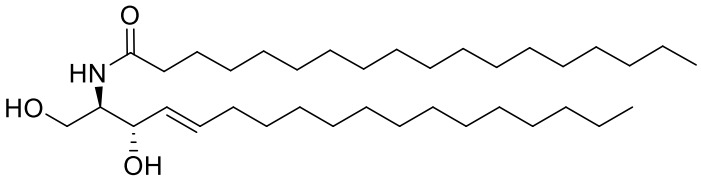
PRODUCT DATA SHEET

N-Octadecanoyl-L-*erythro*-sphingosine

Catalog number: 1850
Synonyms: N-C18:0-L-*erythro*-Ceramide; N-Stearoyl-L-*erythro*-sphingosine
Source: synthetic
Solubility: chloroform, ethanol, DMSO, DMF (up to 5 mg/ml)
CAS number: 252039-52-4

Molecular Formula: $C_{36}H_{71}NO_3$
Molecular Weight: 566
Storage: -20ºC
Purity: TLC: >98%, GC: >98%; identity confirmed by MS
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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