

PRODUCT DATA SHEET

N-Octadecanoyl-L-erythro-sphingosine

Catalog number: 1850

Synonyms: N-C18:0-L-erythro-Ceramide; N-Stearyl-L-erythro-sphingosine

Source: synthetic

Solubility: chloroform, ethanol, DMSO, DMF
(up to 5 mg/ml)

CAS number: N/A

Molecular Formula: C₃₆H₇₁NO₃

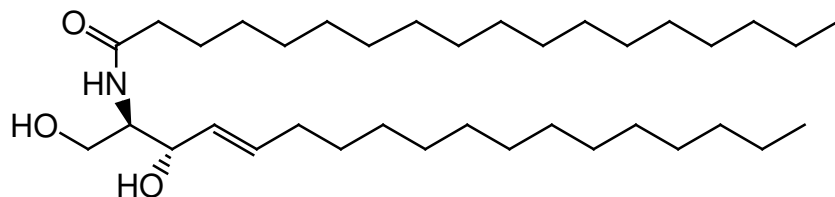
Molecular Weight: 566

Storage: -20°C

Purity: TLC: >98%, GC: >98%

TLC System: chloroform/methanol (90:10)

Appearance: solid



Application Notes:

This product is a high purity, non-natural L-erythro ceramide that is ideal as a standard and for biological studies. D-erythro ceramide is the natural ceramide isomer and is involved in many biological processes including induction of cell maturation, cell cycle arrest, terminal cell differentiation, cell senescence, and cell death.¹ Natural sphingosine induces dephosphorylation of retinoblastoma gene product and inhibits cell growth while L-erythro-sphingosine is 5-8-fold less active. However, the L-erythro-sphingosine is taken up by cells to the same extent as the natural sphingosine indicating that cellular uptake was not the factor influencing activity.² Both the natural D-erythro and the non-natural L-erythro and the D- and L-threo ceramides display similar effectiveness in inducing apoptotic damage in cells.³ The protein phosphatases PP1 and PP2A, which are involved in regulating apoptosis and cell growth, are activated by D-erythro ceramide but inhibited by L-threo, D-threo, and L-erythro ceramide.⁴ Both D-erythro and D-threo C2 ceramides have been found to be potent inducers of IL-6 production, while neither the L-threo or L-erythro stereoisomers of ceramide were effective.⁵ D- and L-erythro ceramide and D- and L-threo ceramide are also comparably effective inhibitors of protein kinase C.⁶

Selected References:

1. N. S. Radin, "Killing tumours by ceramide-induced apoptosis: a critique of available drugs" *Biochemical Journal*, Vol. 371 pp. 243-256, 2003
2. Y. Hannun et al. "Stereoselectivity of Induction of the Retinoblastoma Gene Product (pRb) Dephosphorylation by D-erythro-Sphingosine Supports a Role for pRb in Growth Suppression by Sphingosine" *Biochemistry*, vol. 34 pp. 1885-1892, 1995
3. W. Jarvis et al. "Induction of Apoptosis and Potentiation of Ceramide-mediated Cytotoxicity by Sphingoid Bases in Human Myeloid Leukemia Cells" *The Journal of Biological Chemistry*, Vol. 271 pp. 8275-8284, 1996
4. C. Chalfant et al. "Long Chain Ceramides Activate Protein Phosphatase-1 and Protein Phosphatase-2A Activation is Stereospecific and Regulated by Phosphatidic Acid" *The Journal of Biological Chemistry*, Vol. 274 pp. 20313-20317, 1999
5. S. Laulederkind et al. "Ceramide Induces Interleukin 6 Gene Expression in Human Fibroblasts" *The Journal of Experimental Medicine*, Vol. 182 pp. 599-604, 1995
6. T. Ariga et al. "Role of sphingolipid-mediated cell death in neurodegenerative diseases" *Journal of Lipid Research*, Vol. 39 pp. 1-16, 1998

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