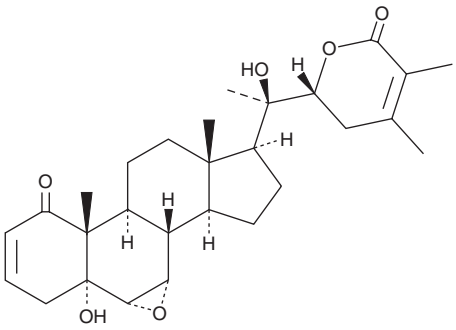
PRODUCT INFORMATION

Withanolide A

Item No. 11797

CAS Registry No.:	32911-62-9
Formal Name:	6α,7α-epoxy-5α,20,22R-trihydroxy-1-oxo-ergosta-2,24-dien-26-oic acid δ-lactone
Synonyms:	Withaniol, WL-A
MF:	$C_{28}H_{38}O_6$
FW:	470.6
Purity:	≥95%
UV/Vis.:	λ_{max}: 226 nm
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥2 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Withanolide A is supplied as a crystalline solid. A stock solution may be made by dissolving the withanolide A in the solvent of choice. Withanolide A is soluble in organic solvents such as methanol and acetonitrile, which should be purged with an inert gas. The solubility of withanolide A in these solvents is approximately 0.5 and 0.1 mg/ml, respectively.

Withanolide A is sparingly soluble in aqueous solutions. To enhance aqueous solubility, dilute the organic solvent solution into aqueous buffers or isotonic saline. If performing biological experiments, ensure the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. We do not recommend storing the aqueous solution for more than one day.

Description

Withanolide A is a natural product isolated from the medicinal plant *W. somnifera* that has antioxidant and neuroprotective activity.[1] It helps to promote neurite outgrowth at 1 µM in cultured neurons and in rodents injected with Aβ(25-35), and also recovers Aβ(25-35)-induced memory deficit in mice (10 µmol/kg/day).[2,3] Withanolide A reverses hypoxia-mediated neurodegeneration by restoring hypoxia-induced glutathione depletion in the hippocampus of mice.[4]

References

1. Kurapati, K.R.V., Samikkannu, T., Atluri, V.S.R., *et al*. β-Amyloid1-42, HIV-1Bα-L (clade B) infection and drugs of abuse induced degeneration in human neuronal cells and protective effects of ashwagandha (*Withania somnifera*) and its constituent Withanolide A. *PLoS One* **9(11)**, 1-23 (2014).
2. Zhao, J., Nakamura, N., Hattori, M., *et al*. Withanolide derivatives from the roots of *Withania somnifera* and their neurite outgrowth activities. *Chem. Pharm. Bull. (Tokyo)* **50(6)**, 760-765 (2002).
3. Kuboyama, T., Tohda, C., and Komatsu, K. Neuritic regeneration and synaptic reconstruction induced by withanolide A. *Br. J. Pharmacol.* **144(7)**, 961-971 (2005).
4. Baitharu, I., Jain, V., Deep, S.N., *et al*. Withanolide A prevents neurodegeneration by modulating hippocampal glutathione biosynthesis during hypoxia. *PLoS One* **9(10)**, 1-17 (2014).

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