Product Datasheet

Technical Data

Formula	$C_{28}H_{38}O_6$					
Molecular Weight	470.60	**CAS No.**	5119-48-2			
Solubility (25°C)*	In vitro	DMSO	97 mg/mL (206.11 mM)			
		Ethanol	4 mg/mL (8.49 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.
		Injection	Clear solution	5%DMSO [1]→ 40%PEG300 [2]→ 5%Tween80 [3]→ 50%ddH2O Validated by Capsid Bio labs. Should you need adjustments to this formulation, contact our sales team for custom testing.	4.850mg/ml (10.31mM)	Taking the 1 mL working solution as an example, add 50 μL of 97 mg/ml clarified DMSO stock solution to 400 μL of PEG300, mix evenly to clarify it; add 50 μL of Tween80 to the above system, mix evenly to clarify; then continue to add 500 μL of ddH2O to adjust the volume to 1 mL. The mixed solution should be used immediately for optimal results.
			Clear solution	5% DMSO [1]→ 95% Corn oil Validated by Capsid Bio labs. Should you need adjustments to this formulation, contact our sales team for custom testing.	1.210mg/ml (2.57mM)	Taking the 1 mL working solution as an example, add 50 μL of 24.2 mg/ml clear DMSO stock solution to 950 μL of corn oil and mix evenly. The mixed solution should be used immediately for optimal results.

* <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	This steroidal lactone, isolated from Withania somnifera, potently inhibits **NF-κB** activation by preventing the tumor necrosis factor-induced activation of IκB kinase β via a thioalkylation-sensitive redox mechanism. It also binds to the intermediate filament (IF) protein, **vimentin**, with antitumor and antiangiogenesis activity.
Targets	NF-κB [1] / vimentin [2]
In vitro	Withaferin A (WFA) potently inhibits NFκB activation by preventing the tumor necrosis factor-induced activation of IκB kinase β via a thioalkylation-sensitive redox mechanism.[1] It binds to the intermediate filament (IF) protein, vimentin, by covalently modifying its cysteine residue, which is present in the highly conserved α-helical coiled coil 2B domain, and induces vimentin filaments to aggregate in vitro.[2]
In vivo	Withaferin A (WFA) clearly displays anti-inflammatory characteristics in an acute inflammatory mouse model.[1] Its induced inhibition of capillary growth in a mouse model of corneal neovascularization is compromised in vimentin-deficient mice.[2]

Protocol (from reference)

Cell Assay:[2]

- **Cell lines**
  HUVECs, BAECs,MCF-7 breast cancer cell line, MFT-16 cells
- **Concentrations**
  5 μM, 10 μM
- **Incubation Time**
  1 h, 2 h, 24 h
- **Method**
  To assess the apoptosis activity of Withaferin A (WFA) and 12-D WS, embryonic fibroblast vimentindeficient cell lines ($Vim^{-/-}$; MFT-16) and wild-type ($Vim^{+/+}$; MFT-6) cells are treated with 5 μM of this compound, 5 μM 12-D WS, or an equivalent amount of vehicle (DMSO) for 24 hr in 37℃-5% CO_2 conditions in complete medium. Apoptotic cells are measured with the Vybrant Apoptosis Assay Kit according to the manufacturer's instructions.

Animal Study:[1]

- **Animal Models**
  8-week-old C57BL/6J mice
- **Dosages**
  0.5 mg/mouse
- **Administration**
  IP

References

https://pubmed.ncbi.nlm.nih.gov/17150968/ https://pubmed.ncbi.nlm.nih.gov/17584610/

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.

NOT FOR HUMAN, VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

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