

Product Data Sheet

Product Name: trans-Zeatin

Cat. No.: GC30162

Chemical Properties

Cas. No. 1637-39-4

SMILES OC/C(C)=C/CNC1=C2N=CNC2=NC=N1

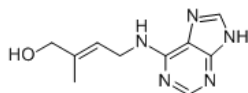
Formula C10H13N5O M.Wt 219.24

Solubility DMSO : ≥ 60 mg/mL (273.67 mM) Storage Store at -20°C

General tips For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.

Structure



Protocol

Cell experiment [1]:

Cell lines Human skin fibroblasts (HSFs)

Caution: Product has not been fully validated for medical applications. For research use only.

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Preparation Method Human skin fibroblasts (HSFs) were seeded in a 96-well plate. After various concentrations of trans-Zeatin (20-80μM) or UVB (30mJ/cm²) treatment, cells were cultured in 100μL 10% DMEM in each well for 24h. Cell viability was determined using the MTT assay.

Reaction Conditions 20-80μM; 24h

Applications trans-Zeatin (20-80μM) enhanced cell viability in HSFs irradiated with UVB.

References:

[1] Yang B, Ji C, Kang J, et al. Trans-Zeatin inhibits UVB-induced matrix metalloproteinase-1 expression via MAP kinase signaling in human skin fibroblasts[J]. International Journal of Molecular Medicine, 2009, 23(4): 555-560.

Background

trans-Zeatin is a natural cytokinin, a plant growth regulator that plays a central role in plant cell growth, differentiation, and division^[1, 2]. trans-Zeatin can be used as a culture medium additive to induce plant callus growth and bud formation^[3]. trans-Zeatin is a potential therapeutic agent for skin photoaging^[4].

In vitro, treatment of human skin fibroblasts (HSFs) with trans-Zeatin (20-80μM) for 24h enhanced the cell viability of UVB-irradiated HSFs and significantly inhibited UVB-induced matrix metalloproteinase-1 (MMP-1) expression^[5]. Treatment of skin keratinocytes (HaCaT cells) with trans-Zeatin (20-80μM) for 4-24h upregulated the expression of aquaporin-3 (AQP3) in HaCaT cells in a time- and dose-dependent manner^[6].

References:

[1] Schäfer M, Brütting C, Meza-Canales I D, et al. The role of cis-zeatin-type cytokinins in plant

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growth regulation and mediating responses to environmental interactions[J]. Journal of experimental botany, 2015, 66(16): 4873-4884.

[2] Großkinsky D, Edelsbrunner K, Pfeifhofer H, et al. Cis-and trans-zeatin differentially modulate plant immunity[J]. Plant signaling & behavior, 2013, 8(7): e24798.

[3] Cardoza V. Tissue culture: The manipulation of plant development[J]. Plant Biotechnology and Genetics: principles, techniques, and applications, 2008: 113-134.

[4] Kesharwani A, Panda S P. Isolation of Phytohormone trans-Zeatin: Potential Oxidant Scavenger and Anti-Aging Compound[J]. Neurochemical Journal, 2024, 18(1): 134-146.

[5] Yang B, Ji C, Kang J, et al. Trans-Zeatin inhibits UVB-induced matrix metalloproteinase-1 expression via MAP kinase signaling in human skin fibroblasts[J]. International Journal of Molecular Medicine, 2009, 23(4): 555-560.

[6] Ji C, Yang Y, Yang B, et al. Trans-Zeatin attenuates ultraviolet induced down-regulation of aquaporin-3 in cultured human skin keratinocytes[J]. International journal of molecular medicine, 2010, 26(2): 257-263.

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