

PRODUCT DATA SHEET

N-Dodecanoyl-NBD-sulfatide

Catalog number: 1632; 1632-001

Synonyms: N-C12:0-NBD-sulfatide;
N-Dodecanoyl-NBD-sphingosyl-
beta-D-galactoside-3-sulfate

Source: semisynthetic, bovine

Solubility: chloroform/methanol, 2:1

CAS number: N/A

Molecular Formula: C₄₂H₇₁N₅O₁₄S

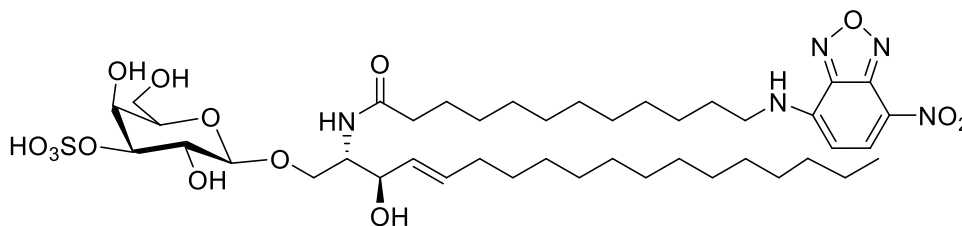
Molecular Weight: 901

Storage: -20°C

Purity: TLC: >98%, identity confirmed by MS

TLC System: chloroform/methanol/DI water
(65:25:4 by vol.)

Appearance: solid



Application Notes:

This fluorescent sulfatide contains an NBD group attached via a C12 spacer and is ideal for use in biological studies. Sulfatide, a myelin-specific sphingolipid, is a type of sulfolipid that is found primarily in the central nervous system. 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 and other demyelinating diseases.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 and decrease the *in vitro* production of proinflammatory cytokines. Sulfatide also regulates the differentiation of oligodendroblasts. Central nervous system (CNS) myelin is strongly inhibitory to growing axons and sulfatides present in the myelin of the CNS have been identified as major myelin-associated axon growth inhibitors.⁴ A low level of serum sulfatides has been linked with an increased risk of cardiovascular disease in some situations. Sulfatides in the myelin, especially *cis*-tetracosenoyl-sulfatides, stimulate a distinct population of CD1d-restricted natural killer T cells giving these sulfatides important implications for the design of therapeutics that target T cells reactive for myelin glycolipids in autoimmune diseases of the central nervous system.⁵

Selected References:

1. H. Cheng, Y. Zhou, D. M. Holtzman, X. Han "Apolipoprotein E mediates sulfatide depletion in animal models of Alzheimer's disease." *Neurobiology of Aging* August 2008
2. Ramesh C. Halder, A. Jahng, I. Maricic and Vipin Kumar "Mini Review: Immune Response to Myelin-Derived Sulfatide and CNS-Demyelination" *Neurochemical Research*, February, Vol. 32(2): 257, 2007
3. Phillip D. Whitfield, Peter C. Sharp, David W. Johnson, Paul Nelson and Peter J. Meikle "Characterization of Urinary Sulfatides in Metachromatic Leukodystrophy Using Electrospray Ionization-Tandem Mass Spectrometry" *Molecular Genetics and Metabolism*, May Vol. 73(1): 30, 2001
4. A. Winzeler et al. "The Lipid Sulfatide Is a Novel Myelin-Associated Inhibitor of CNS Axon Outgrowth" *The Journal of Neuroscience*, vol. 31 pp. 6481-6492, 2011
5. D. Zajonc et al. "Structural basis for CD1d presentation of a sulfatide derived from myelin and its implications for autoimmunity" *The Journal of Experimental Medicine*, vol. 202 pp. 1517-1526, 2005

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