Ceramides (non-hydroxy)

Catalog No: 1322, 1322-05
Common Name: Ceramides with mostly non-hydroxy acyl groups
Source: natural, bovine spinal cord
Solubility: chloroform/methanol (2:1), ethanol
CAS No: N/A

Molecular Formula: C_{36}H_{71}NO_{3} (stearoyl)
Molecular Weight: 566 (stearoyl)
Storage: -20°C
Purity: TLC > 98%; identity confirmed by MS
TLC System: chloroform/methanol (90:10 by vol.)
Appearance: solid

Application Notes:
Ceramide is a fatty acid amide of sphingosine. This product contains ceramides with mostly non-hydroxy fatty acids. Ceramide functions as a precursor in the synthesis of sphingomyelin, glycosphingolipids, and of free sphingosine and fatty acids. The sphingosine can be phosphorylated to form sphingosine-1-phosphate. Two of ceramide’s metabolites, sphingosine-1-phosphate and glucosylceramide, produce cell proliferation and other cellular functions.1 Ceramide exerts numerous biological effects, including induction of cell maturation, cell cycle arrest, terminal cell differentiation, cell senescence, and cell death.2 Because of these effects ceramide has been investigated for its use in cancer treatment and many potential approaches to cancer therapy have been presented.3 Other effects include producing reactive oxygen in mitochondria (followed by apoptosis) and stimulating phosphorylation of certain proteins (especially mitogen activated protein). It also stimulates some protein phosphatases (especially protein phosphatase 2A) making it an important controller of protein activity. Ceramides with short side chains have been shown to enter easily into cells where they are biologically active. N-acetyl-sphingosine has been shown to induce downregulation of Bcl-2 protein, inhibiting cell proliferation and inducing apoptosis. However, it has also been found that N-acetyl-sphingosine may inhibit neutrophil superoxide release,4 stimulation of DNA synthesis, and phospholipase D activity.

Selected References:

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