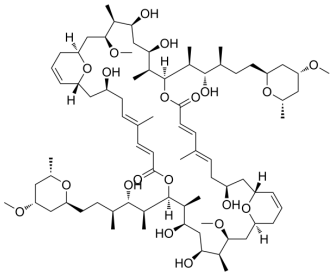
Swinholide A

Cat. No.:	HY-111009
CAS No.:	95927-67-6
Molecular Formula:	$C_{78}H_{132}O_{20}$
Molecular Weight:	1389.87
Target:	Fungal
Pathway:	Anti-infection
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

Swinholide A is the actin-binding marine polyketide and dimerizes actin with the K_d of ~ 50 nM[1]. Swinholide A is a microfilament disrupting marine toxin that stabilizes actin dimers and severs actin filaments. Swinholide A disrupts the actin cytoskeleton of cells.Antifungal activity[2].

In Vitro

Swinholide A, first isolated from the Okinawan marine sponge Theonella swinhoei, dimerizes actin[1].
Swinholide A, isolated from the marien sponge Theonella swinhoei, is highly cytotoxic to a variety of cancer cell lines[2].
Swinholide A disrupts the actin cytoskeleton of cells grown in culture, sequesters actin dimers in vitro in both polymerizing and non-polymerizing buffers with a binding stoichiometry of one swinholide A molecule per actin dimer, and rapidly severs F-actin in vitro with high cooperativity[2].

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

Cell Viability Assay[2]

Cell Line:	Balb/c 3T3 and Swiss 3T3 cells
Concentration:	5-100 nM
Incubation Time:	1-24 h
Result:	Exponentially growing cells exposed to 10 nM for 24 h became arborized with diffuse cytoplasmic staining and fluorescent punctate structures. Partial cell retraction or arborization and diminution of microfilament bundles began after 2-4 h, with complete loss of stress fibers by 5-7 h at concentrations of 10-50 nM. Caused rounding of cultured mouse embryo 3T3 fibroblast cells within 1 h at concentration of 80 nM.

REFERENCES

[1]. Inji Shin,et al. Total Synthesis of Swinholide A: An Exposition in Hydrogen-Mediated C-C Bond Formation. J Am Chem Soc. 2016 Nov 2;138(43):14246-14249.

[2]. M R Bubb, et al. Swinholide A is a microfilament disrupting marine toxin that stabilizes actin dimers and severs actin filaments. J Biol Chem. 1995 Feb 24;270(8):3463-6.

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

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