

## (-)-Butin

## Chemical Properties

CAS No. : 492-14-8

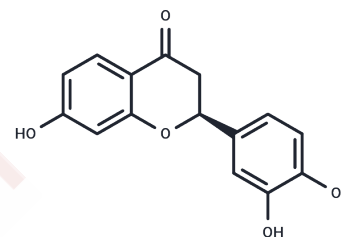
Formula: C<sub>15</sub>H<sub>12</sub>O<sub>5</sub>

Molecular Weight: 272.25

Storage: Keep away from direct sunlight, Keep away from moisture

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	(-)-Butin (Butin) has antioxidant activity, can protect cells against H <sub>2</sub> O <sub>2</sub> -induced apoptosis, oxidative DNA damage and oxidative mitochondrial dysfunction; it attenuates oxidative stress by activating Nrf2-mediated Mn SOD induction via the PI3K/Akt signaling pathway.
Targets(IC50)	Akt,Nrf2,PI3K
In vitro	The antioxidant function of manganese superoxide dismutase (Mn SOD) is important in preventing oxidative stress. While exposure to H <sub>2</sub> O <sub>2</sub> reduced the expression of Mn SOD in Chinese hamster lung fibroblast (V79-4), the addition of Butin restored Mn SOD expression at both the mRNA and protein levels, resulting in increased Mn SOD activity. The transcription factor NF-E2-related factor 2 (Nrf2) regulates Mn SOD gene expression by binding to the antioxidant responsive element (ARE). Butin enhanced the nuclear translocation and ARE-binding activity of Nrf2, which was decreased by H <sub>2</sub> O <sub>2</sub> . The siRNA-mediated knockdown of Nrf2 attenuated Butin-induced Mn SOD expression and activity. Further, phosphatidylinositol 3-kinase (PI3K)/protein kinase B (PKB, Akt) contributed to the ARE-driven Mn SOD expression. Butin activated PI3K/Akt and exposure to either LY294002 (a PI3K inhibitor), Akt inhibitor IV (an Akt-specific inhibitor), or Akt siRNA suppressed the Butin-induced activation of Nrf2, resulting in decreased Mn SOD expression and activity. Finally, the cytoprotective effect of Butin against H <sub>2</sub> O <sub>2</sub> -induced cell damage was suppressed by the siRNA-mediated knockdown of Mn SOD[1]

## Solubility Information

Solubility	DMSO: 50 mg/mL (183.65 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 4 mg/mL (14.69 mM),Sonication is recommended. <i>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.</i>

### Preparing Stock Solutions

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	1mg	5mg	10mg
1 mM	3.6731 mL	18.3655 mL	36.7309 mL
5 mM	0.7346 mL	3.6731 mL	7.3462 mL
10 mM	0.3673 mL	1.8365 mL	3.6731 mL
50 mM	0.0735 mL	0.3673 mL	0.7346 mL

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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

The cytoprotective effect of butin against oxidative stress is mediated by the up-regulation of manganese superoxide dismutase expression through a PI3K/Akt/Nrf2-dependent pathway. *J Cell Biochem.* 2012 Jun;113(6): 1987-97.

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