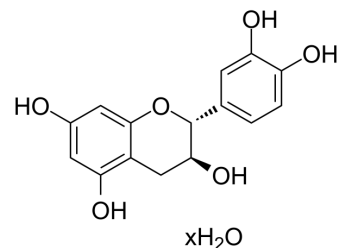


(+)-Catechin hydrate

Cat. No.:	HY-N0355
CAS No.:	225937-10-0
Molecular Formula:	C ₁₅ H ₁₄ O ₆ ·xH ₂ O
Target:	COX
Pathway:	Immunology/Inflammation
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 : 50 mg/mL (Need ultrasonic)
In Vivo	<ol style="list-style-type: none"> Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: ≥ 2.5 mg/mL (Infinity mM); Clear solution Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: ≥ 2.5 mg/mL (Infinity mM); Clear solution Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: ≥ 2.5 mg/mL (Infinity mM); Clear solution

BIOLOGICAL ACTIVITY

Description	(+)-Catechin hydrate inhibits cyclooxygenase-1 (COX-1) with an IC ₅₀ of 1.4 μM.
IC₅₀ & Target	COX-1 1.4 μM (IC ₅₀)
In Vitro	<p>(+)-Catechin exhibits >95% inhibitory activity at 70 μg/mL against cyclooxygenase-1 (COX-1) with an IC₅₀ of 1.4 μM^[1]. A dose-dependent reduction in color is observed after 24 hours of treatment with (+)-Catechin, and 54.76% of the cells are dead at the highest concentration of (+)-Catechin tested (160 μg/mL) whereas the IC₅₀ of (+)-Catechin is achieved at 127.62 μg/mL (+)-Catechin. A dose- and time-dependent increase in the induction of apoptosis is observed when MCF-7 cells are treated with (+)-Catechin. When compare to the control cells at 24 hours, 40.7 and 41.16% of the cells treated with 150 μg/mL and 300 μg/mL (+)-Catechin, respectively, undergo apoptosis. The expression levels of Caspase-3, -8, and -9 and p53 in MCF-7 cells treated with 150 μg/mL (+)-Catechin for 24 h increase by 5.81, 1.42, 3.29, and 2.68 fold, respectively, as compare to the levels in untreated control cells^[2].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>
In Vivo	Animals treated with (+)-Catechin at the lowest tested dose, i.e., 50 mg/kg, p.o. have spent comparatively more time in exploring the novel object in the choice trial, however, the difference is not statistically significant. (+)-Catechin prevents the time-induced episodic memory deficits in a dose-dependent manner, the most effective being 200 mg/kg, p.o.. Treatment with (+)-Catechin prevents the rise in MPO level compare to DOX alone treatment group (21.98±9.44 and 36.76±4.39% in the

hippocampus and the frontal cortex respectively)^[3].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay ^[2]

The Cell viability assay is performed to assess the toxicity of different concentrations of (+)-Catechin on MCF-7 cells. Briefly, MCF-7 cells (2×10^4 cells/well) are plated in 96-well plates and treated with 0 $\mu\text{g/mL}$ (+)-Catechin and 160 $\mu\text{g/mL}$ (+)-Catechin for 24 hours. Then, 40 μL of the Cell Titer Blue solution is directly added to the wells and incubated at 37°C for 6 hours. The fluorescence is recorded with a 560 nm/590 nm (excitation/emission) filter set using a microplate fluorescence reader, and the IC_{50} is calculated. Quadruplet samples are run for each concentration of (+)-Catechin in three independent experiments ^[2].

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Animal Administration ^[3]

Rats^[3]

Twelve weeks old, healthy male rats weighing 200 to 230 g are used in this study. Rats are divided into four experimental groups (n=9 each) for one vehicle and three groups of (+)-Catechin (three doses). The doses of (+)-Catechin are prepared at 50, 100, 200 mg/kg and administered orally for 7 days prior to and during the experimental trials. Episodic memory, the conscious memory of the past experiences is evaluated in this study^[3].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Biomaterials. 2021, 120952.
- Autophagy. 2021 Apr;17(4):872-887.
- Acta Pharm Sin B. 2021 Jan;11(1):143-155.
- Plant Cell Physiol. 2020 Feb 1;61(2):318-330.
- Biochem Biophys Res Commun. 2018 Sep 3;503(1):297-303.

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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]. Alshatwi AA. Catechin hydrate suppresses MCF-7 proliferation through TP53/Caspase-mediated apoptosis. *J Exp Clin Cancer Res*. 2010 Dec 17;29:167.

[3]. Cheruku SP, et al. Catechin ameliorates doxorubicin-induced neuronal cytotoxicity in vitro and episodic memory deficit in vivo in Wistar rats. *Cytotechnology*. 2018 Feb;70(1):245-259.

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

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