bio-techne
TOCRIS

Print Date: Feb 28th 2024

Certificate of Analysis

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Product Name: **Withaferin A** **Catalog No.: 2816** **Batch No.: 5**

CAS Number: 5119-48-2

IUPAC Name: (4β,5β,6β,22*R*)-5,6-Epoxy-4,22,27-trihydroxy-1-oxoergosta-2,24-dien-26-oic acid δ-lactone

1. PHYSICAL AND CHEMICAL PROPERTIES

Batch Molecular Formula: $C_{28}H_{38}O_6$

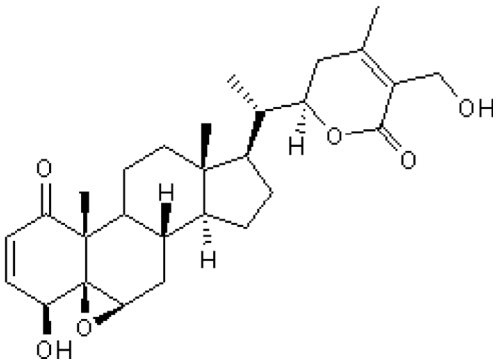
Batch Molecular Weight: 470.6

Physical Appearance: White solid

Solubility: DMSO to 10 mM

Storage: Store at -20°C

Batch Molecular Structure:



2. ANALYTICAL DATA

HPLC: Shows 99.0% purity

Mass Spectrum: Consistent with structure

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Description:

Withaferin A is a steroid lactone that displays anti-inflammatory, antitumor and antiangiogenic activity. Withaferin A inhibits endothelial cells (HUVEC) sprouting in vitro (IC_{50} = 12 nM) and in vivo, prevents NF-κB activation by inhibiting activation of IKKβ and inhibits chymotrypsin-like activity of the 20S proteasome. In an animal model of Huntington's disease (HD), Withaferin A delays disease progression and increases lifespan; in a cellular model it suppresses aggregation of mutant huntingtin, activates HSF1 and induces Hsp70 chaperone expression.

Physical and Chemical Properties:

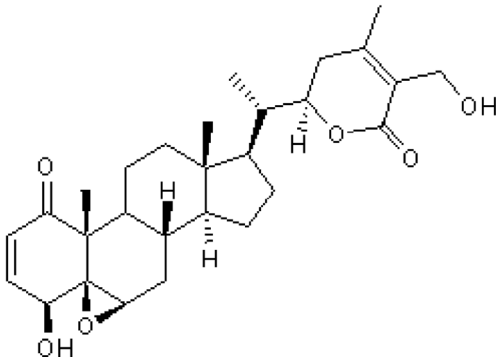
Batch Molecular Formula: $C_{28}H_{38}O_6$

Batch Molecular Weight: 470.6

Physical Appearance: White solid

Minimum Purity: ≥98%

Batch Molecular Structure:



Storage: Store at -20°C. This product is packaged under an inert atmosphere.

Solubility & Usage Info:

DMSO to 10 mM

This product is supplied in lyophilized form. It may appear as a solid, gel or film and be very hard to visualize. Solutions should be made by adding solvent directly to the vial. The vial should then be vortexed vigorously to ensure the product has completely dissolved.

Stability and Solubility Advice:

Some solutions can be difficult to obtain and can be encouraged by rapid stirring, sonication or gentle warming (in a 45-60°C water bath).

Information concerning product stability, particularly in solution, has rarely been reported and in most cases we can only offer a general guide. *Unless contradicted by product-specific protocols or instructions, our standard recommendations apply:

SOLIDS: Provided storage is as stated on the product label and the vial is kept tightly sealed, the product can be stored for up to 6 months from date of receipt.

SOLUTIONS: We recommend that stock solutions, once prepared, are stored aliquoted in tightly sealed vials at -20°C or below and used within 1 month. Wherever possible solutions should be made up and used on the same day.

References:

Joshi *et al* (2021) Withaferin A induces heat shock response and ameliorates disease progression in a mouse model of Huntington's disease. Mol.Neurobiol. ***58*** 3992. PMID: 33904021.

Kaileh *et al* (2007) Withaferin A strongly elicits IkB kinase β hyperphosphorylation concomitant with potent inhibition of its kinase activity. J.Biol.Chem. ***282*** 4253. PMID: 17150968.

Yang *et al* (2007) The tumor proteasome is a primary target for the natural anticancer compound withaferin A isolated from "Indian Winter Cherry". Mol.Pharmacol. ***71*** 426. PMID: 17093135.