

## Product Information

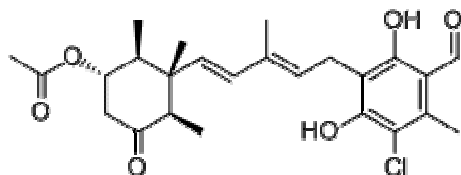
### Illicolin F from *Verticillium hemipterigenum*

Catalog Number **SML0110**  
Storage Temperature  $-20\text{ }^{\circ}\text{C}$

CAS RN 22738-98-3  
Synonym: Acetoxy-ascochlorin

#### Product Description

Molecular formula:  $\text{C}_{25}\text{H}_{31}\text{ClO}_6$   
Molecular weight: 462.96



Illicolin F belongs to the ascochlorin family of molecules.<sup>1</sup> Ascochlorin is an isoprenoid antibiotic produced by *Verticillium hemipterigenum*.<sup>2,3</sup> Ascochlorin and its derivatives have an inhibitory effect on mitochondrial respiration by blocking the oxidation-reduction of cytochrome *b* through center N of the cytochrome *bc1* complex.<sup>1,4,5</sup> Illicolins were found to have antiviral activity. They inhibit the growth of the tobacco mosaic virus, herpes simplex virus type-1 (HSV-1), and newcastle disease virus.<sup>1,4-6</sup>

Compounds of the ascochlorin family such as illicolin F, C, D, and H show a wide range of inhibitory effects on farnesyl protein transferase (FPTase) activity and a significant inhibitory effect on the activity of testosterone  $5\alpha$ -reductase.<sup>1</sup> Illicolin C and F have a moderate inhibitory activity toward the enzymes acetylcholinesterase (AChE) and  $\beta$ -glucuronidase, and are active against *Pseudomonas syringae* with  $\text{IC}_{50}$  values of  $28.5\text{ }\mu\text{g/mL}$ .<sup>1</sup>

All isolated ascochlorin analogs exhibit significant antitumor and cytotoxic activities.<sup>1,6</sup> Ascochlorin and its homologs are usable in treating and/or preventing diseases that can be relieved by the retinoid X receptor ligand-dependent signal transcriptional regulation (i.e., hypertension, cerebrovascular diseases, rheumatoid arthritis, autoimmune diseases, complication of diabetes, and arteriosclerosis etc.). Moreover, they can inhibit denaturation and/or necrosis of pancreatic Langerhans islet  $\beta$ -cells and therefore, can sustain insulin productivity by these cells.<sup>7</sup>

Purity:  $\geq 98\%$  (HPLC)

#### Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

#### Preparation Instructions

The product is soluble in DMSO (at least  $10\text{ mg/mL}$ ) and also in methanol, chloroform, and ethyl acetate. It is insoluble in water.

#### Storage/Stability

Store the product sealed at  $-20\text{ }^{\circ}\text{C}$ . Under these conditions the product is stable for at least 3 years.

#### References

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- Tamura, G. et al., Ascochlorin, a new antibiotic, found by the paper-disc agar-diffusion method. I. Isolation, biological and chemical properties of ascochlorin. (Studies on antiviral and antitumor antibiotics. I). *J. Antibiot.*, **21**, 539-544 (1968).
- Takatsuki, A. et al., Screening of antiviral antibiotics from actinomycetes: correlation between antiviral activity, cytotoxicity and antibacterial activity. (Studies on antiviral and antitumor antibiotics. XI). *J. Antibiot.*, **22**, 171-173 (1969).

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5. Berry, E.A., et al., Ascochlorin is a novel, specific inhibitor of the mitochondrial cytochrome *bc1* complex. *Biochim. Biophys. Acta*, **1797**, 360-370 (2010).
6. Seephonkai, P. et al., A novel Ascochlorin glycoside from the insect pathogenic fungus *Verticillium hemipterigenum* BCC 2370. *J. Antibiot.*, **57**, 10-16 (2004).
7. Togashi, M., et al., Ascochlorin derivatives as ligands for nuclear hormone receptors. *J. Med. Chem.*, **46**, 4113-4123 (2003).

KAA,DWF,MAM 11/11-1