Data Sheet (Cat.No.T66903)

TargetMol

Gallic Acid Monohydrate

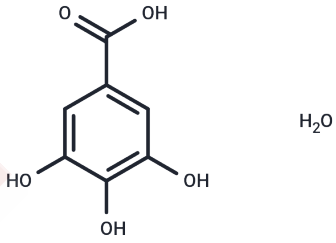
Chemical Properties

CAS No. : 5995-86-8

Formula: C7H8O6

Molecular Weight: 188.14

Storage: Keep away from moisture
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	Gallic Acid Monohydrate (3,4,5-Trihydroxybenzoic acid Monohydrate) is a hydrate of Gallic Acid, a natural polyhydroxyphenol, which inhibits the free radical scavenging effect of COX-2, and possesses a variety of physiological activities such as antioxidant, anti-inflammatory, anti-tumor, and antibacterial.
Targets(IC50)	Apoptosis,Ferroptosis,Reactive Oxygen Species,Endogenous Metabolite,COX,ROS
In vitro	In RAW264.7 macrophages, Gallic Acid Monohydrate (0-100 μM) inhibited LPS-induced NF-κB activation and significantly reduced the production of proinflammatory mediators including nitric oxide (NO), IL-6, and TNF-α.[1] In human corneal epithelial cells (HCECs), Gallic Acid Monohydrate (0-100 μM) suppressed hyperosmotic stress-induced reactive oxygen species (ROS) generation and upregulated antioxidant enzymes such as Nrf2, HO-1, and NQO1. [1] In peripheral blood mononuclear cells (PBMCs) from psoriasis patients, gallic acid (0-100 μM) significantly decreased the frequency of IFN-γ- and IL-17-producing T cell subsets. [1]
In vivo	In TMT- and ICV-STZ-induced Alzheimer's disease (AD) rat models, Gallic Acid Monohydrate was orally administered at doses of 30, 50, or 100 mg/kg. Treatment increased hippocampal BDNF and TNF-α levels, improved passive avoidance and memory performance, enhanced antioxidant enzyme activities including SOD, CAT, and GPx, and reduced TBARS levels in the hippocampus, indicating neuroprotective and cognitive-enhancing effects. [2]

Solubility Information

Solubility	DMSO: 40 mg/mL (212.61 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 (10.63 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	5.3152 mL	26.576 mL	53.1519 mL
5 mM	1.063 mL	5.3152 mL	10.6304 mL
10 mM	0.5315 mL	2.6576 mL	5.3152 mL
50 mM	0.1063 mL	0.5315 mL	1.063 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

Bai, J., Zhang, Y., Tang, C., Hou, Y., Ai, X., Chen, X., Zhang, Y., Wang, X., & Meng, X. (2021). Gallic acid: Pharmacological activities and molecular mechanisms involved in inflammation-related diseases. Biomedicine & Pharmacotherapy, 133, 110985.

Bhuia MS, Rahaman MM, Islam T, Bappi MH, Sikder MI, Hossain KN, Akter F, Al Shamsh Prottay A, Rokonuzzman M, Gürer ES, Calina D, Islam MT, Sharifi-Rad J. Neurobiological effects of gallic acid: current perspectives. Chin Med. 2023 Mar 15;18(1):27.