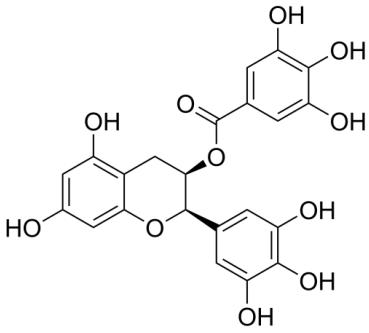
Data Sheet

Product Name:	(-)-Epigallocatechin Gallate
Cat. No.:	CS-1258
CAS No.:	989-51-5
Molecular Formula:	$C_{22}H_{18}O_{11}$
Molecular Weight:	458.37
Target:	Apoptosis; Endogenous Metabolite
Pathway:	Apoptosis; Metabolic Enzyme/Protease
Solubility:	DMSO : ≥ 30 mg/mL



BIOLOGICAL ACTIVITY:

(-)-Epigallocatechin Gallate (EGCG) is a major polyphenol in green tea, which can inhibit cell proliferation and induce cell apoptosis. (-)-Epigallocatechin Gallate inhibits glutamate dehydrogenase 1/2 (GDH1/2, GLUD1/2) activity. (-)-Epigallocatechin Gallate has a potent anticancer, antioxidant and anti-inflammatory properties against various types of cancers such as colorectal cancer, myeloid leukemia, thyroid carcinoma[1][2][3][4]. IC50 & Target:EGFR, HER2 and HER3[1] GDH1/2, GLUD1/2[2] ***In Vitro:***(-)-Epigallocatechin Gallate (EGCG, 10-60 μM) inhibits the growth of FB-2 and WRO cells in a dose-dependent manner[1].

(-)-Epigallocatechin Gallate (10-60 μM, 0-24 h) reduces cyclin D1 and phosphorylation of AKT and ERK1/2, and increases p21 and p53 expression[1].

(-)-Epigallocatechin Gallate (10-60 μM, 12 h) reduces cell motility and migration[1].

(-)-Epigallocatechin Gallate (0-20 μM, 0-20 min approximately) inhibits GLUD1/2 and IDH1 activity in a concentration and time-dependent way (biochemical assays)[2].

(-)-Epigallocatechin Gallate (0-35 μg/mL, 24-72 h) inhibits the proliferation of colorectal cancer cells (LoVo, SW480, HT-29, HCT-8 cells), increases cell apoptosis and blocks cells at the G0/G1 phase[3].

(-)-Epigallocatechin Gallate (30 μM, 3-24 h) suppresses the expression of COX-2 and mPGES-1 mRNAs, prostaglandin E2 production in LPS-induced osteoblasts[4]. ***In Vivo:***(-)-Epigallocatechin Gallate (Intragastrical administration, 5-20 mg/kg, once daily for 14 days, orthotopic transplant model) decreases tumors growth[3].

(-)-Epigallocatechin Gallate (Injected into the mouse lower gingiva, a single dose of 0.5 mg/mouse, experimental periodontitis model) decreases inhibits the LPS-induced loss of bone mineral density (BMD)[3].

PROTOCOL (Extracted from published papers and Only for reference)

Cell Assay:[3]**LoVo, SW480, HCT-8, and HT-29 cells** are seeded in 96-well plates at a concentration of **5×10^3 cells**; each cell line is totally seeded in the 12 wells. Complete medium is added to the wells, up to 200 μL; the medium contains **0 μg/mL, 10 μg/mL, 20 μg/mL, and 35 μg/mL of (-)-Epigallocatechin Gallate**. The inhibition rate=[1 - (absorbance of (-)-Epigallocatechin Gallate group - absorbance of control group)/(absorbance of control group - absorbance of blank control group)] × 100[3].

Animal Administration:(-)-Epigallocatechin Gallate is prepared in physiological saline[2].[3]Mice[3]

At 2 weeks postsurgery, 39 out of the 40 **nude mice** presented with tumors. Based on the volume of the tumors, the 39 mice with tumors are divided into four groups: a control group (n=9); a group that receives **5 mg/kg of (-)-Epigallocatechin Gallate** (n=10); a group that receives **10 mg/kg of (-)-Epigallocatechin Gallate** (n=10); and a group that receives **20 mg/kg of (-)-Epigallocatechin Gallate** (n=10). In the therapeutic groups, (-)-Epigallocatechin Gallate is administrated **intragastrically**, and in the control group, 100 uL of physiological saline is administrated intragastrically, once daily for 14 days. After the treatment of the mice with (-)-

Epigallocatechin Gallate for 4 weeks, the growth and metastasis of the primary tumors are continuously monitored using a fluorescent imaging system. After 4 weeks, the primary tumors are weighed and immediately put into liquid nitrogen (−196°C) and 2 to 3 hours later, these specimens are stored at −80°C. In addition, the other parts of the primary tumor and metastases are fixed in 4% formaldehyde[3].

References:

[1]. De Amicis F, et al. Epigallocatechin gallate inhibits growth and Epithelial-to-Mesenchymal Transition in human thyroid carcinoma cell lines. J Cell Physiol. 2013 Apr 1.

[2]. Peeters TH, et al. Isocitrate dehydrogenase 1-mutated cancers are sensitive to the green tea polyphenol epigallocatechin-3-gallate. Cancer Metab. 2019 May 20;7:4.

[3]. Jin H, et al. Epigallocatechin gallate inhibits the proliferation of colorectal cancer cells by regulating Notch signaling. Onco Targets Ther. 2013;6:145-53.

[4]. Tsukasa Tominari; Epigallocatechin gallate (EGCG) suppresses lipopolysaccharide-induced inflammatory bone resorption, and protects against alveolar bone loss in mice. FEBS Open Bio. 2015 Jun 12;5:522-7.

CAIndexNames:

Benzoic acid,3,4,5-trihydroxy-,(2R,3R)-3,4-dihydro-5,7-dihydroxy-2-(3,4,5-trihydroxyphenyl)-2H-1-benzopyran-3-yl ester

SMILES:

O=C(O[C@H]1[C@@H](C2=CC(O)=C(O)C(O)=C2)OC3=CC(O)=CC(O)=C3C1)C4=CC(O)=C(O)C(O)=C4

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