

PRODUCT DATA SHEET

D,L-*erythro*-Dihydrosphingosine

Catalog number: 1324

Common names: D,L-*erythro*-Sphinganine,
C18 chain

Source: synthetic

Solubility: chloroform, methanol, ethanol,
DMSO

CAS number: 3102-56-5

Molecular Formula: C₁₈H₃₉NO₂

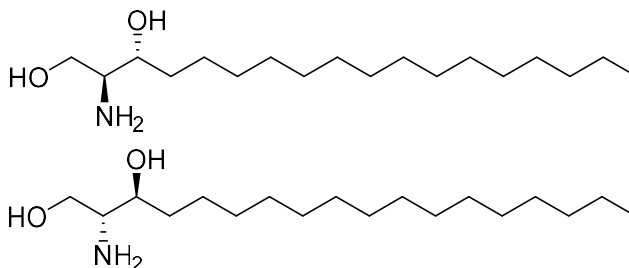
Molecular Weight: 302

Storage: -20°C

Purity: TLC >98%; GC: 77% *erythro*, 23%
threo; identity confirmed by MS

TLC System: chloroform/methanol/DI
water/ammonium hydroxide
(70:20:1:1)

Appearance: solid



Application Notes:

This dihydrosphingosine standard is a mixture of D and L isomers and contains approximately 77% *erythro* and 23% *threo* isomers. It is an 18 carbon chain which is the most prevalent dihydrosphingosine chain length in most animals. However, some animals, such as *Drosophila melanogaster*, have the shorter C16 dihydrosphingosine base¹ while C20 sphingoid bases are the most prevalent in some microorganisms and are usually the second most abundant sphingoid base in mammals. Dihydrosphingosine (Sphinganine) is the precursor of dihydroceramide which is then desaturated to form ceramide. It is a critical intermediate in the synthesis of many complex sphingoid bases and ceramide analogs. It has been found that sphinganine can induce cell death in a number of types of malignant cells and is being tested for its pharmacological properties.² Inhibition of dihydroceramide synthesis by some fungal toxins that have a similar structure causes an increase in sphinganine and sphinganine-1-phosphate and a decrease in other sphingolipids leading to a number of diseases including oesophageal cancer.³ Sphinganine has been found to mediate fumonisin (a toxic sphinganine analog) induced hypotension.⁴ In yeast the amount of C20-dihydrosphingosine increases as a response to heat stress, along with other sphingolipids, indicating that it is involved in heat stress adaptation.

Selected References:

1. H. Fyrst et al. "Characterization of free endogenous C14 and C16 sphingoid bases from *Drosophila melanogaster*" *Journal of Lipid Research*, vol. 45 pp. 54-62, 2004
2. W. Zheng "Fenretinide increases dihydroceramide and dihydrosphingolipids due to inhibition of dihydroceramide desaturase" Georgia Institute of Technology, 2006
3. L. van der Westhuizen et al. "Sphingoid base levels in humans consuming fumonisin-contaminated maize in rural areas of the former Transkei, South Africa: a cross-sectional study" *Food Additives and Contaminants*, Vol. 25(11), pages 1385 – 1391, 2008
4. Shih-Hsuan Hsiao et al. "Effects of Exogenous Sphinganine, Sphingosine, and Sphingosine-1-Phosphate on Relaxation and Contraction of Porcine Thoracic Aortic and Pulmonary Arterial Rings" *Toxicological Sciences*, Vol. 86(1) Pp. 194-199, 2005

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