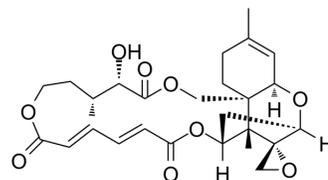


## Verrucarin A

<b>Cat. No.:</b>	HY-107426		
<b>CAS No.:</b>	3148-09-2		
<b>Molecular Formula:</b>	C <sub>27</sub> H <sub>34</sub> O <sub>9</sub>		
<b>Molecular Weight:</b>	502.55		
<b>Target:</b>	Apoptosis; Reactive Oxygen Species		
<b>Pathway:</b>	Apoptosis; Immunology/Inflammation; Metabolic Enzyme/Protease; NF-κB		
<b>Storage:</b>	Powder	-20°C	3 years
	In solvent	-80°C	6 months
		-20°C	1 month



### BIOLOGICAL ACTIVITY

#### Description

Verrucarin A (Muconomycin A), a Type D macrocyclic mycotoxin derived from the pathogen fungus *Myrothecium verrucaria*, is an inhibitor of protein synthesis. Verrucarin A inhibits growth of leukemia cell lines and activates caspases and apoptosis and inflammatory signaling in macrophages. Verrucarin A effectively increased the phosphorylation of p38 MAPK and diminished the phosphorylation of ERK/Akt. Verrucarin A caused cell cycle deregulation through the induction of p21 and p53<sup>[1][2]</sup>.

#### In Vitro

Verrucarin A (0-0.6 μM/ml; 24-48 hours)-induces time- and dose-dependent growth inhibition in MCF-7 cells<sup>[1]</sup>. Verrucarin A increases the levels of reactive oxygen species (ROS), and subsequently induces mitochondrial membrane potential (Δψ<sub>m</sub>) loss, leading to the increase of Bax/Bcl-2 ratio, cytochrome c release, caspase activation, PARP degradation, and apoptosis<sup>[1]</sup>.

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

Cell Viability Assay<sup>[1]</sup>

Cell Line:	MCF-7 cells
Concentration:	0-0.6 μM/ml
Incubation Time:	24 and 48 hours
Result:	Growth of MCF-7 cells is significantly inhibited in a dose- and time-dependent manner, with the IC <sub>50</sub> s of 0.41 and 0.29 μM/ml for 24- and 48-h treatment periods, respectively.

### REFERENCES

[1]. Palanivel K, et al. Verrucarin A alters cell-cycle regulatory proteins and induces apoptosis through reactive oxygen species-dependent p38MAPK activation in the human breast cancer cell line MCF-7. *Tumour Biol.* 2014;35(10):10159-10167.

[2]. Palanivel K, et al. Verrucarin A, a protein synthesis inhibitor, induces growth inhibition and apoptosis in breast cancer cell lines MDA-MB-231 and T47D. *Biotechnol Lett.* 2013;35(9):1395-1403.

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**Caution: Product has not been fully validated for medical applications. For research use only.**

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