

PRODUCT DATA SHEET

N-Octadecanoyl-D-*threo*-sphingosine

Catalog number: 1855

Synonyms: N-C18:0-D-*threo*-Ceramide; N-Stearoyl-D-*threo*-sphingosine

Source: synthetic

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

CAS number: 2304-81-6

Molecular Formula: C₃₆H₇₁NO₃

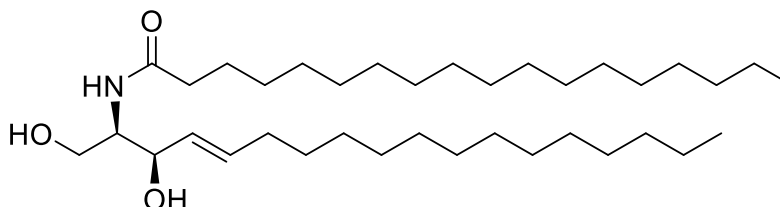
Molecular Weight: 566

Storage: -20°C

Purity: TLC: >98%, GC: >98%, identity confirmed
by MS

TLC System: chloroform/methanol (90:10 by vol.)

Appearance: solid



Application Notes:

This product is a high purity, non-natural *D-threo* 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 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.² The protein phosphatases PP1 and PP2A, which are involved in regulating apoptosis and cell growth, are activated by *D-erythro* ceramide but inhibited by *D-threo* ceramide and the other two non-natural ceramide stereoisomers.³ Both *D-erythro* and *D-threo* C2 ceramides have been found to be potent inducers of IL-6 production, while neither of the *L-* isomers of ceramide were effective.⁴ *D-* and *L-erythro* ceramide and *D-* and *L-threo* ceramide are also comparably effective inhibitors of protein kinase C.⁵

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. 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
3. 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
4. S. Laulederkind et al. "Ceramide Induces Interleukin 6 Gene Expression in Human Fibroblasts" *The Journal of Experimental Medicine*, Vol. 182 pp. 599-604, 1995
5. 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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