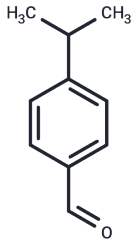
Data Sheet (Cat.No.T7441)

TargetMol

Cuminaldehyde

Chemical Properties



CAS No. : 122-03-2

Formula: C10H12O

Molecular Weight: 148.2

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Cuminaldehyde (Cuminal) is a natural aldehyde with inhibitory effect on alpha-synuclein fibrillation and cytotoxicity. Cuminaldehyde shows anticancer activity,with a pleasant smell and contributes to the aroma of essential oils.
Targets(IC50)	Apoptosis,Opioid Receptor,Endogenous Metabolite,DNA/RNA Synthesis,Interleukin, Lipoxygenase,TNF
In vitro	Cuminaldehyde?suppressed growth and induced apoptosis, as proved by depletion of the mitochondrial membrane potential, activation of both caspase-3 and -9, and morphological features of apoptosis[1].
In vivo	In vivo, cuminaldehyde diminished the tumor burden ,cuminaldehyde could be a drug for chemopreventive or anticancer therapy[1]
Cell Research	Incubated the cells in the culture plate with 96 wells at the concentration of ten thousand cells per well.?After being incubated for 24 h, we treated the cells with cuminaldehyde at the concentration of 10, 20, 40, 80, or 160 μM for 12, 24, or 48 h. Determined cell viability using the Cell Proliferation Kit II (XTT) according to the supplier's instructions.?The value of absorbance was evaluated by a spectrophotometer (Tecan infinite M200, Tecan, M?nnedorf, Switzerland) using 492 nm wavelength with a reference of 650 nm wavelength[1].
Animal Research	Human colorectal COLO 205 cells (5 × 10^6 cells in 200 μL of culture medium) were subcutaneously injected into the mice's flanks.?Treatment was started when the tumors reached about 75 mm^3.?Thirty-two mice were divided randomly into four groups (eight mice/group).?Cuminaldehyde-treated mice received intratumoral injection of 5, 10, or 20 mg/kg/day of cuminaldehyde in a 200 μL volume (the solutions were prepared from stock solution of cuminaldehyde in dimethyl sulfoxide and diluted into appropriate concentrations in PBS) daily.?The mice in the control group were treated with an equal volume of vehicle.?After transplantation, body weight as well as tumor size were monitored at weekly intervals.?Tumor size was measured using calipers, and tumor volume was calculated using the hemiellipsoid model formula[1]

Solubility Information

Solubility	DMSO: 25 mg/mL (168.69 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 2 mg/mL (13.5 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	6.7476 mL	33.7382 mL	67.4764 mL
5 mM	1.3495 mL	6.7476 mL	13.4953 mL
10 mM	0.6748 mL	3.3738 mL	6.7476 mL
50 mM	0.135 mL	0.6748 mL	1.3495 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Kuen-Daw T , Yi-Heng L , Ta-Wei C , et al. Cuminaldehyde from Cinnamomum verum Induces Cell Death through Targeting Topoisomerase 1 and 2 in Human Colorectal Adenocarcinoma COLO 205 Cells[J]. Nutrients, 2016, 8(6): 318-.

Liu S, Pang L, Wu X, et al.Non-destructive detection of trans-caryophyllene in early sweetpotato black spot disease using a QCM gas sensor based on modified CAU-1@ ZIF-8 composite.Microchemical Journal.2024: 110782.

Nikolowski W . Anti-Obesity Effect of Arq Zeera and Its Main Components Thymol and Cuminaldehyde in High Fat Diet Induced Obese Rats[J]. Drug Research:-.