

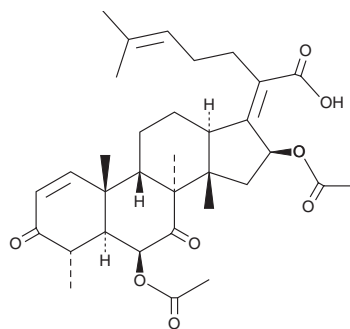
# PRODUCT INFORMATION



## Helvolic Acid

Item No. 21580

**CAS Registry No.:** 29400-42-8  
**Formal Name:** (4 $\alpha$ ,6 $\beta$ ,8 $\alpha$ ,9 $\beta$ ,13 $\alpha$ ,14 $\beta$ ,16 $\beta$ ,17Z)-6,16-bis(acetyloxy)-3,7-dioxo-29-nordammara-1,17(20),24-trien-21-oic acid  
**Synonyms:** BRN 3230584, NSC 319943  
**MF:** C<sub>33</sub>H<sub>44</sub>O<sub>8</sub>  
**FW:** 568.7  
**Purity:**  $\geq$ 98%  
**UV/Vis.:**  $\lambda_{\text{max}}$ : 229 nm  
**Supplied as:** A crystalline solid  
**Storage:** -20°C  
**Stability:**  $\geq$ 4 years



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

### Laboratory Procedures

Helvolic acid is supplied as a crystalline solid. A stock solution may be made by dissolving the helvolic acid in the solvent of choice. Helvolic acid is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of helvolic acid in ethanol and DMSO is approximately 20 mg/ml and approximately 30 mg/ml in DMF.

Helvolic acid is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, helvolic acid should first be dissolved in DMF and then diluted with the aqueous buffer of choice. Helvolic acid has a solubility of approximately 0.5 mg/ml in a 1:1 solution of DMF:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

### Description

Helvolic acid is a mycotoxin originally isolated from *A. fumigatus* that has broad-spectrum antibiotic activity against Gram-positive and Gram-negative bacteria.<sup>1,2</sup> At 4-16 mg/L, it acted synergistically with erythromycin (500-2,000 mg/L) *in vitro* on five multi-drug resistant strains of *S. aureus*.<sup>3</sup> At 10 mg/kg/d, it reduced tumor growth and prolonged survival synergistically with cyclophosphamide (20 mg/kg/d) in a mouse model of sarcoma but had no effect when administered alone.<sup>4</sup>

### References

1. Chain, E., Florey, H.W., Jennings, M.A., *et al.* Helvolic acid, an antibiotic produced by *Apergillus fumigatus*, *mut. helvola* Yuill. *Br. J. Exp. Pathol.* **24**(3), 108-119 (1943).
2. Ratnaweera, P.B., Williams, D.E., de Silva, E.D., *et al.* Helvolic acid, an antibacterial nortriterpenoid from a fungal endophyte, *Xylaria* sp. of orchid *Anoectochilus setaceus* endemic to Sri Lanka. *Mycology* **5**(1), 23-28 (2014).
3. Qin, L., Li, B., Guan, J., *et al.* *In vitro* synergistic antibacterial activities of helvolic acid on multi-drug resistant *Staphylococcus aureus*. *Nat. Prod. Res.* **23**(4), 309-318 (2009).
4. Xiao, J.-H., Zhang, Y., Liang, G.-Y., *et al.* Synergistic antitumor efficacy of antibacterial helvolic acid from *Cordyceps taii* and cyclophosphamide in a tumor mouse model. *Exp. Biol. Med. (Maywood)* **242**(2), 214-222 (2017).

#### 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.

#### WARRANTY AND LIMITATION OF REMEDY

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