Gallic acid hydrate

Cat. No.: HY-N0523A

CAS No.: 5995-86-8

Molecular Formula: $C_7H_8O_6$

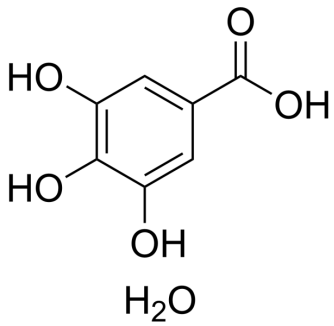
Molecular Weight: 188.13

Target: COX; Reactive Oxygen Species; Apoptosis; Ferroptosis; Endogenous Metabolite

Pathway: Immunology/Inflammation; Metabolic Enzyme/Protease; NF-κB; Apoptosis

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 50 mg/mL (265.77 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	5.3155 mL	26.5774 mL	53.1547 mL
	5 mM	1.0631 mL	5.3155 mL	10.6309 mL
	10 mM	0.5315 mL	2.6577 mL	5.3155 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (13.29 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (13.29 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (13.29 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Gallic acid (3,4,5-Trihydroxybenzoic acid) hydrate is a natural polyhydroxyphenolic compound and an free radical scavenger to inhibit cyclooxygenase-2 (COX-2)[1]. Gallic acid hydrate has various activities, such as antimicrobial, antioxidant, antimicrobial, anti-inflammatory, and anticance activities[2].

IC_{50} & Target			
	Human Endogenous Metabolite	COX-2	Microbial Metabolite

In Vitro	Gallic acid is an antioxidant which can inhibit both COX-2[1]. After 18 h treatment with Gallic acid, the number of viable neutrophils is dramatically decreased from 40.3% to 27.7%, highly comparable with 26.4% for untreated neutrophils. Gallic acid fails to attenuate isoproterenol-induced myocytolysis[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	The food intake (2.6±0.08 g/day, p=0.69) and the body weight (2.5±0.69 g, p=0.76) of the Gallic acid group do not differ significantly from those of the control group (food intake; 2.41±0.14 g/day and the body weight; 2.83±0.84 g/day). The blood glucose tolerance in the Gallic acid group is significantly improved after 2 weeks of treatment. The blood glucose tolerance of the Gallic acid group after a treatment period of 2 weeks is also significantly better than that of the control group at 90 and 120 min ($p<0.05$). The serum triglyceride concentration in the Gallic acid group (0.67±0.03 mM, $p<0.05$) is significantly reduced relative to that of the control group (1.08±0.20 mM). The total cholesterol concentration is similar in the control (3.19±0.27 mM) and Gallic acid (3.01±0.18 mM) groups[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Biomaterials. 2021, 120952.
- Food Chem. 2022: 134807.
- Eur J Pharmacol. 2022 May 18;926:175041.
- Plants. 2021, 10(11), 2525.
- J Immunol Res. 2022 May 23;2022:7909971.

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REFERENCES

[1]. Felipe Hugo Alencar Fernandes, et al. Gallic Acid: Review of the Methods of Determination and Quantification. Crit Rev Anal Chem

[2]. Amaravani M, et al. COX-2 structural analysis and docking studies with gallic acid structural analogues. Springerplus. 2012 Dec;1(1):58.

[3]. Bak EJ, et al. Gallic acid improves glucose tolerance and triglyceride concentration in diet-induced obesity mice. Scand J Clin Lab Invest. 2013 Dec;73(8):607-14.

[4]. Cheng Y, et al. Plant Natural Products Calycosin and Gallic Acid Synergistically Attenuate Neutrophil Infiltration and Subsequent Injury in Isoproterenol-Induced Myocardial Infarction: A Possible Role for Leukotriene B4 12-Hydroxydehydrogenase? Oxid Med Cell Longev. 2015;2015:434052.

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