Alantolactone

Catalog No.C13339 Batch:C1333903

Product Datasheet

Technical Data

Formula	$C_{15}H_{20}O_2$					
Molecular Weight	232.32	**CAS No.**	546-43-0			
Solubility (25°C)*	In vitro	DMSO	46 mg/mL (198.0 mM)			
		Ethanol	46 mg/mL (198.0 mM)			
		Water	Insoluble			
	In vivo (Add solvents to the product individually and in order)	Oral Administration	Homogeneous suspension	CMC-NA	≥5mg/ml	Taking the 1 mL working solution as an example, add 5 mg of this product to 1 ml of CMC-Na solution, mix evenly to obtain a homogeneous suspension with a final concentration of 5 mg/ml.

* <1 mg/ml means slightly soluble or insoluble.
* Please note that Capsid Bio tests the solubility of all compounds in-house, and the actual solubility may differ slightly from published values. This is normal and is due to slight batch-to-batch variations.
* Room temperature shipping (Stability testing shows this product can be shipped at 2-8°C for storage purposes.)

Preparing Stock Solutions

Biological Activity

Description	Alantolactone, a naturally occurring eudesmane-type sesquiterpene lactone (SL), could induce **activin/SMAD3 signaling** and disrupt Cripto-1/activin receptor type II A interaction.
Targets	STAT3 [1] | activin/SMAD3 [3]
In vitro	Alantolactone selectively suppresses STAT3 activation and exhibits potent anticancer activity in MDA-MB-231 cells. This compound effectively suppressed both constitutive and inducible STAT3 activation at tyrosine 705. It decreased STAT3 translocation to the nucleus, its DNA-binding, and STAT3 target gene expression. This chemical significantly inhibits STAT3 activation with a marginal effect on MAPKs and on NF-κB transcription; however, this effect is not mediated by inhibiting STAT3 upstream kinases. SHP-1, SHP-2, and PTEN, which are protein tyrosine phosphatases (PTPs) were not affected by alantolactone. Its treatment resulted in the inhibition of migration, invasion, adhesion, and colony formation[1]. It could induce activin signaling and activin target gene expression. This agent activated the activin signaling pathway in a cancer cell line. It could promote SMAD2/3 nuclear translocation in a very short time[3].
In vivo	In vivo administration of alantolactone inhibited the growth of human breast xenograft tumors[1]. This compound exerts no toxic effect on liver and kidneys in vivo, The drug was well tolerated by mice and no mortality or any sign of pharmacotoxicity was found at a dose of 100 mg/kg during all the experimental periods. It can cross blood-brain barrier[2].

Protocol (from reference)

Cell Assay:[1]

- **Cell lines**
  MDA-MB-231 and MCF-7 cells
- **Concentrations**
  15 μM
- **Incubation Time**
  24 h
- **Method**
  Cell viability was evaluated using MTT assay. The cells were seeded into 96-well plates and maintained at 37 °C for 24 h. The cells were treated with alantolactone for 24 h. The MTT solution (0.5 mg/mL) was added to each well, and the cells were incubated for another 3 h. The MTT formazan crystals were dissolved in DMSO. The results were obtained by measuring the absorbance at a wavelength of 540 nm using a microplate reader.

Animal Study:[1]

- **Animal Models**
  athymic BALB/c nude mice
- **Dosages**
  2.5 mg/kg
- **Administration**
  i.p.

References

https://pubmed.ncbi.nlm.nih.gov/25434800/ https://pubmed.ncbi.nlm.nih.gov/22837216/ https://pubmed.ncbi.nlm.nih.gov/21378277/

RETURN POLICY

Capsid Bio's Unconditional Return Policy ensures a smooth online shopping experience for our customers. If you are in any way unsatisfied with your purchase, you may return any item(s) within 7 days of receiving it. In the event of product quality issues, either protocol related or product related problems, you may return any item(s) within 365 days from the original purchase date. Please follow the instructions below when returning products.

SHIPPING & STORAGE

Capsid Bio products are transported at room temperature. If you receive the product at room temperature, please rest assured, the Capsid Bio Quality Inspection Department has conducted experiments to verify that the normal temperature placement of one month will not affect the biological activity of powder products. After collecting, please store the product according to the requirements described in the datasheet. Most Capsid Bio products are stable under the recommended conditions.

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