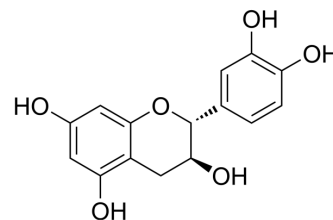


## Catechin

<b>Cat. No.:</b>	HY-N0898
<b>CAS No.:</b>	154-23-4
<b>Molecular Formula:</b>	C <sub>15</sub> H <sub>14</sub> O <sub>6</sub>
<b>Molecular Weight:</b>	290.27
<b>Target:</b>	COX; Apoptosis; Influenza Virus; Endogenous Metabolite
<b>Pathway:</b>	Immunology/Inflammation; Apoptosis; Anti-infection; Metabolic Enzyme/Protease
<b>Storage:</b>	4°C, sealed storage, away from moisture and light * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture and light)



### SOLVENT & SOLUBILITY

<b>In Vitro</b>	DMSO : 100 mg/mL (344.51 mM; Need ultrasonic)			
	H <sub>2</sub> O : 12.5 mg/mL (43.06 mM; Need ultrasonic)			
		Solvent Concentration	Mass	
			1 mg	5 mg
<b>Preparing Stock Solutions</b>	<b>1 mM</b>	3.4451 mL	17.2253 mL	34.4507 mL
	<b>5 mM</b>	0.6890 mL	3.4451 mL	6.8901 mL
	<b>10 mM</b>	0.3445 mL	1.7225 mL	3.4451 mL
Please refer to the solubility information to select the appropriate solvent.				
<b>In Vivo</b>	<ol style="list-style-type: none"> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 40% PEG300 &gt;&gt; 5% Tween-80 &gt;&gt; 45% saline Solubility: ≥ 2.5 mg/mL (8.61 mM); Clear solution</li> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 90% (20% SBE-β-CD in saline) Solubility: ≥ 2.5 mg/mL (8.61 mM); Clear solution</li> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 90% corn oil Solubility: ≥ 2.5 mg/mL (8.61 mM); Clear solution</li> </ol>			

### BIOLOGICAL ACTIVITY

<b>Description</b>	Catechin ((+)-Catechin) inhibits cyclooxygenase-1 (COX-1) with an IC <sub>50</sub> of 1.4 μM.
<b>IC<sub>50</sub> &amp; Target</b>	COX-1 1.4 μM (IC <sub>50</sub> )
<b>In Vitro</b>	Catechin ((+)-Catechin) exhibits >95% inhibitory activity at 70 μg/mL against cyclooxygenase-1 (COX-1) with an IC <sub>50</sub> 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 IC<sub>50</sub> 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<sup>[2]</sup>.

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

#### In Vivo

Animals treated with Catechin ((+)-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)<sup>[3]</sup>.

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

## PROTOCOL

#### Cell Assay <sup>[2]</sup>

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<sup>4</sup> cells/well) are plated in 96-well plates and treated with 0 µg/mL Catechin and 160 µg/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<sub>50</sub> is calculated. Quadruplet samples are run for each concentration of Catechin in three independent experiments<sup>[2]</sup>. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

#### Animal Administration <sup>[3]</sup>

Rats<sup>[3]</sup>

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 in 0.25% w/v sodium carboxy methylcellulose (CMC) 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<sup>[3]</sup>.

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

## CUSTOMER VALIDATION

- Acta Pharm Sin B. 2021 Jan;11(1):143-155.
- Biomaterials. 2021, 120952.
- Autophagy. 2021 Apr;17(4):872-887.
- Phytomedicine. 2024 May 12;130:155733.
- Plant Cell Physiol. 2020 Feb 1;61(2):318-330.

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

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

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

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: [tech@MedChemExpress.com](mailto:tech@MedChemExpress.com)

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA