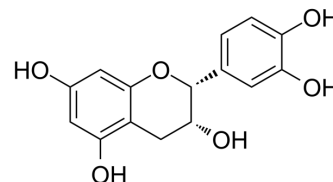


(-)-Epicatechin

| | |
|--------------------|--|
| 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)
 H₂O : 2 mg/mL (6.89 mM; ultrasonic and warming and heat to 60°C)

| | Solvent Concentration | Mass | 1 mg | 5 mg | 10 mg |
|---------------------------|--------------------------|------|-----------|------------|------------|
| | | | | | |
| Preparing Stock Solutions | 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

- 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
- 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
- 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 IC₅₀ 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.

IC₅₀ & Target

COX-1
 3.2 μM (IC₅₀)

| | |
|-----------------|---|
| In Vitro | <p>(-)-Epicatechin exhibits >95% inhibitory activity at 70 µg/mL against cyclooxygenase-1 (COX-1) with an IC₅₀ 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].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> |
| In Vivo | <p>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].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> |

PROTOCOL

| | |
|---|--|
| Animal Administration ^[3] | <p>Mice^[3]</p> <p>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].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> |
|---|--|

CUSTOMER VALIDATION

- Viruses. 2020 Feb 4;12(2):176.
- Patent. US20230014181.
- Int J Insect Sci. 2018 Feb 28;10:1179543318758409.

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REFERENCES

- [1]. Waffo-Tégou 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.

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

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