

PRODUCT DATA SHEET

N-omega-CD₃-Octadecanoyl monosialoganglioside GM₃ (NH₄⁺ salt)

Catalog number: 2052

Common Name: N-CD₃-Stearoyl-GM₃

Source: semisynthetic, bovine buttermilk

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

CAS number: N/A

Molecular Formula: C₅₉H₁₀₅D₃N₂O₂₁ • NH₃

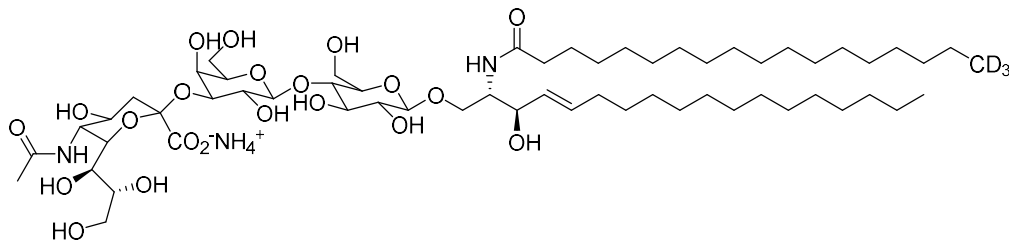
Molecular Weight: 1185+NH₃

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 The accumulation of gangliosides has been linked to several diseases including Tay-Sachs and Sandhoff disease. GM₃ is the main ganglioside of human fibroblasts and can regulate fibroblast and epidermal growth factors⁵ and is also able to regulate the adhesion and migration of several carcinoma cell lines. GM₃ was also shown to inhibit tumor cell invasion. GM₃ can induce human promyelocytic leukemia HL-60 cells to differentiate to monocyte/macrophage lineage instead of granulocytes.⁶

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. 277:29, 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. E. G. Bremer, J. Schlessinger, and S. Hakomori "Ganglioside-mediated modulation of cell growth. Specific effects of GM₃ on tyrosine phosphorylation of the epidermal growth factor receptor" *J. Biol. Chem.*, Vol. 261 pp. 2434-2440, 1986
6. T. Chung, H. Choi, Y. Lee, and C. Kim "Molecular mechanism for transcriptional activation of ganglioside GM₃ synthase and its function in differentiation of HL-60 cells" *Glycobiology*, Vol. 15:3, pp. 233-244, 2004

This product is to be used for research only. It is not intended for drug or diagnostic use, human consumption or to be used in food or food additives. Matreya assumes no liability for any use of this product by the end user. We believe the information, offered in good faith, is accurate.