**Product Data Sheet**

**Chemical Properties**

**Product Name:** Brassinolide

**Cas No.:** 72962-43-7

**M.Wt:** 480.68

**Formula:** C28H48O6

**Synonyms:** 24-Epibrassinolide, Brassin lactone

**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]indenol[5,4-e]oxepin-3(12bH)-one

**Canonical SMILES:** CC(C)[C@H](C)[C@@H](O)[C@@H](O)[C@H](O)[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@@@]21)C=O

**Solubility:** \( \geq 48.1 \text{ mg/mL} \) in DMSO with gentle 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.

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

**Biological Activity**

**Targets:** Apoptosis

**Pathways:** Apoptosis Inducers

**Description:**

IC50: N/A
Brassinolide is a plant growth regulator. Plant growth regulators are naturally produced by plants...
and are critical for regulating their own growth. Plant growth regulators act via modifying or controlling plant growth processes, such as leaf and flower formation, stem elongation, as well as fruit development and ripening.

In vitro: Brassinolide induced the time and concentration-dependent cytotoxicity in PC-3 cells. The mode of such cell death appeared to be apoptosis predominately, as demonstrated by fluorescence, flow-cytometric analyses and transmission electron microscopes. Moreover, Caspase-3 activity was increased after brassinolide treatment obviously. Western blot studies showed brassinolide treatment triggered a time-dependent decrease in the expression of Bcl-2 [1].

In vivo: Brassinolide had the similar function of reducing the blood glucose levels as phenformin, but without the dose-dependent manner. The blood glucose levels showed significant differences after brassinolide treatment with different doses (200, 100, and 50 mg/kg). These results indicated that brassinolide could reduce the blood glucose levels without toxicity [2].

Clinical trial: So far, no clinical study has been reported.

Reference:

Protocol

Cell experiment:

Cell lines Human prostate cancer PC-3 cell

Preparation method The solubility of this compound in DMSO is >24.1mg/mL. General tips for obtaining a higher concentration: Please warm the tube at 37 °C for 10 minutes and/or shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Reacting conditions

Applications Brassinolide induced a time and concentration-dependent cytotoxicity in PC-3 cells. Brassinolide (10, 20 and 40 μM, 12 h) induced a concentration-dependent increase in the apoptotic rate and marked accumulation in G2/M phase of cell cycle. PC-3 cells treated with brassinolide (20 μM, 24 h) showed characteristic apoptotic alterations: shrinking cellular figure, decreasing cell surface microvilli, cytoplasmic vacuoles, chromatin condensation. PC-3 cells treated with brassinolide (20 μM) for 6, 12 and 18 h showed a time-dependent increase in the activity of caspases-3.
Animal experiment [3]:

<table>
<thead>
<tr>
<th>Animal models</th>
<th>Diabetes rats</th>
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</thead>
<tbody>
<tr>
<td>Dosage form</td>
<td>Oral administration; 200,100, and 50 mg/kg; once every day for 7 days</td>
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<tr>
<td>Applications</td>
<td>Oral administration of Brassinolide decreased the levels of blood glucose from 19.71-24.10 mmol/L to 9.89 mmol/L-12.70 mmol/L. The levels of blood glucose displayed significant differences after treatment with different dose of brassinolide. Brassinolide can still reduce the blood glucose levels without toxicity effect even at a lower dose.</td>
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<tr>
<td>Other notes</td>
<td>Please test the solubility of all compounds indoor, and the actual solubility may slightly differ with the theoretical value. This is caused by an experimental system error and it is normal.</td>
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</table>

Reference:

Caution

FOR RESEARCH PURPOSES ONLY.

NOT FOR HUMAN, VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

Specific storage and handling information for each product is indicated on the product datasheet. Most ApexBio products are stable under the recommended conditions. Products are sometimes shipped at a temperature that differs from the recommended storage temperature. Short term storage of many products are stable in the short-term at temperatures that differ from that required for long-term storage. We ensure that the product is shipped under conditions that will maintain the quality of the reagents. Upon receipt of the product, follow the storage recommendations on the product data sheet.