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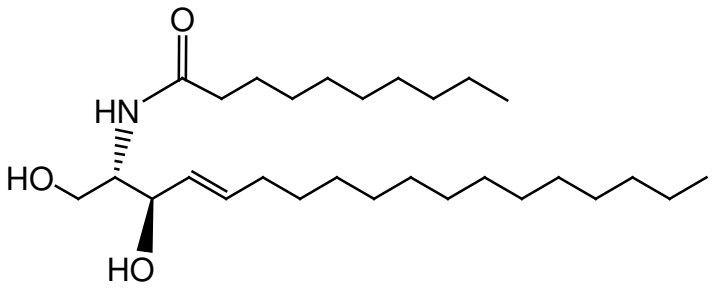
PRODUCT DATA SHEET

N-Decanoyl-D-*erythro*-sphingosine

Catalog number: 1333
Synonyms: N-C10:0-D-*erythro*-Ceramide
Source: synthetic
Solubility: chloroform, ethanol, methanol, DMSO (up to 5mg/ml)
CAS number: 111122-57-7

Molecular Formula: $C_{28}H_{55}NO_3$
Molecular Weight: 454
Storage: -20°C
Purity: TLC: >98%; GC > 98%; identity confirmed by MS
TLC System: chloroform/methanol 90:10
Appearance: solid



Application Notes:

N-Decanoyl-D-*erythro*-sphingosine is ideal as a standard and for biological studies. Ceramides containing shorter fatty acyl groups more readily enter cells across the cell membrane. Ceramides are fatty acid amides of sphingosine that have many important biological functions and are the precursors 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. In contrast to long chain ceramides, short chain ceramides can pass through the cell membrane. This allows short chain ceramides to be used to induce apoptisis or necrosis in cancer cells.[4]

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. A. Arora et al. "Ceramide induces hepatocyte cell death through disruption of mitochondrial function in the rat" *Hepatology*, vol. 25 pp. 958-963, *1997*

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