

PRODUCT DATA SHEET

N-Hexanoyl-D-erythro-sphingosine

Catalog No: 1900

Common Name: N-C6:0-D-erythro-Ceramide

Source: synthetic

Solubility: chloroform, ethanol, DMSO

CAS No: 124753-97-5

Molecular Formula: C₂₄H₄₇NO₃

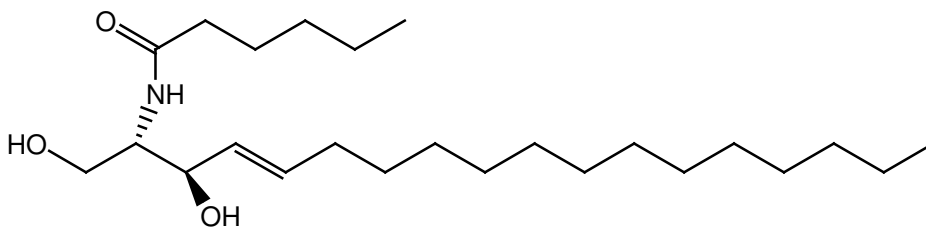
Molecular Weight: 398

Storage: -20°C

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

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

Appearance: solid



Application Notes:

Ceramide is a fatty acid amide of sphingosine. This product is a well-defined ceramide having a hexanoyl acyl group. 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.¹ Ceramide exerts numerous biological effects, including induction of cell maturation, cell cycle arrest, terminal cell differentiation, cell senescence, and cell death.² Because of these effects ceramide has been investigated for its use in cancer treatment and many potential approaches to cancer therapy have been presented.³ 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. Ceramides with short side chains have been shown to enter easily into cells where they are biologically active. Short-chain ceramide-1-phosphates can stimulate DNA synthesis while this effect can be counteracted by short-chain ceramides. Treatment of cells with C6:0-ceramide has been shown to result in a significant increase in long chain ceramide levels due to the degradation of the short-chain ceramide and subsequent utilization of the liberated sphingosine for synthesis of long-chain ceramides.⁴ Short-chain ceramides also decrease the plasma membrane lipid order which is an important factor in lipid raft signal transduction.

Selected References:

1. 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
2. N. S. Radin, "Killing tumours by ceramide-induced apoptosis: a critique of available drugs" *Biochemical Journal*, Vol. 371 pp. 243-256, 2003
3. 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
4. B. Ogretmen et al. "Biochemical Mechanisms of the Generation of Endogenous Long Chain Ceramide in Response to Exogenous Short Chain Ceramide in the A549 Human Lung Adenocarcinoma Cell Line
ROLE FOR ENDOGENOUS CERAMIDE IN MEDIATING THE ACTION OF EXOGENOUS CERAMIDE" *The Journal of Biological Chemistry*, Vol. 277 pp. 12960-12969, 2002

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