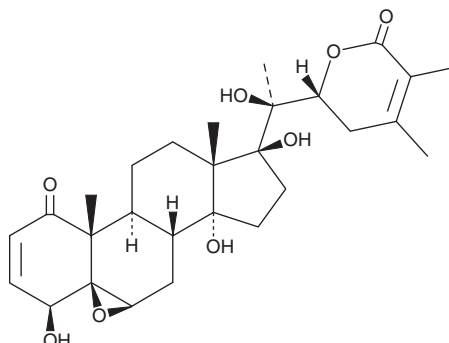


# PRODUCT INFORMATION

## 4 $\beta$ -Hydroxywithanolide E

Item No. 27245

**CAS Registry No.:** 54334-04-2  
**Formal Name:** 5 $\beta$ ,6 $\beta$ -epoxy-4 $\beta$ ,14,17 $\alpha$ ,20,22R-pentahydroxy-1-oxo-ergosta-2,24-dien-26-oic acid,  $\delta$ -lactone  
**Synonym:** NSC 212509  
**MF:** C<sub>28</sub>H<sub>38</sub>O<sub>8</sub>  
**FW:** 502.6  
**Purity:**  $\geq 95\%$   
**UV/Vis.:**  $\lambda_{\text{max}}$ : 217 nm  
**Supplied as:** A crystalline solid  
**Storage:** -20°C  
**Stability:**  $\geq 2$  years  
**Item Origin:** Plant/*Physalis peruviana*



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

### Laboratory Procedures

4 $\beta$ -Hydroxywithanolide E is supplied as a crystalline solid. A stock solution may be made by dissolving the 4 $\beta$ -hydroxywithanolide E in the solvent of choice, which should be purged with an inert gas. 4 $\beta$ -Hydroxywithanolide E is soluble in organic solvents such as ethanol, methanol, and chloroform.

### Description

4 $\beta$ -Hydroxywithanolide E is a withanolide steroidal lactone that has been found in *P. peruviana* and has anti-inflammatory and anticancer activities.<sup>1-3</sup> It inhibits LPS-induced nitric oxide (NO) production in RAW 264.7 cells and TNF- $\alpha$ -induced NF- $\kappa$ B activity in HEK293 cells (IC<sub>50</sub>s = 0.32 and 0.04  $\mu$ M, respectively).<sup>1</sup> 4 $\beta$ -Hydroxywithanolide E (5  $\mu$ M) inhibits LPS-induced increases in inducible nitric oxide synthase (iNOS) and COX-2 levels and Akt and STAT1 phosphorylation in RAW 264.7 cells.<sup>2</sup> It inhibits Wnt signaling in HCT116 and SW480 colorectal cancer cells (IC<sub>50</sub>s = 1.85 and 2.67  $\mu$ M, respectively).<sup>3</sup> 4 $\beta$ -Hydroxywithanolide E inhibits the proliferation of HCT116, SW480, HT-29, and LoVo cells (IC<sub>50</sub>s = 0.24-0.51  $\mu$ M). It halts the cell cycle at the G<sub>0</sub>/G<sub>1</sub> phase in HCT116 and HT-29 cells and induces apoptosis in HCT116 and SW480 cells in a concentration-dependent manner. 4 $\beta$ -Hydroxywithanolide E (10 mg/kg per day for 14 days) reduces tumor growth in an HCT116 mouse xenograft model.

### References

1. Sang-Ngern, M., Youn, U.J., Park, E.J., et al. Withanolides derived from *Physalis peruviana* (Poha) with potential anti-inflammatory activity. *Bioorg. Med. Chem. Lett.* **26**(12), 2755-2759 (2016).
2. Park, E.J., Sang-Ngern, M., Chang, L.C., et al. Physalactone and 4 $\beta$ -hydroxywithanolide E isolated from *Physalis peruviana* inhibit LPS-induced expression of COX-2 and iNOS accompanied by abatement of Akt and STAT1. *J. Nat. Prod.* **82**(3), 492-499 (2019).
3. Ye, Z.N., Yuan, F., Liu, J.Q., et al. *Physalis peruviana*-derived 4 $\beta$ -hydroxywithanolide E, a novel antagonist of Wnt signaling, inhibits colorectal cancer *in vitro* and *in vivo*. *Molecules* **24**(6), E1146 (2019).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

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