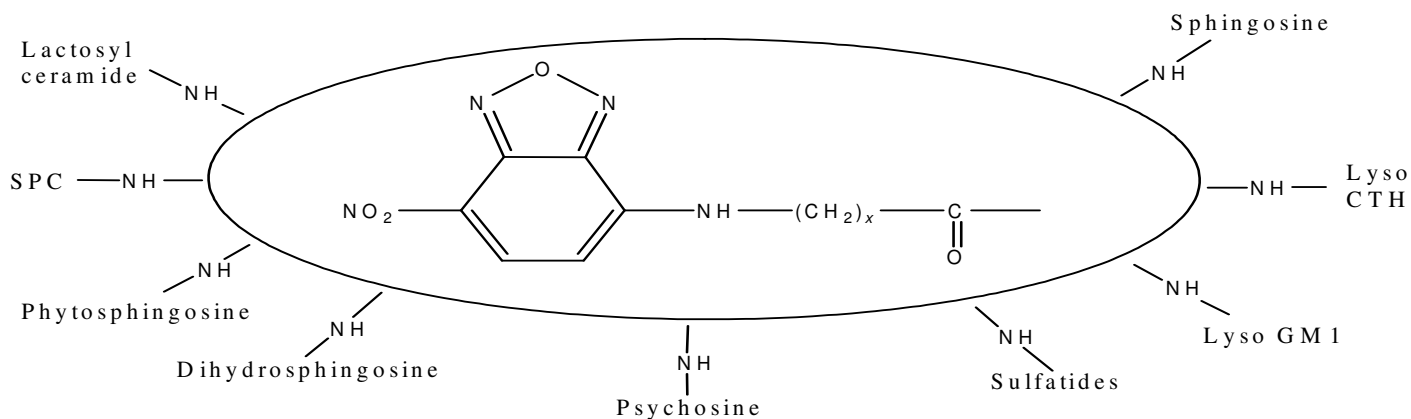


MATREYA NEWSLETTER

FOR GLYCO/SPHINGOLIPID RESEARCH

NOVEMBER 2010

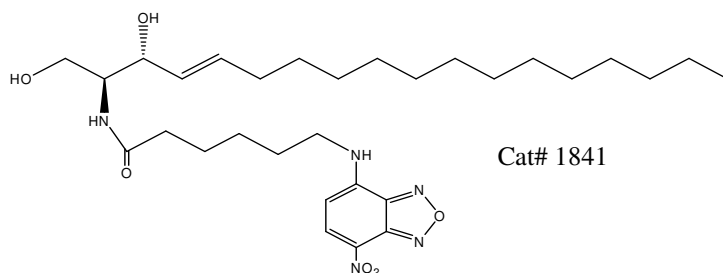
NBD Derivatives



The team at Matreya has developed a complete line of acyl-modified nitrobenzoxadiazole (NBD) glycosphingolipid probes for your research needs. Our NBD labeled products can be used for the research of lipid traffic by directly visualizing NBD fluorescence, by NBD self-quenching, or by fluorescence resonance energy transfer methods.

NBD-C6:0-Sphingomyelin is a metabolic product of NBD-C6:0-Ceramide and is a useful probe for monitoring endocytosis, translocation, and intracellular distribution of sphingolipids. It is ideal for studying lysosomal lipid storage disorders such as Niemann-Pick syndrome.

Fluorescent Ceramide N-Hexanoyl-NBD-D-erythro-sphingosine



This fluorescent analog of natural ceramide is comparable to C6:0-ceramide in many biological functions such as inhibition of VSV-G protein transport¹, and transport of sphingomyelin and glucocerebroside from the golgi apparatus to the cell surface.² 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.³ Ceramide exerts numerous biological effects, including induction of cell maturation, cell cycle

INSIDE THIS ISSUE

- NBD Derivatives 1
- N-Octadecanoyl-D3-monosialoganglioside GM₁ 2
- Sulfatides 3

arrest, terminal cell differentiation, cell senescence, and cell death.⁴ Because of these effects ceramide has been investigated for its use in cancer treatment and many potential approaches to cancer therapy have been presented. 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. Ceramides with longer side chains also enter cells if dissolved in dodecane-isopropanol first.

Matreya's Fluorescent Lipids

Ceramides

Cat#	Description
1841	N-Hexanoyl-NBD-D-erythro-sphingosine
1618	N-Dodecanoyl-NBD-D-erythro-sphingosine
1857	N-Hexanoyl-NBD-L-threo-sphingosine
1620	N-Dodecanoyl-NBD-L-threo-sphingosine
1624	N-Hexanoyl-NBD-L-threo-dihydrosphingosine
1623	N-Dodecanoyl-NBD-L-threo-dihydrosphingosine
1626	N-Hexanoyl-NBD-D-erythro-dihydrosphingosine
1625	N-Dodecanoyl-NBD-D-erythro-dihydrosphingosine
1628	N-Hexanoyl-NBD-phytosphingosine
1627	N-Dodecanoyl-NBD-phytosphingosine

