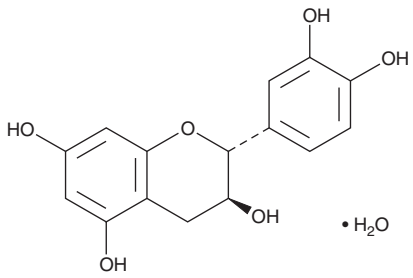
PRODUCT INFORMATION

(+)-Catechin (hydrate)

Item No. 70940

CAS Registry No.:	225937-10-0
Formal Name:	2R-(3,4-dihydroxyphenyl)-3,4-dihydro-2H-1-benzopyran-3S,5,7-triol, hydrate
Synonyms:	D-(+)-Catechin, Catechuic Acid, Cyanidol
MF:	$C_{15}H_{14}O_6 \bullet XH_2O$
FW:	290.3
Purity:	≥98%
UV/Vis.:	λ_{max}: 280 nm
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥4 years
Item Origin:	Plant/Tea leaves



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

(+)-Catechin (hydrate) is supplied as a crystalline solid. A stock solution may be made by dissolving the (+)-catechin (hydrate) in the solvent of choice, which should be purged with an inert gas. (+)-Catechin (hydrate) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of (+)-catechin (hydrate) in DMSO is approximately 50 mg/ml and approximately 100 mg/ml in ethanol and DMF.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of (+)-catechin (hydrate) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of (+)-catechin (hydrate) in PBS (pH 7.2) is approximately 1.6 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

(+)-Catechin is a polyketide synthase-derived polyphenolic flavonoid that has been found in *V. vinifera* and has diverse biological activities.[1-4] It inhibits COX-1 (IC_{50} = 1.4 µM) and lipid peroxidation induced by AAPH (Item No. 82235) when used at a concentration of 20 µM.[2,3] (+)-Catechin inhibits the proliferation of MCF-7, T47D, and MDA-MB-231 breast cancer cells (IC_{50}s = 0.4, 0.1, and 9.3 pM, respectively) and the binding of estradiol to the estrogen receptor (ER) and progesterone receptor (PR) in MCF-7 cells (IC_{50}s = 22.2 and 38.3 pM, respectively).[4]

References

1. Tauchen, J., Huml, L., Rimpelova, S., *et al*. Flavonoids and related members of the aromatic polyketide group in human health and disease: Do they really work? *Molecules* **25(17)**, 3846 (2020).
2. Waffo-Téguo, P., Hawthorne, M.E., Cuendet, M., *et al*. Potential cancer-chemopreventive activities of wine stilbenoids and flavans extracted from grape (*Vitis vinifera*) cell cultures. *Nutr. Cancer* **40(2)**, 173-179 (2001).
3. Frémont, L., Belguendouz, L., and Delpal, S. Antioxidant activity of resveratrol and alcohol-free wine polyphenols related to LDL oxidation and polyunsaturated fatty acids. *Life Sci*. **64(26)**, 2511-2521 (1999).
4. Damianaki, A., Bakogeorgou, E., Kampa, M., *et al*. Potent inhibitory action of red wine polyphenols on human breast cancer cells. *J. Cell. Biochem*. **78(3)**, 429-441 (2000).

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