

Small Molecules

(-)-Epigallocatechin Gallate

Antioxidant and epigenetic modifier;
Inhibits DNA methyltransferases
(DNMTs)

Catalog # 73642
73644

50 mg
100 mg



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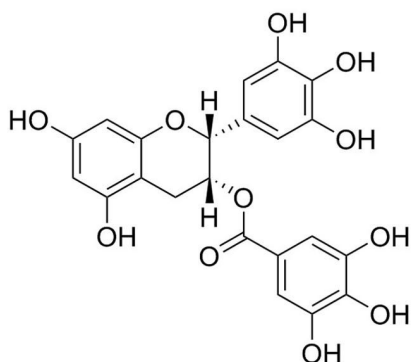
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Product Description

(-)-Epigallocatechin Gallate is the most abundant polyphenol catechin antioxidant present in green tea (Frémont et al.; Johnson & Maddipati; Miller & Rice-Evans) and is known to inhibit DNA methyltransferases (DNMTs; $IC_{50} = 0.21 - 0.47 \mu M$; Lee et al.).

(-)-Epigallocatechin Gallate also inhibits the formation of oxidized low-density lipoproteins (Yoshida et al.), which have a pathological role in cardiovascular diseases and atherosclerosis (Itabe et al.). (-)-Epigallocatechin Gallate has also been shown to inhibit peroxynitrite-mediated formation of 8-oxodeoxyguanosine and 3-nitrotyrosine (Fiala et al.).

Molecular Name:	(-)-Epigallocatechin Gallate
Alternative Names:	EGCG; NVP-XAA723; Tea catechin
CAS Number:	989-51-5
Chemical Formula:	$C_{22}H_{18}O_{11}$
Molecular Weight:	458.4 g/mol
Purity:	≥ 98%
Chemical Name:	3,4-dihydro-5,7-dihydroxy-2R-(3,4,5-trihydroxyphenyl)-2H-1-benzopyran-3R-yl-3,4,5-trihydroxy-benzoate
Structure:	



Properties

Physical Appearance:	A crystalline solid
Storage:	Product stable at $-20^{\circ}C$ as supplied. Protect product from prolonged exposure to light. For long-term storage store with a desiccant. For product expiry date, please contact techsupport@stemcell.com .
Solubility:	· PBS (pH 7.2) ≤ 50 mM · DMSO ≤ 50 mM · Ethanol ≤ 40 mM For example, to prepare a 10 mM stock solution in PBS, resuspend 10 mg in 2.18 mL of PBS.

Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported, however, as a general guide we recommend storage in DMSO at $-20^{\circ}C$. Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application.

For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use. Avoid final DMSO concentration above 0.1% due to potential cell toxicity.

Published Applications

DIFFERENTIATION

- Inhibits bone resorption by inducing cell death of osteoclast-like multinucleated cells but not osteoblastic cells (Nakagawa et al.).

CANCER RESEARCH

- Inhibits growth and induces apoptosis in human pancreatic cancer cells in mouse xenograft model (Shankar et al.; Du et al.).
- Causes cell cycle deregulation and apoptosis in human epidermoid cancer cell line, possibly via inhibition of NF- κ B (Ahmad et al.).

References

- Ahmad N et al. (2000) Green tea polyphenol epigallocatechin-3-gallate differentially modulates nuclear factor kappaB in cancer cells versus normal cells. *Arch Biochem Biophys* 376(2): 338–46.
- Du G-J et al. (2012) Epigallocatechin gallate (EGCG) is the most effective cancer chemopreventive polyphenol in green tea. *Nutrients* 4(11): 1679–91.
- Fiala ES et al. (1996) (-)-Epigallocatechin gallate, a polyphenolic tea antioxidant, inhibits peroxynitrite-mediated formation of 8-oxodeoxyguanosine and 3-nitrotyrosine. *Experientia* 52(9): 922–6.
- Frémont L et al. (1999) Antioxidant activity of resveratrol and alcohol-free wine polyphenols related to LDL oxidation and polyunsaturated fatty acids. *Life Sci* 64(26): 2511–21.
- Itabe H. (2009) Oxidative modification of LDL: its pathological role in atherosclerosis. *Clin Rev Allergy Immunol* 37(1): 4–11.
- Johnson JL & Maddipati KR. (1998) Paradoxical effects of resveratrol on the two prostaglandin H synthases. *Prostaglandins Other Lipid Mediat* 56(2-3): 131–43.
- Lee WJ et al. (2005) Mechanisms for the inhibition of DNA methyltransferases by tea catechins and bioflavonoids. *Mol Pharmacol* 68(4): 1018–30.
- Miller NJ & Rice-Evans CA. (1995) Antioxidant activity of resveratrol in red wine. *Clin Chem* 41(12 Pt 1): 1789.
- Nakagawa H et al. (2002) Fenton reaction is primarily involved in a mechanism of (-)-epigallocatechin-3-gallate to induce osteoclastic cell death. *Biochem Biophys Res Commun* 292(1): 94–101.
- Shankar S et al. (2008) EGCG inhibits growth, invasion, angiogenesis and metastasis of pancreatic cancer. *Front Biosci* 13: 440–52.
- Yoshida H et al. (1999) Inhibitory effect of tea flavonoids on the ability of cells to oxidize low density lipoprotein. *Biochem Pharmacol* 58(11): 1695–703.

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