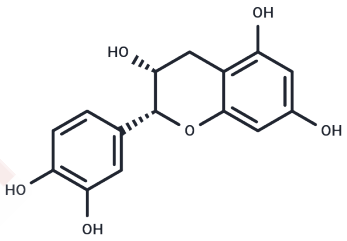
Data Sheet (Cat.No.T2856)

TargetMol

(-)-Epicatechin

Chemical Properties



CAS No. : 490-46-0

Formula: C15H14O6

Molecular Weight: 290.27

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	(-)-Epicatechin (Epicatechin) is an inhibitor of cyclooxygenase-1 (COX-1), inhibiting the IL-1β-induced expression of iNOS by blocking the nuclear localization of the p65 subunit of NF-κB.
Targets(IC50)	Ferroptosis,Endogenous Metabolite,COX
In vitro	(-)-Epicatechin stimulates mitochondrial respiration and oxygen consumption in Panc-1 cells. Human normal fibroblasts are not affected. (-)-Epicatechin sensitizes Panc-1, U87, and MIA PaCa-2 cells with an average radiation enhancement factor (REF) of 1.7, 1.5, and 1.2, respectively. (-)-Epicatechin does not sensitize normal fibroblast cells to ionizing radiation with a REF of 0.9, suggesting cancer cell selectivity. (-)-Epicatechin enhances Chk2 phosphorylation and p21 induction when combined with radiation in cancer, but not normal cells[2].
In vivo	Aging has deleterious effects on modulators of muscle growth/differentiation, the consumption of modest amounts of the flavanol (-)-Epicatechin can partially reverse these changes. In mice, myostatin and senescence-associated β-galactosidase levels increase with aging, while those of follistatin and Myf5 decrease. (-)-Epicatechin decreases myostatin and β-galactosidase and increases levels of markers of muscle growth. In humans, myostatin and β-galactosidase increase with aging while follistatin, MyoD and myogenin decrease. Treatment for 7 days with (-)-Epicatechin increases hand grip strength and the ratio of plasma follistatin/myostatin[1]. Low-dose (-)-Epicatechin treatment resulted in significant increases in skeletal muscle capillarity, mitochondrial biogenesis, and oxidative enzyme activity, which corresponded to lower muscle fatigue and higher endurance capacity when compared to the placebo group. (-)-Epicatechin may potentially regulate the protein expression between angiogenic and antiangiogenic factors, such as VEGF-A and TSP-1, respectively[3].
Cell Research	Panc-1 cells are seeded into T-150 flasks and on the next day, cells are treated with different concentrations of (-)-epicatechin for 1 h, then harvested and solubilized in 10 mM HEPES (pH 7.4), 40 mM KCl, 1%Tween-20, 1 μM oligomycin, 1 mM PMSF,10 mM KF, 2 mM EGTA, and 1 mM Na3VO4. COX activity is measured in the presence of 20 mM ascorbate and 200 μM substrate cytochrome c from cow heart.(Only for Reference)

Solubility Information

Solubility	Ethanol: < 1 mg/mL (insoluble or slightly soluble), H2O: 2.25 mg/mL (7.75 mM),Sonication is recommended. DMSO: 80 mg/mL (275.61 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	50% PEG300+50% Saline: 5 mg/mL (17.23 mM) 0.5% CMC-Na: 5 mg/mL (17.23 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.4451 mL	17.2253 mL	34.4507 mL
5 mM	0.689 mL	3.4451 mL	6.8901 mL
10 mM	0.3445 mL	1.7225 mL	3.4451 mL
50 mM	0.0689 mL	0.3445 mL	0.689 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Gutierrez-Salmean G, et al. J Nutr Biochem. 2014, 25(1):91-4.
Shim K S, Hwang Y H, Jang S A, et al. Water Extract of Lysimachia christinae Inhibits Trabecular Bone Loss and Fat Accumulation in Ovariectomized Mice. Nutrients. 2020, 12(7): 1927
Shim K S, Hwang Y H, Jang S A, et al. Ethanol Extract of Amomum tsao-ko Ameliorates Ovariectomy-Induced Trabecular Loss and Fat Accumulation. Molecules. 2021 Feb 3;26(4):784. doi: 10.3390/molecules26040784.
Elbaz HA, et al. PLoS One. 2014, 9(2):e88322.
Jang S A, Hwang Y H, Kim T, et al. Anti-Osteoporotic and Anti-Adipogenic Effects of the Water Extract of Drynaria roosii Nakaike in Ovariectomized Mice Fed a High-Fat Diet. Molecules. 2019, 24(17): 3051
Hüttemann M, et al. FASEB J. 2012, 26(4):1413-22.
Jang S A, Hwang Y H, Kim T, et al. Anti-Osteoporotic and Anti-Adipogenic Effects of the Water Extract of Drynaria roosii Nakaike in Ovariectomized Mice Fed a High-Fat Diet[J]. Molecules. 2019, 24(17): 3051.
Shim K S, Hwang Y H, Jang S A, et al. Ethanol Extract of Amomum tsao-ko Ameliorates Ovariectomy-Induced Trabecular Loss and Fat Accumulation[J]. Molecules. 2021, 26(4): 784.
Shim K S, Hwang Y H, Jang S A, et al. . Water Extract of Lysimachia christinae Inhibits Trabecular Bone Loss and Fat Accumulation in Ovariectomized Mice[J]. Nutrients. 2020, 12(7): 1927.