal DNA damage, and markedly lessened the acute tubular necrosis observed in

kidney histology[2].

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

Animal Model:	Male and female BALB/c mice weighing 25-30 g[1]
Dosage:	25 mg/kg
Administration:	Orally; daily; for 7 days; continued for 3 more days
Result:	Had significantly normalized the alterations of water intake, urine volume, relative kidney weight, and the concentrations of urea and creatinine, as well as the creatinine clearance induced by Cisplatin (CP; 20 mg/kg; ip; On day 7). Significantly reduced the CP-induced renal DNA damage, and markedly lessened the acute tubular necrosis observed in kidney histology.

REFERENCES

[1]. Nur Elena Zaaba, et al. The Nephroprotective Effects of α-Bisabolol in Cisplatin-Induced Acute Kidney Injury in Mice. Biomedicines. 2022 Apr 3;10(4):842.

[2]. Wu S, et al. Anticancer effects of α-Bisabolol in human non-small cell lung carcinoma cells are mediated via apoptosis induction, cell cycle arrest, inhibition of cell migration and invasion and upregulation of P13K/AKT signalling pathway. J BUON. 2018 Sep-Oct;23(5):1407-1412.

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