(-)-Epicatechin

Cat. No.: HY-N0001

CAS No.: 490-46-0

Molecular Formula: $C_{15}H_{14}O_6$

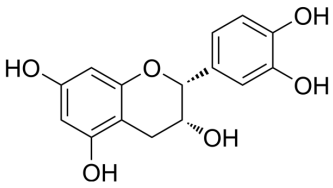
Molecular Weight: 290.27

Target: COX; Ferroptosis; Endogenous Metabolite

Pathway: Immunology/Inflammation; Apoptosis; Metabolic Enzyme/Protease

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 (344.51 mM; Need ultrasonic)

H_2O : 2 mg/mL (6.89 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	3.4451 mL	17.2253 mL	34.4507 mL
5 mM	0.6890 mL	3.4451 mL	6.8901 mL
10 mM	0.3445 mL	1.7225 mL	3.4451 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 (8.61 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (8.61 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (8.61 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

(-)-Epicatechin inhibits cyclooxygenase-1 (COX-1) with an IC_{50} of 3.2 μM. (-)-Epicatechin inhibits the IL-1β-induced expression of iNOS by blocking the nuclear localization of the p65 subunit of NF-κB.

IC_{50} & Target

COX-1

3.2 μM (IC_{50})

In Vitro	(-)-Epicatechin exhibits >95% inhibitory activity at 70 μg/mL against cyclooxygenase-1 (COX-1) with an IC_{50} of 3.2 μM[1]. (-)-Epicatechin inhibits the IL-1β-induced expression of iNOS by blocking the nuclear localization of the p65 subunit of NF-κB. In RINm5F cells, (-)-Epicatechin is shown to block the inhibition of insulin release after addition of IL-1β. Additionally, (-)-Epicatechin is shown to inhibit the proliferation of Hodgkin's lymphoma cells and Jurkat T cells, which is attributed to the ability of (-)-Epicatechin to inhibit the binding of NF-κB to DNA in these cells. In human colorectal cancer HCT-116 cells, combining 20?μM Panaxadiol with 150, 200, or 250?μM (-)-Epicatechin results in growth inhibition of 51%, 97%, and 95%, respectively. The combination also increases the apoptosis level by 11.9%, 16.6%, and 25.8%, as examined by annexin V/PI staining[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Animals receive 1 mg/kg of (-)-Epicatechin or water (vehicle) via oral gavage (twice daily). Exercise groups undergo 15 days of treadmill exercise. Significant increases in treadmill performance (~50%) and enhanced in situ muscle fatigue resistance (~30%) are observed with (-)-Epicatechin[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Animal Administration [3]	Mice[3] 1-year-old, male C57BL/6N mice (n=25) are randomized into four groups. Mice in the (-)-Epicatechin groups 3 and 4 are given 1.0 mg/kg twice a day (morning and evening) for 15 consecutive days, whereas animals in the control groups 1 and 2 receive the vehicle (water). Both (-)-Epicatechin and vehicle are administered via oral gavage[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Viruses. 2020 Feb 4;12(2):176.
- Int J Insect Sci. 2018 Feb 28;10:1179543318758409.

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REFERENCES

[1]. Waffo-Téguo P, et al. Potential cancer-chemopreventive activities of wine stilbenoids and flavans extracted from grape (Vitis vinifera) cell cultures. Nutr Cancer. 2001;40(2):173-9.

[2]. Shay J, et al. Molecular Mechanisms and Therapeutic Effects of (-)-Epicatechin and Other Polyphenols in Cancer, Inflammation, Diabetes, and Neurodegeneration. Oxid Med Cell Longev. 2015;2015:181260.

[3]. Nogueira L, et al. (-)-Epicatechin enhances fatigue resistance and oxidative capacity in mouse muscle. J Physiol. 2011 Sep 15;589(Pt 18):4615-31.

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