

PRODUCT DATA SHEET

N-*omega*-CD₃-Octadecanoyl monosialoganglioside GM₂ (NH₄⁺ salt)

Catalog number: 2051

Common Name: N-CD₃-Stearoyl-GM₂

Source: semisynthetic, human Tay-Sachs

Solubility: chloroform/methanol/DI water,
2:1:0.1; forms micellar solution in
water

CAS number: N/A

Molecular Formula: C₆₇H₁₁₈D₃N₃O₂₆ • NH₃

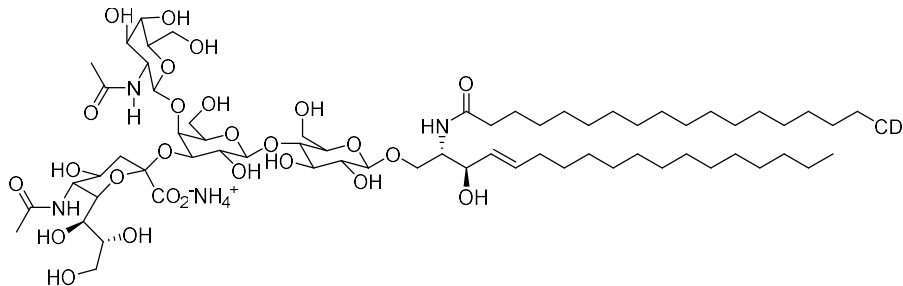
Molecular Weight: 1388+NH₃

Storage: -20°C

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

TLC System: chloroform/methanol/
2.5N aqueous ammonium
hydroxide, (60:40:9 by vol.)

Appearance: solid



Application Notes:

This deuterated ganglioside is ideal for the identification of gangliosides in samples and biological systems using mass spectrometry.¹ Gangliosides² are acidic glycosphingolipids that form lipid rafts in the outer leaflet of the cell plasma membrane, especially in neuronal cells in the central nervous system.³ They participate in cellular proliferation, differentiation, adhesion, signal transduction, cell-to-cell interactions, tumorigenesis, and metastasis.⁴ GM₂ regulates the function of ciliary neurotrophic factor receptors. The accumulation of GM₂ (due to a deficiency in *beta*-hexosaminidase) has characterized Tay-Sachs disease (due to a mutation in the gene *HEXA*) and Sandhoff disease (due to a mutation in the gene *HEXB*). A mutation in the *GM2A* gene results in GM₂ activator deficiency that also leads to accumulation of GM₂.⁵

Selected References:

1. J. Gu, C. Tiffit and S. Soldin "Simultaneous quantification of GM₁ and GM₂ gangliosides by isotope dilution tandem mass spectrometry" *Clinical Biochemistry*, Vol. 41(6) pp. 413-417, 2008
2. L. Svennerholm, et al. (eds.), *Structure and Function of Gangliosides*, New York, Plenum, 1980
3. T. Kolter, R. Proia, K. Sandhoff "Combinatorial Ganglioside Biosynthesis" *J. Biol. Chem.*, Vol. 277, No. 29, pp. 25859-25862, 2002
4. S. Birkle, G. Zeng, L. Gao, R.K. Yu, and J. Aubry "Role of tumor-associated gangliosides in cancer progression" *Biochimie*, Vol. 85 pp. 455-463, 2003
5. R. Gravel et al., *The Metabolic and Molecular Bases of Inherited Disease* (C. R. Scriver, W. S. Sly, B. Childs, A. L. Beaudet, D. Valle, K. W. Kinzler, and B. Vogelstein, eds) pp. 3827-3876, McGraw-Hill Inc., New York, 2001

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