

Product Data Sheet

Product Name: (-)-epigallocatechin

Cat. No.: GC17242

Chemical Properties

Cas. No. 970-74-1

Chemical Name (2R,3R)-2-(3,4,5-trihydroxyphenyl)chroman-3,5,7-triol

SMILES O[C@@H]1CC2=C(C=C(O)C=C2O)O[C@@H]1C3=CC(O)=C(O)C(O)=C3

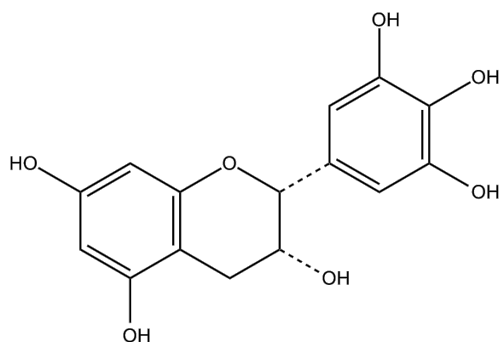
Formula $C_{15}H_{14}O_7$ M.Wt 306.27

Solubility DMF: 25 mg/ml, DMSO: 15 mg/ml, Ethanol: 5 mg/ml, PBS (pH 7.2): 1 mg/ml
Storage Store at -20°C, protect from light

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution: ship with blue ice. All other available size: ship with RT, or blue ice upon request.

Structure



Protocol

Cell experiment [1]:

Cell lines HCT 116 cells

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

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HCT 116 cells were cultured in McCoy's 5A medium [12.0g/H₂O (1000ml) and NaHCO₃ (2.2g)], supplemented with 10% fetal bovine serum, and incubated at 37°C in a humidified environment with 5% CO₂. The cells were seeded in 96-Preparation Method well flat plate with a concentration of 2.5×10^4 cells/ml, and cultured at 37°C for 1 day to stabilize the cells. Then, different concentrations of (-)-epigallocatechin (1, 10, 100, and 1000µM) were added to each well, and cell viability analysis was performed after 3 days of incubation at 37°C.

Reaction Conditions 1, 10, 100, and 1000µM; 72h

Applications (-)-epigallocatechin treatment decreased the cell viability of HCT 116 cells in a dose-dependent manner.

Animal experiment [2]:

Animal models ICR mice

ICR mice weighing 18-22 grams were housed in an SPF-level barrier animal room. The temperature was maintained at 23±2°C, the light/dark cycle was 12 hours, the humidity was 50-70%, and mice had free access to food and filtered water. The mice were divided into two groups: the experimental group was fed Preparation Method 1.0g/kg/day of (-)-epigallocatechin for 10 days; the control group was fed normal saline every day. The eyeballs were taken from the mice. One drop of blood (except the first drop) was collected and dropped onto a glass slide with a diameter of approximately 5mm. The blood clotting time and bleeding time were analyzed.

Dosage form 1.0g/kg/day for 10 days; p.o.

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Applications (-)-epigallocatechin treatment enhanced the blood clotting time and bleeding time in mice.

References:

- [1] Uesato S, Kitagawa Y, Kamishimoto M, et al. Inhibition of green tea catechins against the growth of cancerous human colon and hepatic epithelial cells[J]. Cancer Letters, 2001, 170(1): 41-44.
- [2] Chen X Q, Wang X B, Guan R F, et al. Blood anticoagulation and antiplatelet activity of green tea (-)-epigallocatechin (EGC) in mice[J]. Food & function, 2013, 4(10): 1521-1525.

Background

(-)-epigallocatechin is a major polyphenolic compound in green tea with antioxidant properties [1]. (-)-epigallocatechin binds to bovine β -lactoglobulin (β LG) through van der Waals forces and hydrogen bonds, leading to a change in the native conformation of β LG and improving the functionality of dairy products [2]. (-)-epigallocatechin has been widely used to inhibit the growth of different cancer cells[3].

In vitro, (-)-epigallocatechin treatment for 3 days significantly inhibited the proliferation of HCT 116 cells and Hep G2 cells, with IC_{50} values of 11.2 and 52.3 μ M, respectively[4]. Treatment of UMR-106 cells with 20 μ M (-)-epigallocatechin for 6 days increased alkaline phosphatase (ALP) activity and significantly increased matrix mineralization[5]. Treatment of H1299 cells with 40 μ M (-)-epigallocatechin for 24h induced apoptosis and down-regulated the mRNA level of hTERT[6].

In vivo, Oral administration of (-)-epigallocatechin (1g/kg/day) for 10 days significantly inhibited platelet aggregation and prolonged activated partial prothrombin time in ICR mice[7].

References:

- [1] Hu J, Zhou D, Chen Y. Preparation and antioxidant activity of green tea extract enriched in epigallocatechin (EGC) and epigallocatechin gallate (EGCG)[J]. Journal of Agricultural and Food Chemistry, 2009, 57(4): 1349-1353.
- [2] Wu X, Wu H, Liu M, et al. Analysis of binding interaction between (-)-epigallocatechin (EGC) and β -lactoglobulin by multi-spectroscopic method[J]. Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy, 2011, 82(1): 164-168.

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- [3] Du G J, Zhang Z, Wen X D, et al. Epigallocatechin Gallate (EGCG) is the most effective cancer chemopreventive polyphenol in green tea[J]. *Nutrients*, 2012, 4(11): 1679-1691.
- [4] Uesato S, Kitagawa Y, Kamishimoto M, et al. Inhibition of green tea catechins against the growth of cancerous human colon and hepatic epithelial cells[J]. *Cancer Letters*, 2001, 170(1): 41-44.
- [5] Ko C H, Lau K M, Choy W Y, et al. Effects of tea catechins, epigallocatechin, gallic acid, and gallic acid gallate, on bone metabolism[J]. *Journal of Agricultural and Food Chemistry*, 2009, 57(16): 7293-7297.
- [6] Lin S C, Li W C, Shih J W, et al. The tea polyphenols EGCG and EGC repress mRNA expression of human telomerase reverse transcriptase (hTERT) in carcinoma cells[J]. *Cancer letters*, 2006, 236(1): 80-88.
- [7] Chen X Q, Wang X B, Guan R F, et al. Blood anticoagulation and antiplatelet activity of green tea (–)-epigallocatechin (EGC) in mice[J]. *Food & function*, 2013, 4(10): 1521-1525.

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