

Product Information

Ceramide-1-phosphate from bovine brain

Product Number **C 4832**
Storage Temperature -0 °C

Product Description

CAS Number: 128543-23-7

Ceramide-1-phosphate is prepared from bovine brain sphingomyelin by enzymatic hydrolysis. Based on the approximate molecular weight of bovine brain sphingomyelin of 782 (range 772-793; calculated on selected lots of Product No.S 7004, ceramide-1-phosphate would have an approximate molecular weight of 697 (range 687-707). The major fatty acids would be stearic and nervonic, and to a lesser extent lignoceric, behenic, palmitic, and arachidic acids.

Ceramide-1-phosphate is part of a signal transduction system, involving sphingomyelin hydrolysis by a sphingomyelinase which generates ceramide. Ceramide may be converted to sphingosine or be phosphorylated by a calcium dependent ceramide kinase to ceramide-1-phosphate.^{1,2} The presence of a ceramide phosphatase has also been demonstrated in rat liver plasma membrane.^{3,4} Short fatty acid chain ceramide-1-phosphate analogues have been reported to modify DNA synthesis and signal transduction pathways in rat fibroblasts.⁵ Cell stimulation with ceramide-1-phosphate indicated an involvement with calcium concentration regulation and participation in cellular signalling processes.⁶

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

Natural ceramide-1-phosphate can be dispersed into aqueous solution when dissolved in an appropriate mixture of methanol/dodecane (49:1, v/v).⁷ It is soluble (2.5 mg/ml) in chloroform/methanol (2:1, v/v).

References

1. Mathias, S., et al., Characterization of a ceramide-activated protein kinase: stimulation by tumor necrosis factor, α . *Proc. Natl. Acad. Sci.*, **88(22)**, 10009-10013 (1991).
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4. Shinghal, R., et al., Ceramide 1-phosphate phosphatase activity in brain. *J. Neurochem.*, **61(6)**, 2279-285 (1993).
5. Gomez-Munoz, A., et al., Short-chain ceramide-1-phosphates are novel stimulators of DNA synthesis and cell division: antagonism by cell-permeable ceramides. *Mol. Pharmacol.*, **47(5)**, 833-839 (1995).
6. Hogback, S., et al., Ceramide 1-phosphate increases intracellular free calcium concentrations in thyroid FRTL-5 cells: evidence for an effect mediated by inositol 1,4,5-triphosphate and intracellular sphingosine 1-phosphate. *Biochem. J.*, **370(Pt 1)**, 111-119 (2003).
7. Gomez-Munoz, A., et al., Stimulation of DNA synthesis by natural ceramide-1-phosphate. *Biochem. J.*, **325(Pt 2)**, 435-440 (1997).

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