

PRODUCT DATA SHEET

D-erythro-C12-Sphingosine

Catalog number: 1838

Synonyms: Sphingosine with C12 chain

Source: synthetic

Solubility: chloroform, methanol, ethanol,
DMSO

CAS number: 128427-86-1

Molecular Formula: C₁₂H₂₅NO₂

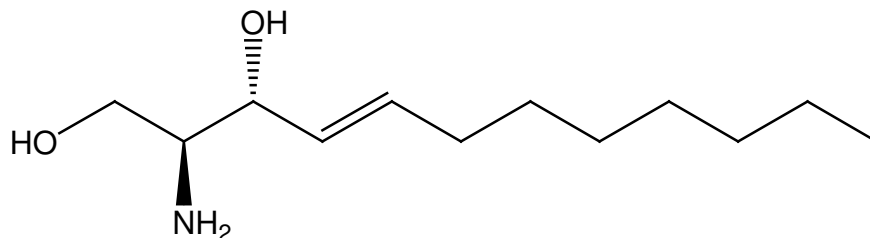
Molecular Weight: 215

Storage: -20°C

Purity: TLC >98%, GC >98%; identity
confirmed by MS

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

Appearance: solid



Application Notes:

Sphingosine is a characteristic structural unit of many sphingolipids such as ceramides, gangliosides, globosides, sulfatides, sphingomyelin, and others.¹ 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. D-erythro-C12-sphingosine is a short-chain analog of natural sphingosine that exhibits different cellular effects from the long-chain sphingosines. This shorter long chain base is considerably less hydrophobic which could significantly change the process of signal transduction.² Lysosphingolipids (such as sphingosine) inhibit protein kinase C activity resulting in the pathogenesis of sphingolipidoses such as Krabbe's disease and Gaucher's disease but short-chain C12-sphingosine does not demonstrate this inhibitory action.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 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. 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
3. K. Sandhoff et al. "Sphingolipid biosynthesis in cultured neurons" *European Journal of Biochemistry*, vol. 198 pp. 667-674, 1991
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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