Cinnamic acid

Cat. No.: HY-N0610A

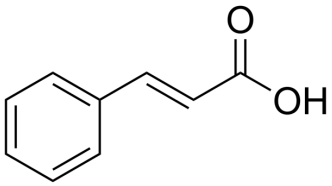
CAS No.: 621-82-9

Molecular Formula: $C_9H_8O_2$

Molecular Weight: 148.16

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 : ≥ 50 mg/mL (337.47 mM)

DMSO : 50 mg/mL (337.47 mM; Need ultrasonic)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Concentration \ Solvent \ Mass	1 mg	5 mg	10 mg
1 mM	6.7495 mL	33.7473 mL	67.4946 mL
5 mM	1.3499 mL	6.7495 mL	13.4989 mL
10 mM	0.6749 mL	3.3747 mL	6.7495 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: ≥ 2.5 mg/mL (16.87 mM); Clear solution
2. Add each solvent one by one: 10% EtOH >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (16.87 mM); Clear solution
3. Add each solvent one by one: 10% EtOH >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (16.87 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Cinnamic acid has potential use in cancer intervention, with IC_{50}s of 1-4.5 mM in glioblastoma, melanoma, prostate and lung carcinoma cells.

In Vitro

Treatment with Cinnamic acid (CINN) of various tumor cells of epithelial and neuroectodermal origin result in dose-dependent growth inhibition following a 3-day exposure. The inhibitory concentrations causing a 50% reduction in tumor-cell proliferation (IC_{50}) are between 1.2 to 4.5 mM. It is also showed that 20 mM Cinnamic acid is needed to cause an IC_{50} in FS4 cells, i.e. 5 to 20 times more than for tumor cells. In addition to inhibiting tumor-cell proliferation, Cinnamic acid causes

morphological changes consistent with melanocyte differentiation. Within 5 days of treatment with 5 mM Cinnamic acid, melanoma 1011 cells appear enlarged with a markedly increased cytoplasm-to-nuclear ratio and well organized cytoskeleton, developed long dendritic processes and became highly melanotic. The change in the capacity of Cinnamic acid -treated melanoma 1011, A375(M) and SKMEL28 cells to degrade and cross tissue barriers is assessed by an in vitro invasion assay using modified Boyden chambers with matrigel-coated filters. After 3 days of continuous treatment with Cinnamic acid, a dose-dependent loss of invasive capacity in 3 tested tumor lines is observed. Treatment with 5 mM Cinnamic acid results in 75-95% loss of invasiveness[1].

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

PROTOCOL

Cell Assay

The cell lines used, established from human malignant tumors, are A549 (lung cancer); PC3(M), Du145, and LNCaP (prostate cancer); A172, U251 (glioblastoma); and SKMEL28, A375(M), 1011 (melanoma). Growth rates are determined by cell counting. Briefly, 5 X10^4 cells are plated in each well of a 24-well plate, allowed to attach overnight, and treated with compounds (e.g., Cinnamic acid: 2.5, 5, 10, 20, 30 mM) the following day. Cells are grown for 3 days at 37°C in the presence or absence of the drug, then detached with trypsin/EDTA and counted in a Coulter counter. Viability is determined by Trypan-blue exclusion assay[1].

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