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 (IC₅₀ = 0.1 µM). Fumonisin B1 also inhibits protein serine/threonine phosphatases (PPs; PP1, PP2A, PP2B, PP2C and PP5/T/K/H) with IC₅₀ values of 80 - 3000 µM. PP5 is the most sensitive with an IC₅₀ 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.).

**Product Description**

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**Molecular Name:** Fumonisin B1  
**Alternative Names:** Not applicable  
**CAS Number:** 116355-83-0  
**Chemical Formula:** C₃₄H₅₉NO₁₅  
**Molecular Weight:** 721.8 g/mol  
**Purity:** ≥ 98%  
**Chemical Name:** 2-[2-[19-amino-6-(3,4-dicarboxybutanoyloxy)-11,16,18-trihydroxy-5,9-dimethylcos-7-yl]oxy-2-oxoethyl]butanedioic acid

**Structure:**

![Structure of Fumonisin B1](image)

**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:**  
- PBS (pH 7.2) ≤ 25 mM  
- Methanol ≤ 13 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


Related Small Molecules

For a complete list of small molecules available from STEMCELL Technologies, please visit our website at www.stemcell.com/smallmolecules or contact us at techsupport@stemcell.com.

This product is hazardous. Please refer to the Safety Data Sheet (SDS).