

PRODUCT DATA SHEET

N-Dodecanoyl-NBD-D-erythro-sphingosine

Catalog No: 1618; 1618-001

Common Name: N-C12:0-NBD-Ceramide; N-C12:0-NBD-D-erythro-Sphingosine

Source: synthetic

Solubility: chloroform/methanol (2:1) methanol

CAS No: 202850-01-9

Molecular Formula: C₃₆H₆₁N₅O₆

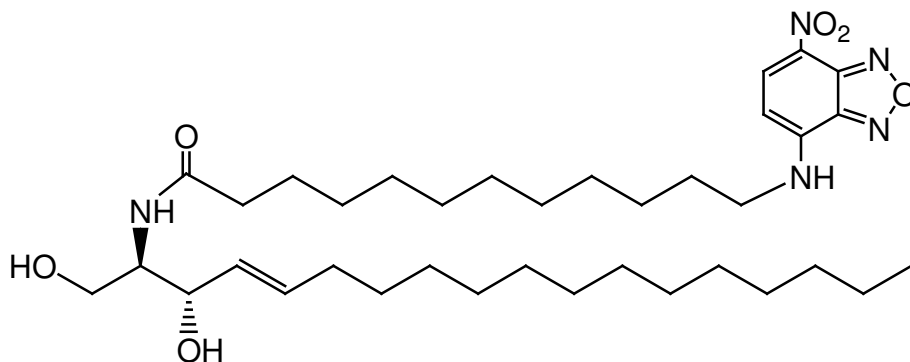
Molecular Weight: 660

Storage: -20°C

Purity: TLC > 98%; identity confirmed by MS

TLC System: chloroform/methanol
(90:10 by vol.)

Appearance: solid



Application Notes:

This product is a fluorescent ceramide. NBD has been shown to have only a small influence on lipid adsorption into cells and cellular membranes. This fluorescent analog of natural ceramide is comparable to C12:0-ceramide in many biological functions such as lipid uptake and transport¹, structural determinants, and lipid partitioning². Ceramide is a fatty acid amide of sphingosine. 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. Ceramide exerts numerous biological effects, including induction of cell maturation, cell cycle arrest, terminal cell differentiation, cell senescence, and cell death.³ Because of these effects ceramide has been investigated for its use in cancer treatment and many potential approaches to cancer therapy have been presented.⁴ 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.

Selected References:

1. D. Moffat and J. Kusel "Fluorescent lipid uptake and transport in adult *Schistosoma mansoni*" *Parasitology*, Vol. 105(1) pp. 81-89, 1992
2. P. Sengupta et al. "Structural determinants for partitioning of lipids and proteins between coexisting fluid phases in giant plasma membrane vesicles" *Biochimica et Biophysica Acta*, Vol. 1778(1) pp. 20-32, 2008
3. N. S. Radin, "Killing tumours by ceramide-induced apoptosis: a critique of available drugs" *Biochemical Journal*, Vol. 371 pp. 243-256, 2003
4. N. S. Radin, "Designing anticancer drugs via the achilles heel: ceramide, allylic ketones, and mitochondria" *Bioorganic and Medicinal Chemistry*, Vol. 11(10) pp. 2123-2142, 2003

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