

PRODUCT DATA SHEET

N-Octadecanoyl-D-erythro-sphingosine

Catalog No: 1832

Common Name: N-C18:0-D-erythro-Ceramide; N-Stearoyl-D-erythro-sphingosine

Source: synthetic

Solubility: hot ethanol, chloroform, chloroform/methanol (2:1 by vol., up to 5mg/ml)

CAS No: 2304-81-6

Molecular Formula: C₃₆H₇₁NO₃

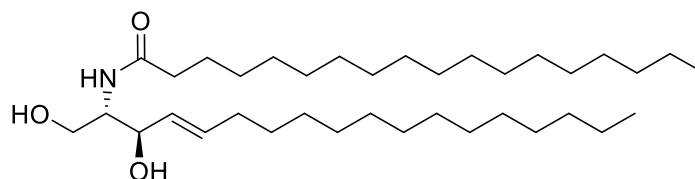
Molecular Weight: 566

Storage: -20°C

Purity: TLC > 98%, HPLC > 98%; identity confirmed by MS

TLC System: chloroform/methanol (95:5 by vol.)

Appearance: solid



Application Notes:

This product is a well-defined ceramide making it ideal as a mass spectrometry standard. C18:0-Ceramide has been found to inhibit cellular growth and is down regulated in certain tumor cells.¹ C18:0-Ceramide also induces a sphingolipid accumulation in cells. Ceramide is a fatty acid amide of sphingosine. Ceramide functions as a precursor in the synthesis of sphingomyelin, glycosphingolipids, and of free sphingosine and fatty acids. The sphingosine can be phosphorylated to form sphingosine-1-phosphate. Two of ceramide's metabolites, sphingosine-1-phosphate and glucosylceramide, produce cell proliferation and other cellular functions.² Ceramide exerts numerous biological effects, including induction of cell maturation, cell cycle arrest, terminal cell differentiation, cell senescence, and cell death.³ Because of these effects ceramide has been investigated for its use in cancer treatment and many potential approaches to cancer therapy have been presented.⁴ Other effects include producing reactive oxygen in mitochondria (followed by apoptosis) and stimulating phosphorylation of certain proteins (especially mitogen activated protein). It also stimulates some protein phosphatases (especially protein phosphatase 2A) making it an important controller of protein activity.

Selected References:

1. S. Koybasi et al. "Defects in Cell Growth Regulation by C18:0-Ceramide and Longevity Assurance Gene 1 in Human Head and Neck Squamous Cell Carcinomas" *Journal of Biological Chemistry*, Vol. 279(43) pp. 44311-44319, 2004
2. J. M. Hauser, B. M. Buehrer, and R. M. Bell "Role of ceramide in mitogenesis induced by exogenous sphingoid bases." *Journal of Biological Chemistry* Vol. 269 pp. 6803, 1994
3. N. S. Radin, "Killing tumours by ceramide-induced apoptosis: a critique of available drugs" *Biochemical Journal*, Vol. 371 pp. 243-256, 2003
4. N. S. Radin, "Designing anticancer drugs via the achilles heel: ceramide, allylic ketones, and mitochondria" *Bioorganic and Medicinal Chemistry*, Vol. 11(10) pp. 2123-2142, 2003

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