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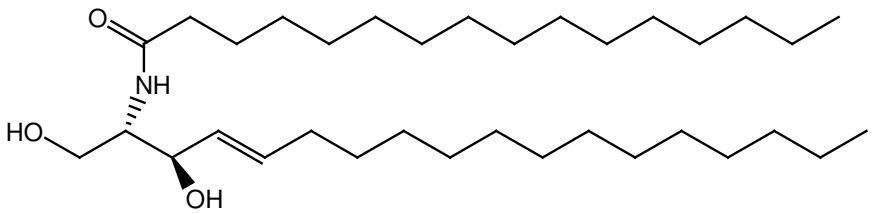
PRODUCT DATA SHEET

N-Hexadecanoyl-D-*erythro*-sphingosine

Catalog number: 1915
Common Name: N-C16:0-D-*erythro*-Ceramide; N-Palmitoyl-D-*erythro*-sphingosine
Source: synthetic
Solubility: chloroform, warm ethanol warm methanol
CAS number: 24696-26-2

Molecular Formula: $C_{34}H_{67}NO_3$
Molecular Weight: 538
Storage: -20°C
Purity: TLC >98%, GC >98%; identity confirmed by MS
TLC System: chloroform/methanol (95:5 by vol.)
Appearance: solid



Application Notes:

This product is a well-defined ceramide and is ideal as a standard for mass spectrometry, biological systems,[1] and studying physical properties of lipids.[2] Hexadecanoyl ceramide comprises a significant amount of natural ceramides, often being the second most abundant species after C18:0-ceramide. Ceramides function 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.[3] Ceramide exerts numerous biological effects, including induction of cell maturation, cell cycle arrest, terminal cell differentiation, cell senescence, and cell death.[4] Because of these effects ceramide has been investigated for its use in cancer treatment and many potential approaches to cancer therapy have been presented.[5] 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. M. Morrow et al. "Ceramide-1-phosphate, in contrast to ceramide, is not segregated into lateral lipid domains in phosphatidylcholine bilayers" *Journal of Biophysics*, Vol. 96(6) pp. 2216-2226, *2009*
2. F. Dupuy, M. Fanani, and B. Maggio "Ceramide N-Acyl Chain Length: A Determinant of Bidimensional Transitions, Condensed Domain Morphology, and Interfacial Thickness" *Langmuir*, *2011*, DOI: 10.1021/la105011x
3. 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*
4. N. S. Radin, "Killing tumours by ceramide-induced apoptosis: a critique of available drugs" *Biochemical Journal,* Vol. 371 pp. 243-256, *2003*
5. 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*