

Product Data Sheet

Product Name: Brassinolide

Cat. No.: GC11632

Chemical Properties

Cas. No. 72962-43-7

Chemical Name (3aS,5S,6R,7aR,7bS,9aS,10R,12aS,12bS)-10-((2S,3R,4R,5S)-3,4-dihydroxy-5,6-dimethylheptan-2-yl)-5,6-dihydroxy-7a,9a-dimethyltetradecahydro-1H-benzo[c]indeno[5,4-e]oxepin-3(12bH)-one

SMILES CC(C)[C@H](C)[C@@H](O)[C@H](O)[C@@H](C)[C@@]1([H])CC[C@@]2([H])[C@]3([H])COC([C@@]4([H])C[C@H](O)[C@H](O)C[C@]4(C)[C@@]3([H])CC[C@@]21C)=O

Formula C₂₈H₄₈O₆ M.Wt 480.68

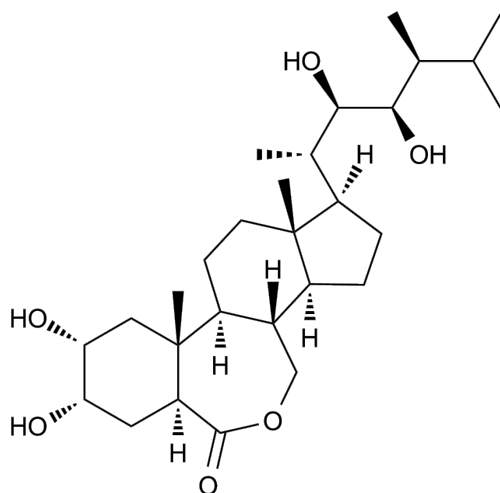
Solubility ≥ 48.1 mg/mL in DMSO with gentle warming, ≥ 52.3 mg/mL in EtOH with ultrasonic and warming

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

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

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Cell experiment [1]:

Cell lines Human prostate cancer PC-3 cell

Preparation Method PC-3 cells were treated with various concentrations of Brassinolide (0, 10, 20 and 40 μ M) for 12, 24 and 36h.

Reaction Conditions 0, 10, 20 and 40 μ M; 12, 24 and 36h

Applications Brassinolide can induce a time and concentration-dependent cytotoxicity in PC-3 cells by increasing Caspase-3 activity and decreasing the expression of anti-apoptotic protein Bcl-2.

Animal experiment [2]:

Animal models Wistar rat

Preparation Method One hundred and forty—four diabetes rats induced by Alloxan were randomly divided into Brassinolide group (treated with Brassinolide at 50, 100 and 200mg/kg respectively) control group (sodium chloride) and Phenformin group. After oral administration of Brassinolide for consecutive 7 days (once every day) the levels of blood glucose were evaluated on the day 0 and the day 7.

Dosage form 50, 100 and 200mg/kg; oral administration; once per day for consecutive 7 days

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Applications The administration of Brassinolide has the function of reducing the blood glucose levels but not in a dose-dependent manner.

References:

- [1] Wu YD, Lou Y J, et al. Brassinolide, a plant sterol from pollen of *Brassica napus* L., induces apoptosis in human prostate cancer PC-3 cells. *Pharmazie*. 2007 May;62(5):392-5.
- [2] Chen S, He J, Wang Q, et al. Effect of Brassinolide on Levels of Blood Glucose in Alloxan—induced Diabetes Rats. *Laboratory Animal Science*, 2009, 3: 007

Background

Brassinolide is a plant sterol first isolated from pollen of rape (*Brassica napus* L.) and play major roles in plant growth, development, and stress tolerance^[1]. Brassinolide treatment in plants under salt stress conditions significantly increases the activity of antioxidant enzymes such as superoxide dismutase (SOD), peroxidase (POD), and catalase (CAT), which help in scavenging reactive oxygen species (ROS) and reducing oxidative damage^[2].

In vitro, Brassinolide treatment (0, 10, 20 and 40μM) for 12, 24 and 36h can induce a time and concentration-dependent cytotoxicity in human prostate cancer PC-3 cells by increasing Caspase-3 activity and decreasing the expression of anti-apoptotic protein Bcl-2^[3]. Brassinolide treatment (0.001-10μg/mL) could effectively reverse the resistance of human T lymphoblastoid cell line CCRF-VCR 1000 by inhibiting the effusion of drug transported by P-glycoprotein. To down regulate the abnormal expression of p53 maybe one of the mechanisms of reversing multidrug resistance for Brassinolide^[4].

In vivo, diabetes rats induced by Alloxan orally administrated with Brassinolide at 50, 100 and 200mg/kg respectively has the function of reducing the blood glucose levels but not in a dose-dependent manner. The levels of blood glucose displayed significant differences after treatment with different dose of Brassinolide^[5].

References:

- [1] Vriet C, Russinova E, Reuzeau C. et al. From squalene to brassinolide: the steroid metabolic and

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signaling pathways across the plant kingdom. Mol Plant. 2013 Nov;6(6):1738-57.

[2] Hu Y Q, Xia S T, Su Y, et al. Brassinolide Increases Potato Root Growth In Vitro in a Dose-Dependent Way and Alleviates Salinity Stress. Biomed Res Int. 2016;2016:8231873.

[3]Wu YD, Lou Y J, et al. Brassinolide, a plant sterol from pollen of Brassica napus L., induces apoptosis in human prostate cancer PC-3 cells. Pharmazie. 2007 May;62(5):392-5.

[4] Xian LJ, et al. Reversing effect of brassinolide on multidrug resistance of-CCRF-VCR1000 cells and a preliminary investigation on its mechanisms. Yao Xue Xue Bao. 2005. Feb;40(2):117-2

[5] Chen S, He J, Wang Q, et al. Effect of Brassinolide on Levels of Blood Glucose in Alloxan—induced Diabetes Rats. Laboratory Animal Science, 2009, 3: 007

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