

PRODUCT DATA SHEET

製品名: Monosialoganglioside GM4 (NH₄⁺ salt)

カタログ番号: 1535

別名: GM4

由来: Natural, egg, chicken

溶解度: Chloroform/Methanol (2: 1)

Forms micellar solution in water

CAS 番号: 54827-14-4

分子式: C₅₇H₁₀₆N₂O₁₇·NH₃

分子量: 1091+NH₃

(2-hydroxydocosanoyl, NH₄⁺ salt)

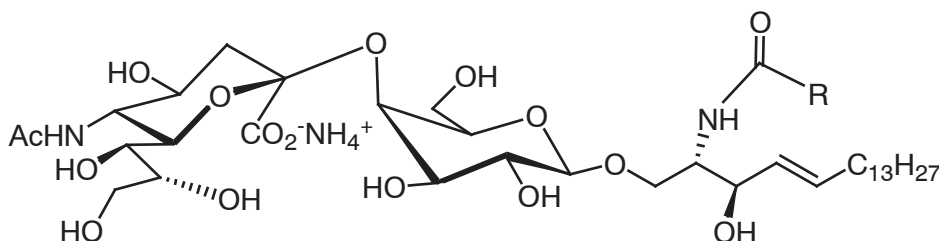
保存温度: -20 °C

純度: TLC >98%

TLC 溶媒: Chloroform/ Methanol/ 0.02%

Calcium chloride (60: 30: 5 by Vol.)

形状: 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. An autoimmune response against gangliosides can lead to Guillain-Barre syndrome. GM4 is a monosialoganglioside located primarily in the central nervous system and was found to be a major component of myelin gangliosides.⁴ It was also found to be a specific marker for human myelin and oligodendroglial perikarya. However, in chicken cerebellum, GM4 is associated with astrocytes, and not with myelin. GM4 has been found to be the major ganglioside in chicken egg yolk, chicken embryonic liver, and frog liver.

アプリケーションノート

ganglioside は酸性のスフィンゴ糖脂質であり、特に中枢神経系神経細胞の細胞質膜外葉部に脂質ラフトを形成します。細胞増殖、細胞分化、接着、シグナル変換、細胞間相互作用、腫瘍形成や癌細胞の転移に関与します。ganglioside の蓄積は、テイサックス (Tay-Sachs) 病やサンドホフ (Sandhoff) 病を含む様々な疾病に関連があります。ganglioside に対する自己免疫応答が起こるとギランバレー (Guillain-Barre) 症候群を発症します。GM4 は主に中枢神経系に存在するモノシアロガングリオシドであり、ミエリンにあるガングリオシドの主要成分であり、また、ヒトミエリンと突起細胞の周核体に特有のマーカであることが解っています。ただ、ニワトリ小脳では、GM4 はミエリンではなく星状膠細胞に付随して存在します。GM4 はニワトリ卵黄やニワトリ胎児の肝臓、カエルの肝臓の主要なガングリオシドであることも判明しています。

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.*, Vol. 277:29, pp. 25859-25862, 2002
3. S. Birkle et al. "Role of tumor-associated gangliosides in cancer progression" *Biochimie*, Vol. 85 pp. 455-463, 2003
4. Li et al. "Association of GM4 ganglioside with the membrane surrounding lipid droplets in shark liver" *Journal of Lipid Research*, Vol. 43 pp. 1019-1025, 2002

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