(-)-Catechin gallate

Cat. No.: HY-N0356

CAS No.: 130405-40-2

Molecular Formula: $C_{22}H_{18}O_{10}$

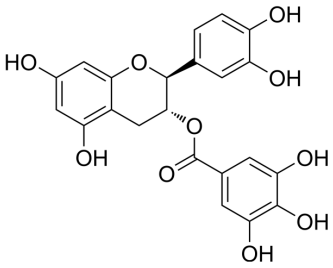
Molecular Weight: 442.37

Target: COX

Pathway: Immunology/Inflammation

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 : 100 mg/mL (226.06 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.2606 mL	11.3028 mL	22.6055 mL
5 mM	0.4521 mL	2.2606 mL	4.5211 mL
10 mM	0.2261 mL	1.1303 mL	2.2606 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 (5.65 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (5.65 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

(-)-Catechin gallate is a minor constituent in green tea catechins. (-)-Catechin gallate inhibits the activity of COX-1 and COX-2 enzymes.

IC_{50} & Target

COX-1 | COX-2

In Vitro

(-)-Catechin gallate (CG) directly interacts with DNA oligomers and inhibits the activity of COX-1 and COX-2 enzymes, the gene expression of matrix metalloproteinase-9 in macrophage-differentiated HL-60 myeloid leukemia cells, the adipocyte uptake of glucose by the transporter, GLUT4, and the activities of various proteasomes, i.e., the multicatalytic proteases responsible for the degradation of most cellular proteins. The relative cytotoxicities of a 3-day exposure to (-)-Catechin gallate are determined for cancerous CAL27 and HSG cells, immortalized epithelioid S-G cells, and normal HGF-1 gingival

fibroblasts. The concentration at which toxicity (P≤0.01) initially occur is 25 μM (-)-Catechin gallate for S-G cells, 50 μM (-)-Catechin gallate for CAL27 cells, 62.5 μM (-)-Catechin gallate for HSG cells and 75 μM (-)-Catechin gallate for HGF-1 fibroblasts. The calculated neutral red (NR_{50}) values for a 3-day exposure to (-)-Catechin gallate are 58 μM for S-G cells, 62 μM for CAL27 cells, 90 μM for HSG cells and 132 μM for HGF-1 fibroblasts[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [1]

Human tongue squamous carcinoma (CAL27) cells and human salivary gland carcinoma (HSG) cells are used. Individual wells of a 96-well microtiter tissue culture plate are inoculated with 0.2 mL of the growth medium containing 2×10^4 cells/well for a 1-day exposure, 1.5×10^4 cells/ well for a 2-day exposure and 1×10^4 cells/well for a 3-day exposure to the test agents. After 1 day of incubation, the growth medium is removed and replaced with exposure medium, with or without varied concentrations of the test agents. In some studies the cells are coexposed to (-)-Catechin gallate (100, 200, 300, 400, and 500 μM) and 100 Units/mL catalase. After 1-3 days of exposure to the test agents, viability is assessed with the neutral red (NR) assay, which is based on the uptake and accumulation of the supravital dye, neutral red (NR)[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Acta Pharm Sin B. 2021 Jan;11(1):143-155.

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REFERENCES

[1]. Babich H, et al. In vitro cytotoxicity of (-)-catechin gallate, a minor polyphenol in green tea. Toxicol Lett. 2007 Jul 10;171(3):171-80.

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