



# SZABO SCANDIC

Part of Europa Biosite

## Produktinformation



Forschungsprodukte & Biochemikalien



Zellkultur & Verbrauchsmaterial



Diagnostik & molekulare Diagnostik



Laborgeräte & Service

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### Lieferung & Zahlungsart

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### Zuschläge

- Mindermengenzuschlag
- Trockeneiszuschlag
- Gefahrgutzuschlag
- Expressversand

### SZABO-SCANDIC HandelsgmbH

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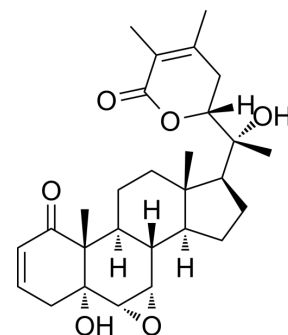
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## Withanolide A

Cat. No.:	HY-N7028
CAS No.:	32911-62-9
Molecular Formula:	C <sub>28</sub> H <sub>38</sub> O <sub>6</sub>
Molecular Weight:	470.6
Target:	Notch; Apoptosis
Pathway:	Neuronal Signaling; Stem Cell/Wnt; Apoptosis
Storage:	-20°C, protect from light * In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



### SOLVENT & SOLUBILITY

In Vitro	DMSO : 10 mg/mL (21.25 mM; Need ultrasonic)				
		Solvent Concentration	Mass 1 mg	5 mg	10 mg
	Preparing Stock Solutions	1 mM	2.1249 mL	10.6247 mL	21.2495 mL
		5 mM	0.4250 mL	2.1249 mL	4.2499 mL
		10 mM	0.2125 mL	1.0625 mL	2.1249 mL
Please refer to the solubility information to select the appropriate solvent.					
In Vivo	1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: 1 mg/mL (2.12 mM); Suspended solution; Need ultrasonic				
	2. Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: ≥ 1 mg/mL (2.12 mM); Clear solution				

### BIOLOGICAL ACTIVITY

Description	Withanolide A is an orally active extract from the Indian herb Ashwagandha. Withanolide A can induce apoptosis. Withanolide A has anti-inflammatory and antitumor activity. Withanolide A can be used in the study of neurodegenerative diseases <sup>[1][2][3][4]</sup> .
In Vitro	Withanolide A (1 μM, 4 days) can induce presynaptic and postsynaptic reconstruction of rat neurons and induce significant regeneration of axons and dendrites <sup>[1]</sup> . Withanolide A (0.5-2 μM, 24-48 h) inhibits growth of CaOV3 and SKOV3 ovarian cancer cells by targeting Notch1 and Notch3 <sup>[2]</sup> . Withanolide A (0.5-50 μg/mL, 3 h) has the potential of vascular relaxation by promoting the production of NO in endothelial cells <sup>[3]</sup> . MCE has not independently confirmed the accuracy of these methods. They are for reference only.

#### Cell Viability Assay<sup>[2]</sup>

Cell Line:	CaOV3, SKOV3, OVCAR3, TOV112D and TOV21G
Concentration:	0, 0.078, 0.156, 0.313, 0.625, 1.25, 2.5, 5, 10 $\mu$ M
Incubation Time:	72 h
Result:	Decreased the cell viability and with an IC <sub>50</sub> concentrations at 520 nM, 627 nM, 452 nM, 262 nM, 243 nM, respectively.

#### Apoptosis Analysis<sup>[2]</sup>

Cell Line:	CaOV3, SKOV3
Concentration:	0.5, 1, 2 $\mu$ M
Incubation Time:	24, 48 h
Result:	Induced apoptosis in a dose-dependent manner.

#### Cell Cycle Analysis<sup>[2]</sup>

Cell Line:	CaOV3, SKOV3
Concentration:	0.5, 1, 2 $\mu$ M
Incubation Time:	24, 48 h
Result:	Induced G2/M phase cell cycle arrest.

#### Western Blot Analysis<sup>[2]</sup>

Cell Line:	CaOV3, SKOV3
Concentration:	0.5, 1, 2 $\mu$ M
Incubation Time:	24, 48 h
Result:	Decreased cdc25C protein. Cyclin B1 stayed unchanged at 24 h but decreased by 48 h in a dose-dependent manner in CaOV3 cells, transiently increased in SKOV3 cells. Reduced the levels of phospho-Akt (ser 473) and Bcl-2. Reduced Notch 3 protein levels in CaOV3 cells and Notch1 protein levels in SKOV3 cells.

#### In Vivo

Withanolide A (10  $\mu$ mol/kg, dissolved in 0.5% acacia solution for 21 days orally) prevents neurodegeneration in rats by modulating hippocampal glutathione biosynthesis<sup>[4]</sup>.

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Adult male Sprague Dawley rats weighing 240–250 g <sup>[4]</sup>
Dosage:	10 $\mu$ mol/kg
Administration:	p.o. (dissolved in 0.5% gum arabic solution)
Result:	Decreased the level of reactive oxygen species generation and lipid peroxidation. Increased the level of GSH and the activity of glutathione reductase, glutathione s

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transferase and superoxide dismutase.  
Increased the ATP, NADPH and GCLC activity.  
Decreased corticosterone level and glucocorticoid receptor.

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## REFERENCES

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- [1]. Kuboyama T, et al. Neuritic regeneration and synaptic reconstruction induced by withanolide A. *Br J Pharmacol.* 2005 Apr;144(7):961-71..
- [2]. Zhang X, et al. Inhibition of cell growth and induction of apoptosis in ovarian carcinoma cell lines CaOV3 and SKOV3 by natural withanolide Withaferin A. *Gynecol Oncol.* 2012 Mar;124(3):606-12.
- [3]. Pathak P, et al. Standardized root extract of *Withania somnifera* and Withanolide A exert moderate vasorelaxant effect in the rat aortic rings by enhancing nitric oxide generation. *J Ethnopharmacol.* 2021 Oct 5;278:114296.
- [4]. Baitharu I, et al. Withanolide A prevents neurodegeneration by modulating hippocampal glutathione biosynthesis during hypoxia. *PLoS One.* 2014 Oct 13;9(10):e105311.
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**Caution: Product has not been fully validated for medical applications. For research use only.**

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