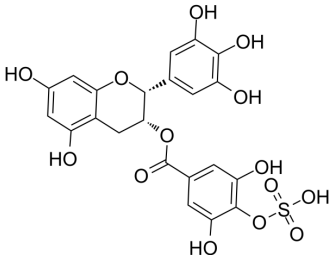
EGCG-4″-sulfate

Cat. No.:	HY-150526
CAS No.:	2708237-76-5
Molecular Formula:	$C_{22}H_{18}O_{14}S$
Molecular Weight:	538.43
Target:	Endogenous Metabolite; Apoptosis
Pathway:	Metabolic Enzyme/Protease; Apoptosis
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

EGCG-4″-sulfate is a major polyphenol in green tea, which can inhibit cell proliferation and induce cell apoptosis. (-)-Epigallocatechin Gallate sulfate inhibits glutamate dehydrogenase 1/2 (GDH1/2, GLUD1/2) activity. EGCG-4″-sulfate 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].

In Vitro

EGCG-4″-sulfate (10-60 μM) inhibits the growth of FB-2 and WRO cells in a dose-dependent manner[1].
EGCG-4″-sulfate (10-60 μM, 0-24 h) reduces cyclin D1 and phosphorylation of AKT and ERK1/2, and increases p21 and p53 expression[1].
EGCG-4″-sulfate (10-60 μM, 12 h) reduces cell motility and migration[1].
EGCG-4″-sulfate (0-20 μM, 0-20 min approximately) inhibits GLUD1/2 and IDH1 activity in a concentration and time-dependent way (biochemical assays)[2].
EGCG-4″-sulfate (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].
EGCG-4″-sulfate (30 μM, 3-24 h) suppresses the expression of COX-2 and mPGES-1 mRNAs, prostaglandin E2 production in LPS-induced osteoblasts[4].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Proliferation Assay[1]

Cell Line:	FB-2 and WRO cells (serum-starved for 48h)
Concentration:	10, 40, 60 μM.
Incubation Time:	4 days
Result:	Inhibited basal cell proliferation (40% in FB-2 and 35% in WRO) at 10 μM, inhibited cell number (by 68% to 73%) at 40 and 60 μM).

Western Blot Analysis[1]

Cell Line:	FB-2 cells
Concentration:	10, 40, 60 μM.
Incubation Time:	24 h

Result:	Reduced cyclin D1 level, phosphorylation of AKT and ERK1/2. Induced the expression of p21 and p53, and E-cadherin, N-cadherin, Vimentin and α5-integrin.

Cell Migration Assay [1]

Cell Line:	FB-2 and WRO cells (serum-starved for 48h)
Concentration:	10, 40, 60 μM.
Incubation Time:	12 h
Result:	Reduced migration activity in FB-2 and WRO cells.

RT-PCR[4]

Cell Line:	Mouse primary osteoblasts (1 ng/ml LPS-treated)
Concentration:	30 μM
Incubation Time:	3, 6, 12, 24 h
Result:	Suppressed the LPS-induced expression of COX-2 and mPGES-1 mRNAs, prostaglandin E2 production.

In Vivo

EGCG-4″-sulfate (Intragastrical administration, 5-20 mg/kg, once daily for 14 days, orthotopic transplant model) decreases tumors growth[3].

EGCG-4″-sulfate (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].

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Animal Model:	Orthotopic transplant BALB/c nude mice model[3]
Dosage:	5, 10, and 20 mg/kg, once daily for 14 days.
Administration:	Intragastrical administration.
Result:	Inhibited tumors growth with no liver or lung metastases.

Animal Model:	Model of experimental periodontitis, LPS (25 μg/mouse)[4]
Dosage:	0.5 mg/mouse, a single dose.
Administration:	Injected into the mouse lower gingiva
Result:	Inhibited the LPS-induced loss of bone mineral density (BMD) in mice.

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, et al; 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.

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