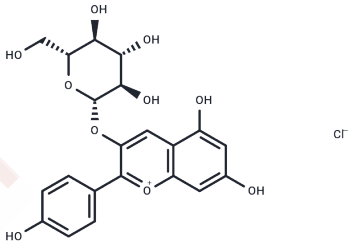
Data Sheet (Cat.No.TN2045)

TargetMol

Pelargonidin-3-O-glucoside chloride

Chemical Properties



CAS No. : 18466-51-8

Formula: C21H21ClO10

Molecular Weight: 468.84

Storage: Keep away from moisture,Keep away from direct sunlight
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	Pelargonidin-3-O-glucoside chloride (Callistephin chloride) is a natural anthocyanin compound widely found in plants such as strawberries and pomegranates. Pelargonidin-3-O-glucoside chloride belongs to the class of flavonoid polyphenols and exhibits antioxidant, anti-inflammatory, and neuroprotective biological activities. Pelargonidin-3-O-glucoside chloride exerts significant anti-inflammatory effects by inhibiting p38 MAPK phosphorylation and regulating the expression of inflammation-related proteins (iNOS, TNF-α, COX-2). It effectively scavenges DPPH radicals, reduces intracellular ROS levels, and inhibits lipid peroxidation. Pelargonidin-3-O-glucoside chloride alleviates glutamate-induced excitotoxicity, reduces neuronal apoptosis, and protects microglia and cerebellar granule neurons. Pelargonidin-3-O-glucoside chloride induces apoptosis in breast cancer cells and inhibits cell proliferation and metastasis.
Targets(IC50)	COX,p38 MAPK,ROS,TNF
In vitro	Methods: Human red blood cells were treated with pelargonidin-3-O-glucoside chloride (50 μM, 100 μM, 200 μM, 400 μM) and incubated with the red blood cell suspension for 10 or 30 minutes. Cell morphology was observed using a scanning electron microscope, and the percentage of spiny red blood cells was counted. Results: Pelargonidin-3-O-glucoside chloride induced the formation of spiked red blood cells in a concentration-dependent manner, with no hemolysis observed. [1] Methods: DPPC liposomes (containing the fluorescent probe DPH-PA) were treated with 0–200 μM pelargonidin-3-O-glucoside chloride and incubated for 60 minutes. Fluorescence decay caused by DPH-PA oxidation was monitored using fluorescence spectroscopy, and the antioxidant efficiency was calculated. Results: Pelargonidin-3-O-glucoside chloride effectively inhibited lipid peroxidation. [1] Methods: Mouse microglial cells (C8-4B) were first stimulated with LPS (100 ng/μL) and IFN-γ (1 ng/μL) for 2 hours, followed by the addition of pelargonidin-3-O-glucoside chloride (100 μM), with a total treatment duration of 24 hours. Cell viability was assessed using the CTG assay; NO concentration in the culture supernatant was measured using the Griess assay; and mRNA expression levels of iNOS, TNF-α, COX-2, and NF-κB p65 were analyzed by semi-quantitative PCR. Results: Pelargonidin-3-O-glucoside chloride reversed the LPS/IFN-γ-induced decrease in cell viability, downregulated the LPS/IFN-γ-induced increase in NO, and simultaneously inhibited the expression of iNOS, TNF-α, and COX-2. [2]

Solubility Information

Solubility	H2O: 40 mg/mL (85.32 mM),Sonication is recommended. DMSO: 80 mg/mL (170.63 mM) (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.1329 mL	10.6646 mL	21.3292 mL
5 mM	0.4266 mL	2.1329 mL	4.2658 mL
10 mM	0.2133 mL	1.0665 mL	2.1329 mL
50 mM	0.0427 mL	0.2133 mL	0.4266 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

Bonarska-Kujawa D, Pruchnik H, Kleszczyńska H. Interaction of selected anthocyanins with erythrocytes and liposome membranes. Cell Mol Biol Lett. 2012;17(2):289-308.

Zhao L, Chen S, Liu T, Wang X, Huang H, Liu W. Callistephin enhances the protective effects of isoflurane on microglial injury through downregulation of inflammation and apoptosis. Mol Med Rep. 2019;20(1):802-812.