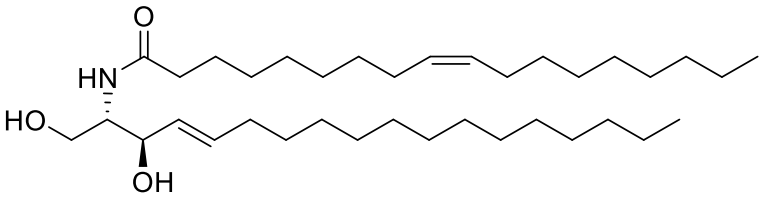
PRODUCT DATA SHEET

N-Octadecenoyl-(*cis*-9)-D-*erythro*-sphingosine

Catalog number: 1939; 1939-25
Synonyms: N-C18:1-D-*erythro*-Ceramide; N-Oleoyl-D-*erythro*-sphingosine
Source: synthetic
Solubility: chloroform, hot ethanol, DMF
CAS number: 5966-28-9

Molecular Formula: $C_{36}H_{69}NO_3$
Molecular Weight: 564
Storage: -20°C
Purity: TLC: >98%; HPLC: >98%; identity confirmed by MS
TLC System: chloroform/methanol 90:10
Appearance: solid



Application Notes:

This product is a well-defined ceramide containing oleic acid acylated to the sphingosine base making it ideal as a standard and for biological studies. N-Octadecenoyl-(*cis*-9)-D-*erythro*-sphingosine has been used in the study of neural progenitor motility regulation and brain development. It was found that ceramide can stimulate migration of neural progenitors in scratch (wounding) migration assays and that sphingolipid depletion leads to ectopic localization of mitotic or post-mitotic neural cells in the embryonic brain.[1] Ceramide is a fatty acid amide of sphingosine that has many important biological functions and is the precursor for many complex glycosphingolipids. 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.

Selected References:

1. G. Wang et al. "Regulation of neural progenitor cell motility by ceramide and potential implications for mouse brain development" *Journal of Neurochemistry*, Vol. 106(2) pp. 718-733, *2008*
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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