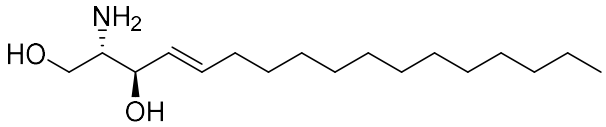
PRODUCT DATA SHEET

MATREYA LLC
Lipids and Biochemicals
A Cayman Chemical Company

D-*erythro*-C17-Sphingosine

Catalog number: 2082
Synonyms: Sphingosine with C17 chain
Source: synthetic
Solubility: chloroform, ethanol, methanol
CAS number: 6918-48-5
Molecular Formula: $C_{17}H_{35}NO_2$
Molecular Weight: 286

Storage: -20°C
Purity: TLC: >98%, HPLC >98%
Identity confirmed by MS
TLC System: Chloroform/methanol/2.5N ammonium hydroxide (70:20:2)
Appearance: solid



Application Notes:

This synthetic sphingosine contains an odd number of carbons with a natural D-*erythro* stereocenter making it an ideal internal standard for sphingolipidomic studies using HPLC and mass spectrometry. Mammalian cells contain mostly D-*erythro* sphingosines having C18 and C20 bases with a smaller amount of C16 bases. Some bacteria and fungi have predominantly C16 or even shorter sphingosine bases. C17 sphingosine bases are easily separated by reverse phase HPLC and readily identified by mass spectrometry. They are also usually absent from, or present in low amounts in, natural systems reducing the need for background subtractions. Due to its natural stereochemistry and very similar physical characteristics to natural sphingosines this product represents the extraction and signal intensity of natural sphingosine in most applications making it a useful choice as an internal standard. This product is also active in biosynthesis and can be incorporated into more complex sphingolipids by cellular enzymes making it useful for metabolic studies.

Sphingosine is the characteristic structural unit of sphingolipids such as ceramides, gangliosides, globosides, sulfatides, sphingomyelin, and others.[1,2] It is most abundant in nervous tissue and cell membranes. Sphingosine with an 18-carbon chain and a double bond at carbon 4 is the most abundant sphingosine in animal tissues. Lysosphingolipids (sphingolipids containing a free amine on carbon 3) inhibit protein kinase C activity resulting in the pathogenesis of sphingolipidoses such as Krabbe's disease and Gaucher's disease.[3] Sphingosine can be phosphorylated via two kinases to form sphingosine-1-phosphate, which has important signaling functions. While sphingosines and ceramides can induce apoptosis,[4] sphingosine-1-phosphate can promote cell survival or proliferation. Sphingosine has also been shown to cause an increase in the cytoplasmic calcium level of cells.

Selected References:

1. A. Merrill, Jr. "*De Novo* Sphingolipid Biosynthesis: A Necessary, but Dangerous, Pathway" *The Journal of Biological Chemistry*, Vol. 277(29) pp. 25843–25846, *2002*
2. J. Shayman "Sphingolipids" *Kidney International*, Vol. 58 pp. 11-26, 2000
3. Y. Hannun and R. Bell "Lysosphingolipids inhibit protein kinase C: implications for the sphingolipidoses." Vol. 235:4789 pp. 670, *1987*
4. V. Nava et al. "Sphingosine Enhances Apoptosis of Radiation-resistant Prostate Cancer Cells" *Cancer Research*, Vol. 60 pp. 4468-4474, *2000*

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