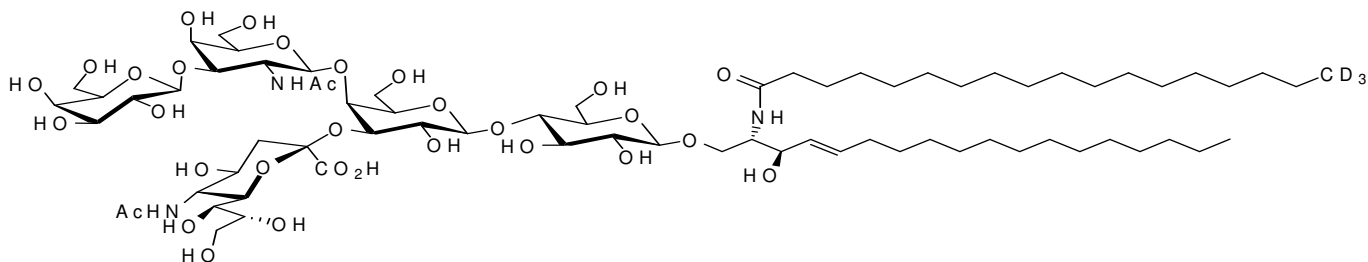
Glycosphingolipids

Cat#	Description
1621	N-Hexanoyl-NBD-galactosylceramide
1622	N-Hexanoyl-NBD-glucosylceramide
1629	N-Hexanoyl-NBD-lactosylceramide
1630	N-Dodecanoyl-NBD-lactosylceramide
1631	N-Dodecanoyl-NBD-ceramide trihexoside
1632	N-Dodecanoyl-NBD-sulfatide

Sphingomyelins

Cat#	Description
1912	N-Hexanoyl-NBD-sphingosylphosphorylcholine
1916	N-Dodecanoyl-NBD-sphingosylphosphorylcholine

N-Octadecanoyl-D3-monosialoganglioside GM₁

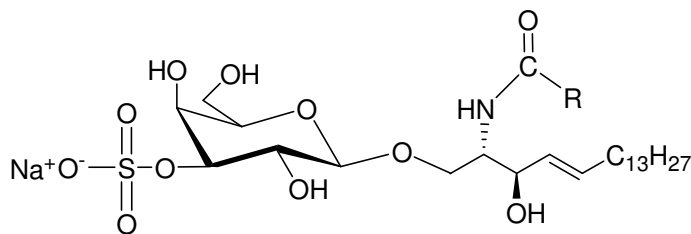


Matreya is very pleased to re-introduce this product because of many requests from our customers. This deuterated ganglioside is ideal for the identification of gangliosides in samples and biological systems using mass spectrometry.*

*J. Gu, C. Tift and S. Soldin, Clinical Biochemistry, Vol. 41(6) pp. 413-417, 2008

Cat. # 2050 Source: Semisynthetic, bovine

Sulfatides



3'-sulfogalactosyl ceramide (sulfatide) is a type of sulfolipid that is found primarily in the central nervous system and is a myelin-specific sphingolipid, being the most abundant galactolipid in the axon-insulating myelin sheath. A deficiency of sulfatide in white and gray matter has been associated with Alzheimer's disease and other types of dementia. Apolipoprotein E plays an important regulating role in the metabolism of sulfatides.¹ A production of anti-sulfatide antibodies in the cerebrospinal fluid, leading to a deficiency in sulfatides, may be a cause of degeneration of the myelin sheath, leading to multiple sclerosis.² Metachromatic leukodystrophy is an inherited disorder characterized by a deficiency of the lysosomal enzyme arylsulfatase A and the subsequent accumulation of sulfatide in neural and visceral tissues.³ An immunomodulatory role for sulfatides has been suggested in the pathogenesis of tuberculosis. Recently there has been a renewed interest in the study of sulfatides and its biological role towards CD1-restricted T-cells that could lead to therapeutic treatments for autoimmune demyelinating diseases in humans.⁴ Sulfatides derived from the brain and spinal cord have different molecular species containing saturated, unsaturated, and 2-hydroxy fatty acyl chains.

We at Matreya are proud to introduce our sulfatide series for your research. The following list of sulfatide species will satisfy your requirement of saturated, unsaturated, and labeled fatty acyl chain containing sulfatides.

High Purity Sulfatides from Matreya

Cat #	Description
1049	Sulfatides
1904	lyso-Sulfatides
2076	N-Acetyl-sulfatide
1875	N-Palmitoyl-sulfatide
1888	N-Tetracosanoyl-sulfatide
1536	N-Octadecanoyl-D3-sulfatide
1632	N-Dodecanoyl-NBD-sulfatide

References:

1. H. Cheng et al. "Apolipoprotein E mediates sulfatide depletion in animal models of Alzheimer's disease." *Neurobiology of Aging* August 2008
2. R. Halder et al. "Mini Review: Immune Response to Myelin-Derived Sulfatide and CNS-Demyelination" *Neurochemical Research*, February, Vol. 32(2): 257, 2007
3. P. Whitfield et al. "Characterization of Urinary Sulfatides in Metachromatic Leukodystrophy Using Electrospray Ionization-Tandem Mass Spectrometry" *Molecular Genetics and Metabolism*, May Vol. 73(1): 30, 2001
4. D. Zajonc et al. *The Journal of Experimental Medicine*, Vol. 202(11) pp.1517, 2005

Custom Synthesis (milligram to multigram)

Matreya's staff has several years of experience in the field of lipid chemistry. Our technology of extraction, isolation, and purification of natural products is unique and we produce high quality lipid preparations. If your need exceeds beyond the catalog size units, please contact us. We can quote from milligram to multigram sizes on our products.

Also, our staff combines the experience of synthetic chemistry and expertise in natural product chemistry and will come up with quick answers to your problems in research. Please call our customer service for quotations.

Depending on complexity of the molecule, delivery time for custom preparations is usually 4 to 12 weeks after receipt of order, usually less than 6 weeks.

Visit us on the web at
www.matreya.com

168 Tressler Street · Pleasant Gap, PA 16823
Tel: 800-342-3595/814-359-5060 · Fax: 814-359-5062

MATREYA LLC

