Inhibitors, Agonists, Screening Libraries

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Data Sheet

Product Name: Gallic acid
Cat. No.: HY-N0523
CAS No.: 149-91-7
Molecular Formula: C₇H₆O₅
Molecular Weight: 170.12
Target: Acetyl-CoA Carboxylase; COX
Pathway: Immunology/Inflammation; Metabolic Enzyme/Protease
Solubility: DMSO: 100 mg/mL

BIOLOGICAL ACTIVITY:

Gallic acid is an antioxidant which can inhibit both COX-2 and acetyl CoA carboxylase (ACC).

IC50 & Target: COX-2[¹], ACC[²]

In Vitro: Gallic acid is an antioxidant which can inhibit both COX-2[¹] and acetyl CoA carboxylase (ACC)[²]. 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].

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].

PROTOCOL (Extracted from published papers and Only for reference)

Cell Assay:[³] Neutrophils are treated with 8 μg/mL Gallic acid in RPMI1640/10% FBS for 3, 6, 9, and 18 h. At the end of Gallic acid treatment, the cells are stained with Annexin V-FITC and PI according to manufacturer’s instructions. Briefly, the cells are washed twice with ice-cold PBS and resuspended in 1× Binding Buffer at a concentration of 1×10⁶ cells/mL. Cell suspensions (1×10⁵ cells in 100 μL) are incubated with 5 μL of Annexin V-FITC and 10 μL PI in a 5 mL culture tube at room temperature for 20 min. The stained cells are immediately analyzed on flow cytometry system[³]. Animal Administration:[²] Five-week-old male C57BL/6 mice are used in this study. The animals are maintained in a temperature-controlled room at 22° C on a 12 h light-dark photocycle. The mice are divided into the control vehicle group and the Gallic acid group. For 2 weeks, the mice are administered intraperitoneal treatment on a daily basis with vehicle (10% alcohol, 10% tween 80, and 80% saline) alone or with 10 mg/kg Gallic acid. After this treatment, GTTs are again conducted, and the blood samples are taken for subsequent biochemical analysis. Over the experimental period, food intake and body weight are measured on a daily basis[²].

References:

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: 609-228-6898    Fax: 609-228-5909    E-mail: tech@MedChemExpress.com
Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA