Small Molecules

Butein

NF-κB pathway inhibitor; Stabilizes IκB

Catalog # 73462 1 mg
73464 10 mg

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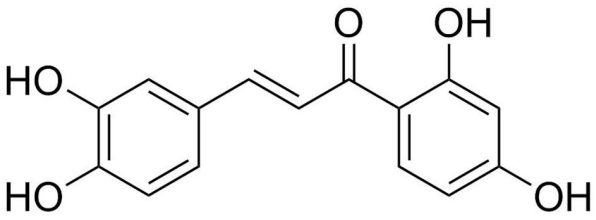
Product Description

Butein is a plant polyphenol, tetrahydroxychalcone that inhibits nuclear factor (NF)-κB (Yang et al; Pandey et al. 2007). Butein has been shown to prevent phosphorylation and degradation of tumor necrosis factor (TNF)-dependent IκBα, an inhibitory subunit of NF-κB (IC_{50} = 38 µM; Orlikova et al.). Butein also inhibits 5-lipoxygenase (IC_{50} = 0.01 µM; Sogawa et al.), the enoyl-acyl-carrier protein reductase of Plasmodium falciparum (Ki = 2.97 µM; Sharma et al.), angiotensin-converting enzyme (IC_{50} = 0.73 mM; Bonesi et al.), and SRC kinase (Pandey et al. 2009).

Molecular Name:	Butein
Alternative Names:	2',3,4,4'-Tetrahydroxychalcone
CAS Number:	487-52-5
Chemical Formula:	$C_{15}H_{12}O_5$
Molecular Weight:	272.3 g/mol
Purity:	≥ 95%
Chemical Name:	(2E)-1-(2,4-dihydroxyphenyl)-3-(3,4-dihydroxyphenyl)-2-propen-1-one
Structure:	



Properties

Physical Appearance:	A crystalline solid
Storage:	Product stable at -20°C as supplied. Protect from prolonged exposure to light. For long-term storage store with a desiccant. Stable as supplied for 12 months from date of receipt.
Solubility:	· DMSO ≤ 70 mM · Ethanol ≤ 70 mM For example, to prepare a 10 mM stock solution in DMSO, resuspend 1 mg in 367 µL of DMSO. 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°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. Compound has low solubility in aqueous media. 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

METABOLISM
· Inhibits iron-induced lipid peroxidation in rat brain homogenate in a concentration-dependent manner (Cheng et al.).
CANCER RESEARCH
· Inhibits TNF-α-induced invasion of human lung adenocarcinoma H1299 cells (Pandey et al. 2007; Gupta et al.).
· Inhibits growth in human hepatoma cancer cell lines HepG2 and Hep3B, by inducing G2/M phase arrest (Moon et al.; Gupta et al.).
· Inhibits testosterone-induced proliferation in breast cancer cells (Wang et al.).
IMMUNOLOGY
· Exhibits anti-inflammatory properties in a mouse macrophage cell line by inhibiting lipopolysaccharide-induced expression of inducible nitric oxide synthase (Lee et al.).

References

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Pandey MK et al. (2009) Butein suppresses constitutive and inducible signal transducer and activator of transcription (STAT) 3 activation and STAT3-regulated gene products through the induction of a protein tyrosine phosphatase SHP-1. Mol Pharmacol 75(3): 525–33.
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Wang Y et al. (2005) The plant polyphenol butein inhibits testosterone-induced proliferation in breast cancer cells expressing aromatase. Life Sci 77(1): 39–51.
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