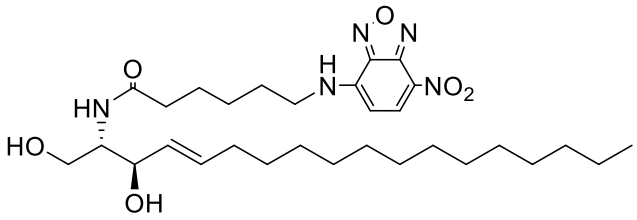
PRODUCT DATA SHEET

N-Hexanoyl-NBD-D-*erythro*-sphingosine

Catalog No: 1841, 1841-001
Common Name: N-C6:0-NBD-Ceramide; N-C6:0-NBD-D-*erythro*-Sphingosine
Source: Synthetic
Solubility: ethanol, methanol, chloroform
CAS No: 94885-02-6

Molecular Formula: $C_{30}H_{49}N_5O_6$
Molecular Weight: 576
Storage: -20°C
Purity: TLC >98%; identity confirmed by MS
TLC System: chloroform/methanol (90:10 by vol.)
Appearance: solid



Application Notes:

This product is a fluorescent ceramide with an absorption of 467nm and an emission of 439nm. NBD has been shown to have only a small influence on lipid adsorption into cells and cellular membranes especially when the fatty acid is a short chain. This fluorescent analog of natural ceramide is comparable to C6:0-ceramide in many biological functions such as inhibition of VSV-G protein transport[1], and transport of sphingomyelin and glucocerebroside from the golgi apparatus to the cell surface.[2] 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.[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. 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. Ceramides with longer side chains also enter cells if dissolved in dodecane-isopropanol first.

Selected References:

1. A. Rosenwald and R. Pagano "Inhibition of glycoprotein traffic through the secretory pathway by ceramide" *Journal of Biological Chemistry*, Vol. 268 pp. 4577-4579, *1993*
2. N. Lipsky, R. Pagano "Intracellular translocation of fluorescent sphingolipids in cultured fibroblasts: Endogenously synthesized sphingomyelin and glucocerebroside analogues pass through the golgi apparatus en route to the plasma membrane" *Journal of Cell Biology*, Vol. 100 pp. 27-34, *1985*
3. J. 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. Radin, "Killing tumours by ceramide-induced apoptosis: a critique of available drugs" *Biochemical Journal*, Vol. 371 pp. 243-256, *2003*

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