Venturicidin A
PRODUCT DATA SHEET

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Product Name:	Venturicidin A
Product Number:	V017
CAS Number:	33538-71-5
Molecular Formula:	$C_{41}H_{67}NO_{11}$
Molecular Weight:	750.0
Appearance:	White Lyophilisate
Storage Conditions:	-20°C
Description:	Venturicidin A (Aabomycin A1) is a 20-member macrolide glycoside compound that was first isolated from a *Streptomyces sp.* by Glaxo Labs in 1961. Venturicidin A is a potent antifungal and toxic antibiotic compound, that has also shown cytotoxicity (IC_{50} = 120-540 ng/ml) to trypanosomes. Venturicidin A is a potent inhibitor of bacterial and mitochondrial ATP-synthase complexes acting on the F0 membrane sector, with experiments suggesting that the compound strongly inhibits ATP-driven proton transport and ATP hydrolysis. Venturicidin A demonstrates the ability to drastically decrease the open probability of voltage sensitive K+ channels. Venturicidin A is an inhibitor of ATP5 as well as a potential inhibitor of *E. coli* H^+-ATPase. Venturicidin A is soluble in ethanol, methanol, DMF and DMSO.
Mechanism of Action:	Venturicidin A binds to the subunit-c of the coupling factor o (Fo) of mitochondrial and bacterial ATP synthase complexes. Once bound to the ATP synthase complex, Venturicidin A blocks proton translocation and inhibits ATP synthesis in both fungi and bacteria.
Spectrum:	Venturicidin A is potent inhibitor of fungal and bacterial strains and has low toxicity for higher plants and animals. Venturicidin A does not show antibacterial activities against test strains *S. aureus* ATCC6538 and *S enterica* ATCC10708 up to 124 µM concentrations, nor did it exhibit significant cytoxoxicity against non-small cell carcinoma cell line A549.
Plant Biology Applications	Venturicidin protects plants from infection with pathogenic fungi such as *Erysiphe graminis*, *Erysiphe cichoracearum*, *Podoshpaera leucotricha* and *Botrytis cinerea*. It is also effective against fungi in the genus *Venturia* which can cause apple scab.

References:

Studies on the mechanism of oxidative phosphorylation. ATP synthesis by submitochondrial particles inhibited at F0 by venturicidin and organotin compounds. Matsuno-Yagi A. & Hatefi Y. J. Biol. Chem. 1993, 268, 6168.

Potassium selective and venturicidin sensitive conductances of Fo purified from bovine heart mitochondria, reconstituted in planar lipid bilayers. Miedema H. et al. Biochem. Biophys. Res. Commun. 1994, 203, 1005.

Amino acid substitutions in mitochondrial ATP synthase subunit 9 of Saccharomyces cerevisiae leading to venturicidin or ossamycin resistance. Galanis M. et al. FEBS Lett. 1989, 249, 333.