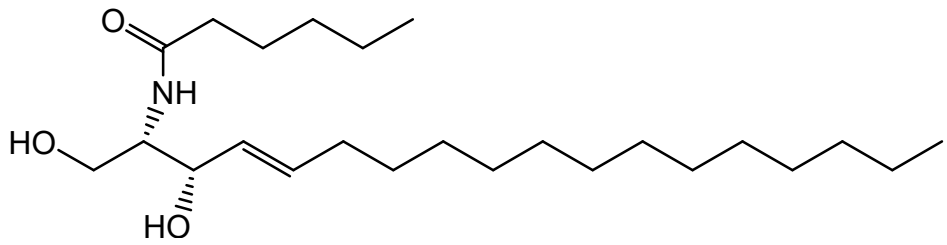
MATREYA LLC
Lipids and Biochemicals
A Cayman Chemical Company

PRODUCT DATA SHEET

N-Hexanoyl-L-*threo*-sphingosine

Catalog number: 1828
Common names: N-C6:0-L-*threo*-Ceramide
Source: synthetic
Solubility: chloroform, ethanol, DMSO, DMF (up to 5 mg/ml)
CAS number: 189894-80-2

Molecular Formula: $C_{24}H_{47}NO_3$
Molecular Weight: 398
Storage: -20°C
Purity: TLC >98%, GC >98%; identity confirmed by MS
TLC System: chloroform/methanol (90:10)
Appearance: solid



Application Notes:

This product is the non-natural L-*threo* stereoisomer of ceramide. Natural D-*erythro* ceramide is a critical compound in cells both as a free ceramide and incorporated into more complex sphingolipids. L-*threo*-ceramides demonstrate a different metabolic functionality from natural ceramides. They have been shown to be metabolized to sphingomyelin but not to glucosylceramide.[1] Another non-natural stereoisomer, L-*erythro* ceramide, is not metabolized to any sphingolipid. In contrast to natural ceramides L-*threo* ceramides are unable to antagonize the disruptive effects of fumonisin B1 on axon growth[2] but it is able to activate intracellular pathways and induces apoptosis.[3] The deacylated form of ceramide, sphingosine, also has many critical cellular functions. L-*threo*-sphingosine, along with other sphingosine isomers, has been found to be an activator of 3-Phosphoinositide-dependent kinase-1[4] and inhibits protein kinase C a little more potently than D-*erythro*-sphingosine.[5]

Selected References:

1. K. Venkataraman and H. Futerman "Comparison of the metabolism of L-erythro- and L-threo-sphinganines and ceramides in cultured cells and in subcellular fractions" *Biochim Biophys Acta*, vol. 1530 pp. 219-226, *2001*
2. A. Schwarz and A. Futerman "Distinct Roles for Ceramide and Glucosylceramide at Different Stages of Neuronal Growth" *The Journal of Neuroscience*, vol. 17 pp. 2929-2938, *1997*
3. A. Bielawska et al. "Selectivity of ceramide-mediated biology—lack of activity of *erythro*dihydroceramide" *J Biol Chem*, vol. 268 pp. 26226 –26232, *1993*
4. C. King et al. "Sphingosine Is a Novel Activator of 3-Phosphoinositide-dependent Kinase 1" *The Journal of Biological Chemistry*, vol. 275(24) pp. 18108-18113, *2000*
5. V. Stevens et al. "Structural requirements for long-chain (sphingoid) base inhibition of protein kinase C in vitro and for the cellular effects of these compounds" *Biochemistry*, vol. 28, 3138-3145, *1989*

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