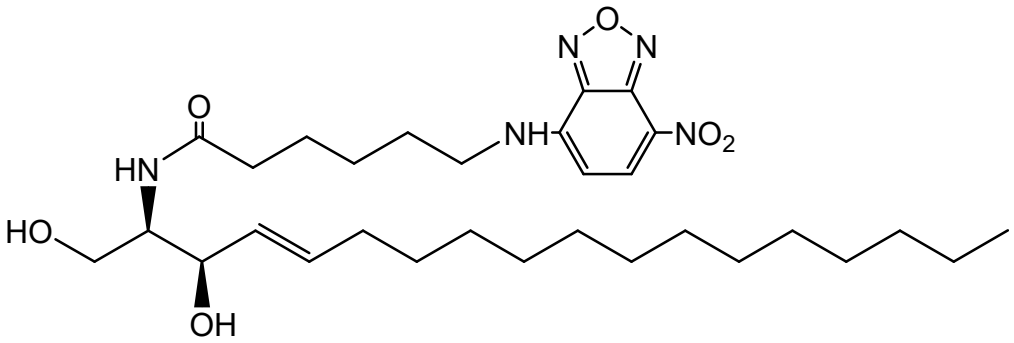
PRODUCT DATA SHEET

MATREYA LLC
Lipids and Biochemicals
A Cayman Chemical Company

N-Hexanoyl-NBD-L-*threo*-sphingosine

Catalog number: 1857; 1857-001
Synonyms: N-C6:0-NBD-L-*threo*-Ceramide; N-C6:0-NBD-L-*threo*-Spingosine
Source: synthetic
Solubility: ethanol, methanol, chloroform
CAS number: 114301-95-0

Molecular Formula: $C_{30}H_{49}N_5O_6$
Molecular Weight: 576
Storage: -20ºC
Purity: TLC: >98%
TLC System: chloroform/methanol (90:10)
Appearance: solid



Application Notes:

This product is a high purity, non-natural L-*threo* ceramide containing a fluorescent NBD label and is ideal as a standard and for biological studies. NBD (7-nitrobenzofurazan) 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. The 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] Both the natural D-*erythro* and the non-natural L-*erythro* and the D- and L-*threo* ceramides display similar effectiveness in inducing apoptotic damage in cells.[3] The protein phosphatases PP1 and PP2A, which are involved in regulating apoptosis and cell growth, are activated by D-*erythro* ceramide but inhibited by L-*threo*, D-*threo*, and L-*erythro* ceramide.[4] Both D-*erythro* and D-*threo* C2 ceramides have been found to be potent inducers of IL-6 production, while neither the L-*threo* or L-*erythro* stereoisomers of ceramide were effective.[5] D- and L-*erythro* ceramide and D- and L-*threo* ceramide are also comparably effective inhibitors of protein kinase C.[6]

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. W. Jarvis et al. "Induction of Apoptosis and Potentiation of Ceramide-mediated Cytotoxicity by Sphingoid Bases in Human Myeloid Leukemia Cells" *The Journal of Biological Chemistry*, Vol. 271 pp. 8275-8284, *1996*
4. C. Chalfant et al. "Long Chain Ceramides Activate Protein Phosphatase-1 and Protein Phosphatase-2A Activation is Stereospecific and Regulated by Phosphatidic Acid" *The Journal of Biological Chemistry*, Vol. 274 pp. 20313-20317, *1999*
5. S. Laulederkind et al. "Ceramide Induces Interleukin 6 Gene Expression in Human Fibroblasts" *The Journal of Experimental Medicine*, Vol. 182 pp. 599-604, *1995*
6. T. Ariga et al. "Role of sphingolipid-mediated cell death in neurodegenerative diseases" *Journal of Lipid Research*, Vol. 39 pp. 1-16, *1998*