Perillic acid

Cat. No.: HY-113471

CAS No.: 7694-45-3

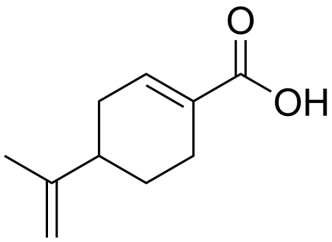
Molecular Formula: $C_{10}H_{14}O_2$

Molecular Weight: 166.22

Target: Apoptosis; HSV

Pathway: Apoptosis; Anti-infection

Storage: Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

Perillic acid is the metabolite of Perillyl alcohol (HY-N7000). Perillic acid induces lung cancer cell cycle arrest and apoptosis. Perillic acid shows anti-HSV-1 and immunomodulatory activities[1][2][3].

IC_{50} & Target

HSV-1

In Vitro

Perillic acid (1-5 mM; 24 h) decreases A549 cells survival in a dose-dependent manner[1].
Perillic acid (1 mM; 24 h) induces S-phase arrest in A549 cells and induces G2/M arrest in H520 cells[1].
Perillic acid (2 mM; 24 h) induces A549 and H520 cells apoptosis[1].
Perillic acid (0-50 μM; 24 h) shows potential antiviral activity primarily against the 17syn+ HSV-1 strain (EC_{50} KOS: 2.84 μM; 17 syn+: 1.08 μM)[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Cytotoxicity Assay[1]

Cell Line:	A549 cells
Concentration:	1, 2, 3, 4 and 5 mM
Incubation Time:	24 h
Result:	Resulted in decreased survival in a dose-dependent manner with an IC_{50} of 3.6 mM.

Cell Cycle Analysis[1]

Cell Line:	A549 and H520 cells
Concentration:	1 mM
Incubation Time:	24 h
Result:	Induced S-phase arrest in A549 cells and induced G2/M arrest in H520 cells.

Apoptosis Analysis[1]

Cell Line:	A549 and H520 cells

Concentration:	2 mM
Incubation Time:	24 h
Result:	Increased apoptosis to 27% in A549 and to 18% in H520 cells compared to control (12%).

Western Blot Analysis[1]

Cell Line:	H520 cells
Concentration:	0.5 mM
Incubation Time:	24 h
Result:	Increased Bax expression and decreased procaspase-3 levels.

In Vivo

Perillic acid (50 μM/kg; i.p.; daily for 5 days) shows immunomodulatory activity in mice[3].

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

Animal Model:	Balb/c mice[3]
Dosage:	50 μM/kg
Administration:	Intraperitoneal injection, daily for 5 days
Result:	Increased the total white blood cells (WBC) count. Increased the total antibody production, antibody producing cells in spleen, bone marrow cellularity and α-esterase positive cells significantly compared to the normal animals.

REFERENCES

[1]. Yeruva L, et al. Perillyl alcohol and perillic acid induced cell cycle arrest and apoptosis in non small cell lung cancer cells. Cancer Lett. 2007 Nov 18;257(2):216-26.

[2]. Mello CP, et al. Perillyl alcohol and perillic acid exert efficient action upon HSV-1 maturation and release of infective virus. Antivir Ther. 2020;25(1):1-11.

[3]. Raphael TJ, et al. Immunomodulatory activity of naturally occurring monoterpenes carvone, limonene, and perillic acid. Immunopharmacol Immunotoxicol. 2003 May;25(2):285-94.

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