PRODUCT DATA SHEET

N-omega-CD₃-Octadecanoyl-D-erythro-dihydrosphingosine

Catalog number: 2202
Synonyms: N-C18:0-CD₃-D-erythro- Dihydroceramide; N-Stearoyl- CD₃-D-erythro-sphinganine
Source: synthetic
Solubility: hot ethanol, DMF, DMSO, chloroform/methanol 2:1

CAS number: N/A
Molecular Formula: C₃₆H₇₀D₃NO₃
Molecular Weight: 571
Storage: -20°C
Purity: TLC: >98%, GC: >98%, HPLC >98%
Identity confirmed by MS
TLC System: chloroform/methanol (95:5)
Appearance: solid

Application Notes:
This product is a well-defined dihydroceramide containing a deuterated stearic acid acylated to a sphinganine base making it an ideal stable isotope-labeled standard for lipidomic studies using mass spectrometry. Stable isotope-labeled tracers are ideal for studies involving the metabolism and various metabolites of a lipid and can be used for the quantitative evaluation of major lipid pathways. Lipidomics has shown great success in the use of deuterium labeled compounds in identifying and quantifying individual molecular species by the use of tandem mass spectrometry.

Dihydroceramide is a critical intermediate in the de novo synthesis of ceramide, leading to many complex sphingolipids. It is synthesized by the acylation of sphinganine (dihydrosphingosine) and is subsequently converted to ceramide via the enzyme dihydroceramide desaturase or into phytosphingosine via the enzyme C4-hydroxylyase. Inhibition of ceramide synthase by some fungal toxins (such as fumonisin B1) causes an accumulation of sphinganine and sphinganine-1-phosphate and a decrease in dihydroceramide and other dihydro sphingolipids, leading to a number of diseases including oesophageal cancer.

The dihydroceramide desaturase inhibitor N-(4-Hydroxyphenyl) retinamide (4-HPR) has been tested as an anti-cancer agent by inhibiting the dihydroceramide desaturase enzyme in cells resulting in a high concentration of dihydroceramide and dihydro-sphingolipids and this is thought to be the cause of its anti-cancer effects. Oxidative stress in cells causes an increase in the amount of dihydroceramide by potently inhibiting the desaturase enzyme.

Dihydroceramide inhibits the formation of channels by ceramides and may thus reduce ceramide induced apoptosis in cells.

Selected References:
5. W. Zheng “Fenretinide increases dihydroceramide and dihydro sphingolipids due to inhibition of dihydroceramide desaturase” Georgia Institute of Technology, 2006

This product is to be used for research only. It is not intended for drug or diagnostic use, human consumption or to be used in food or food additives. Matreya assumes no liability for any use of this product by the end user. We believe the information, offered in good faith, is accurate.

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