

Small Molecules

Fumonisin B1

Inhibitor of sphingolipid synthesis and protein serine/threonine phosphatases

Catalog # 73682
73684

1 mg
10 mg



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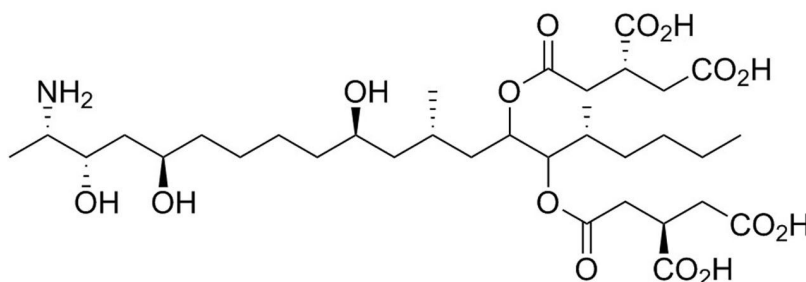
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Product Description

Fumonisin B1 is a mycotoxin produced by *Fusarium moniliforme* that has been shown to potently inhibit sphingosine N-acyltransferase (ceramide synthase; Wang et al.), thereby disrupting the synthesis of sphingolipids, a key component of plasma membranes ($IC_{50} = 0.1 \mu\text{M}$). Fumonisin B1 also inhibits protein serine/threonine phosphatases (PPs; PP1, PP2A, PP2B, PP2C, and PP5/T/K/H) with IC_{50} values of 80 - 3000 μM . PP5 is the most sensitive with an IC_{50} of 80 μM (Fukuda et al.). Fumonisin B1, together with Alfatoxin B1, increases reactive oxygen species levels and oxidative damage in rat spleen cells (Mary et al.).

Molecular Name:	Fumonisin B1
Alternative Names:	Not applicable
CAS Number:	116355-83-0
Chemical Formula:	$C_{34}H_{59}NO_{15}$
Molecular Weight:	721.8 g/mol
Purity:	$\geq 95\%$
Chemical Name:	2-[2-[19-amino-6-(3,4-dicarboxybutanoyloxy)-11,16,18-trihydroxy-5,9-dimethylicosan-7-yl]oxy-2-oxoethyl]butanedioic acid

Structure:



Properties

Physical Appearance:	A crystalline solid
Storage:	Product stable at -20°C as supplied. Protect product from prolonged exposure to light. For long-term storage store with a desiccant. For product expiry date, please contact techsupport@stemcell.com .
Solubility:	<ul style="list-style-type: none">· PBS (pH 7.2) $\leq 25 \text{ mM}$· Methanol $\leq 13 \text{ mM}$ For example, to prepare a 10 mM stock solution in PBS, resuspend 1 mg in 139 μL of PBS.

Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported, however, as a general guide we recommend storage in PBS at -20°C . Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application.

For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use.

Published Applications

MAINTENANCE

- Reversibly blocks cell proliferation and DNA synthesis in Swiss 3T3 cells (Meivar-Levy et al.).
- Blocks hexadecylphosphocholine (HePC)-induced apoptosis in human keratinocyte cell lines (Wieder et al.).

DIFFERENTIATION

- Disrupts dendrite growth in cerebellar Purkinje neurons (Furuya et al.).
- Inhibits axonal branching in cultured hippocampal neurons (Schwarz et al.).

CANCER RESEARCH

- Attenuates the response of mouse lymphoma cell lines to platelet-activating factor and blocks HePC-induced apoptosis by inhibiting ceramide formation (Balsinde et al.).

References

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- Mary VS et al. (2012) Reactive oxygen species sources and biomolecular oxidative damage induced by aflatoxin B1 and fumonisin B1 in rat spleen mononuclear cells. *Toxicology* 302(2-3): 299–307.
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- Wang E et al. (1991) Inhibition of sphingolipid biosynthesis by fumonisins. Implications for diseases associated with *Fusarium moniliforme*. *J Biol Chem* 266(22): 14486–90.
- Wieder T et al. (1998) Induction of ceramide-mediated apoptosis by the anticancer phospholipid analog, hexadecylphosphocholine. *J Biol Chem* 273(18): 11025–31.

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