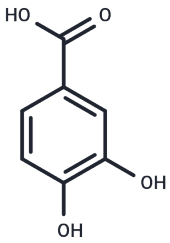
Data Sheet (Cat.No.T0562)

TargetMol

Protocatechuic acid

Chemical Properties



CAS No. : 99-50-3

Formula: C7H6O4

Molecular Weight: 154.12

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	Protocatechuic acid (3, 4-Dihydroxybenzoic acid) (3, 4-dihydroxybenzoic acid) is a natural phenolic compound found in many edible and medicinal plants. Recent studies indicate that it could be used as a protective agent against cardiovascular diseases and neoplasms. The mechanism of its action is mostly associated with antioxidant activity, including inhibition of generation as well as scavenging of free radicals and up-regulating enzymes which participate in their neutralization.
Targets(IC50)	Others,Endogenous Metabolite
In vitro	Protocatechuic acid inhibits the aggregation of Aβ and αS and destabilizes their preformed fibrils that prevent the death of PC12 cells triggered by Aβ- and αS-induced toxicity[3].
In vivo	Protocatechuic acid can prevent stress-induced immobility time in forced swim test without altering locomotor activity in mice. In addition, Protocatechuic acid treatment attenuates the elevation of serum corticosterone, lipid peroxidation and restores enzymatic antioxidants in cerebral cortex and hippocampus in ARS mice[1]. Rat administered cadmium and treated with prostigmine and doses of Protocatechuic acid (10–20 mg/kg) has significantly reduced BChE activity. Cadmium and either prostigmine or Protocatechuic acid (10–20 mg/kg) treated rats shows a marked reduction in MDA level[2].
Kinase Assay	AChE activity investigation is carried out in a reaction mixture containing 50 μL of tissue homogenate, 50 μL of 5, 5'-dithiobis-(2-nitrobenzoic) acid (DTNB), 1175 μL of 0.1 M phosphate-buffered solution, pH 8.0. After incubation for 20 min at 25°C, 25 μL of acetylthiocholine iodide solution is added as the substrate. The AChE activity is determined as changes in absorbance reading at 412 nm for 3 min at 25°C and using a UV/Visible spectrophotometer.
Cell Research	Protocatechuic acid is dissolved in DMSO. Dilutions of Protocatechuic acid (2, 5, 10, 20, 50, and 100 μM) are prepared from stock solutions, with serum-free culture medium. Equal volumes of each solution are mixed with Aβ1-42 (10 μM), then incubated for 24 h on a thermoblock, with continuous agitation, and then exposed to PC12 cells for 24 h to test whether Protocatechuic acid can prevent cell death triggered by Aβ. Cell viability is determined by MTT reduction assay. Cells are treated with 200 μL per well of MTT solution (final concentration, 0.5 mg/mL in DMEM-Glutamax medium) for 3 h, at 37°C, with 5% CO2. The dark blue formazan crystals that formed are solubilized with 100 μL per well of DMSO, for 30 min. Absorbance is measured at 540 nm, with a microplate

Cell Research	reader. Results are expressed as the percentage of MTT reduction in relation to the absorbance of control cells at 100%.

Solubility Information

Solubility	H2O: 5 mg/mL (32.44 mM),Sonication is recommended. DMSO: 96 mg/mL (622.89 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 (12.98 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	6.4885 mL	32.4423 mL	64.8845 mL
5 mM	1.2977 mL	6.4885 mL	12.9769 mL
10 mM	0.6488 mL	3.2442 mL	6.4885 mL
50 mM	0.1298 mL	0.6488 mL	1.2977 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

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