D-erythro-Dihydrosphingosine

Product Number **D3314**

Storage Temperature –20 °C

CAS #: 764-22-7

Synonyms: Sphinganine

Product Description

Molecular Formula: C_{18}H_{39}NO_{2}

Formula Weight: 301.5

Appearance: white solid

Purity: 98%

Sphingolipids are ubiquitous among eukaryotic organisms and have long been recognized for their roles in cell membrane structure, especially in nerve and blood cells. They are involved in cell recognition (e.g. blood group determinants, surface antigens) and determine cell status, i.e. differentiated versus non-differentiated (embryonic), normal versus malignant, etc.¹,²

Sphingosine, sphinganine, and other long-chain (sphingoid) bases inhibit protein kinase C (PKC) in vitro and block cellular responses to agonists that act via this enzyme. In in vitro experiments with neutrophils and hamster ovary cells, the inhibitory effects of long-chain analogues differing in alkyl chain length (11-20 carbon atoms), stereochemistry, and headgroup were maximal with the 18-carbon homologues, which are the same length as the naturally occurring sphingosine. Small differences were obtained with the four stereoisomers of sphingosine (i.e., D and L forms of erythro- and threo-sphingosine), with N-methyl derivatives of the different sphingosine homologues, and with simpler alkylamines (e.g., stearylamine).³,⁴

D-erythro-dihydrosphingosine is a biosynthetic precursor to sphingosine and long chain sphingosine analog. D-erythro-dihydrosphingosine remains inactive in cell culture supernatants and may be used as a baseline in cell-free experiments. In cells, D-erythro-dihydrosphingosine is metabolized to sphingosine and inhibits PKC activation in a time dependent manner. In Hep3B cells, this compound and other synthetic long-chain analogues induce apoptosis independently of ceramide and are accompanied by activation of caspase-3-like proteases, but not by caspase-1.⁵,⁶

Sigma offers a full line of natural ceramides and sphingolipids, as well as synthetic analogs. To view, visit our web site at www.sigma-aldrich.com.

Preparation Instructions

D-erythro-dihydrosphingosine is soluble in ethanol and DMSO at 25 mg/ml. Prewarm DMSO before use.

Storage/Stability

Store at –20 °C for up to twelve months.

References


