

PRODUCT INFORMATION



Fusicoccin

Item No. 25020

CAS Registry No.: 20108-30-9

Formal Name: (1S,4R,5R,6R,6aS,9S,10aR)-3-[(1S)-2-(acetyloxy)-1-methylethyl]-1,2,4,5,6,6a,7,8,9,10a-decahydro-1,5-dihydroxy-9-(methoxymethyl)-6,10a-dimethyldicyclopenta[a,d]cycloocten-4-yl 6-O-(1,1-dimethyl-2-propen-1-yl)- α -D-glucopyranoside, 3-acetate

Synonym: NSC 113500

MF: $C_{36}H_{56}O_{12}$

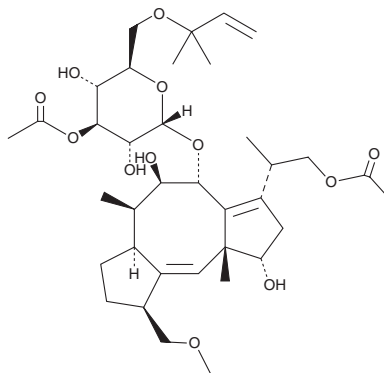
FW: 680.8

Purity: $\geq 90\%$

Supplied as: A solid

Storage: -20°C

Stability: ≥ 4 years



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

Laboratory Procedures

Fusicoccin is supplied as a solid. A stock solution may be made by dissolving the fusicoccin in the solvent of choice, which should be purged with an inert gas. Fusicoccin is soluble in DMSO.

Description

Fusicoccin is a phytotoxin originally isolated from *F. amygdali* that induces death of tomato plants when used at concentrations ranging from 0.1 to 0.2 $\mu\text{g}/\text{ml}$.¹ Topical administration of fusicoccin to tobacco (*N. tabacum*), sorghum (*S. bicolor*), cucumber (*C. sativa*), lucerne (*M. sativa*), and pokeweed (*P. Americana*) induces permanent opening of leaf stomata and wilting.² Fusicoccin binds to the preformed complex between plasma membrane H^+ -ATPase and a 14-3-3 protein in plants to stabilize and activate the enzyme leading to dysregulated solute transport and control of transmembrane electric potential.³ It also stabilizes eukaryotic 14-3-3 protein interactions with binding partners containing a C-terminal 14-3-3 recognition motif, also known as a mode 3 motif, such as ER α , GPIIb, TASK3, CTFR, and p53 *in vitro*.⁴ Fusicoccin stimulates cortical neurite outgrowth in a 14-3-3 protein-dependent manner ($\text{EC}_{50} = 29 \mu\text{M}$).⁵ *In vivo*, topical administration of fusicoccin to the injury site reduces collapse and retraction of severed axons in a mouse model of spinal cord injury.

References

1. Ballio, A., Chain, E.B., De Leo, P., *et al.* Fusicoccin: A new wilting toxin produced by *Fusicoccum amygdali* Del. *Nature* **203**(4942), 297 (1964).
2. Turner, N.C. and Grainiti, A. Fusicoccin: A fungal toxin that opens stomata. *Nature* **223**(5210), 1070-1071 (1969).
3. Camoni, L., Visconti, S., and Aducci, P. The phytotoxin fusicoccin, a selective stabilizer of 14-3-3 interactions? *IUBMB Life* **65**(6), 513-517 (2013).
4. Doveston, R.G., Kuusk, A., Andrei, S., *et al.* Small-molecule stabilization of the p53 - 14-3-3 protein-protein interaction. *FEBS Lett.* **591**(16), 2449-2459 (2017).
5. Kaplan, A., Morguette, B., Kroner, A., *et al.* Small-molecule stabilization of 14-3-3 protein-protein interactions stimulates axon regeneration. *Neuron* **93**(5), 1082-1093 (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.

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