

PRODUCT DATA SHEET

N-omega-CD₃- Octadecanoyl monosialoganglioside GM₁ (NH₄⁺ salt)

Catalog No: 2050

Common Name: N-CD₃-Stearoyl GM₁,
perdeuterated; N-Stearoyl-
D₃-monosialoganglioside,
GM₁ (NH₄⁺ salt)

Source: semisynthetic, bovine

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

CAS No: N/A

Molecular Formula: C₇₃H₁₂₈N₃O₃₁D₃ • NH₃

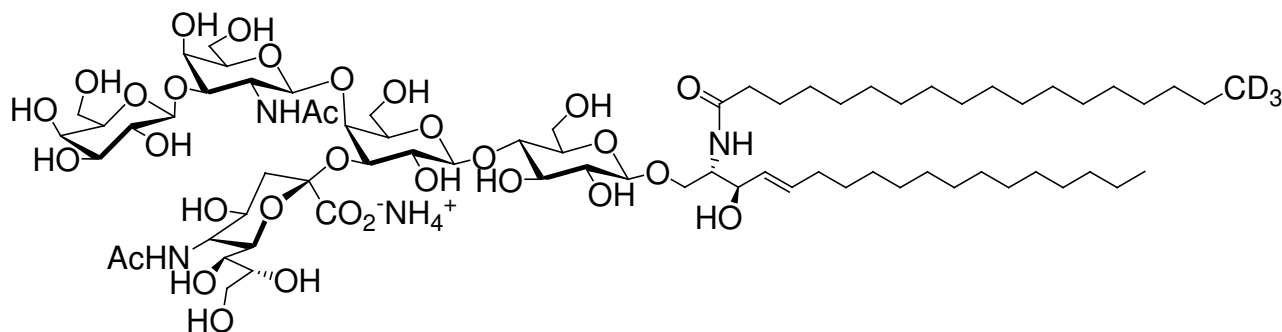
Molecular Weight: 1550+NH₃

Storage: -20°C

Purity: TLC 98%; identity confirmed by MS

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

Appearance: solid



Application Notes:

Gangliosides¹ 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.² They participate in cellular proliferation, differentiation, adhesion, signal transduction, cell-to-cell interactions, tumorigenesis, and metastasis.³ The accumulation of gangliosides has been linked to several diseases including Tay-Sachs and Sandhoff disease while an autoimmune response against gangliosides can lead to Guillain-Barre syndrome. GM₁ stimulates neuronal sprouting and enhances the action of nerve growth factor (NGF) by directly and tightly associating with Trk, the high-affinity tyrosine kinase-type receptor for NGF. It is the specific cell surface receptor for cholera toxin.⁴ This deuterated ganglioside is ideal for the identification of gangliosides in samples and biological systems using mass spectrometry or HPLC.⁵

Selected References:

1. L. Svennerholm, et al. (eds.), *Structure and Function of Gangliosides*, New York, Plenum, 1980
2. T. Kolter, R. Proia, K. Sandhoff, Combinatorial Ganglioside Biosynthesis. *J. Biol. Chem.*, July Vol. 277, No. 29, pp. 25859-25862, 2002
3. S. Birkle, G. Zeng, L. Gao, R. K. Yu, and J. Aubry. Role of tumor-associated gangliosides in cancer progression. *Biochimie*, 85, 455-463, 2003
4. C. E. Miller, J. Majewski, R. Faller, S. Satija, and T. L. Kuhl. Cholera Toxin Assault on Lipid Monolayers Containing Ganglioside GM₁. *Biophysj.*, June Vol. 86(6), 3700-3708, 2004
5. 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

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