

PRODUCT DATA SHEET

Tetrasialoganglioside GQ_{1b}, (NH₄⁺ salt)

Catalog No: 1516

Common Name: GQ_{1b}

Source: natural, bovine

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

CAS No: 68652-37-9

Molecular Formula: C₁₀₆H₁₈₂N₆O₅₅ • 4NH₃

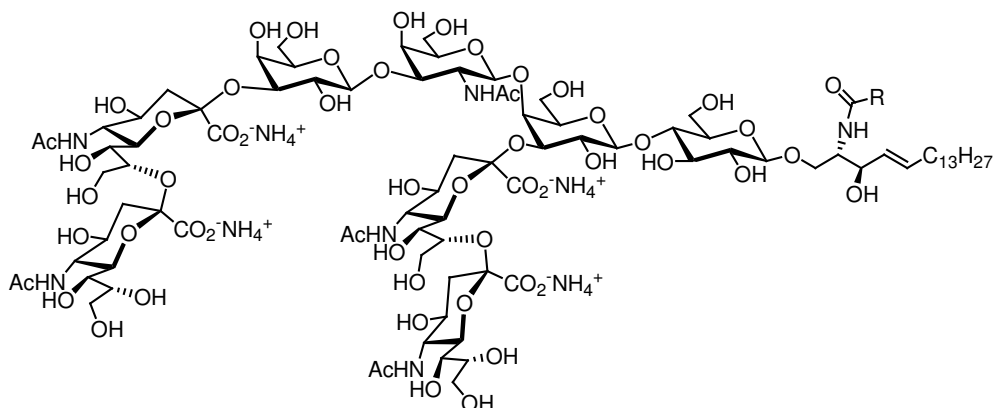
Molecular Weight: 2421 + 4NH₃ (stearoyl)

Storage: -20°C

Purity: TLC > 98%; identity confirmed by MS

TLC System: chloroform/methanol/
2.5N ammonium hydroxide,
(60:40:12 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-Barré syndrome. Miller-Fisher syndrome, a variant of Guillain-Barré syndrome, is an autoimmune disease characterized by the presence of anti-GQ1b ganglioside antibodies. Studies of these antibodies reveal large disruptions of Schwann cells. GQ1b has been shown to enhance Ig production of human peripheral blood mononuclear cells and to selectively enhance Th1 cytokine production while suppressing Th2 production. GQ1b has also been shown to enhance PHA-induced IL-2 secretion of peripheral blood T cells while it decreases PHA-induced IL-4 and IL-5 secretion. GQ1b suppresses PHA-induced increases in cAMP levels in T cells and suppresses PHA-stimulated adenylate cyclase activity in T cells.⁴

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. N. Kanda and S. Watanabe "Gangliosides GD1b, GT1b, and GQ1b Enhance IL-2 and IFN-g Production and Suppress IL-4 and IL-5 Production in Phytohemagglutinin-Stimulated Human T Cells" *The Journal of Immunology*, Vol. 166 pp. 72-80, 2001

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