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ProductInformation

Monosialoganglioside GM_2
from bovine brain

Product Number **G 8397**
Storage Temperature -0 °C

Product Description

CAS Number: 19600-01-2
Structure: GalNAcβ(1→4)[Neu5Acα(2→3)]
Galβ(1→4)Glcβ(1→1)cer.

This is a natural product mixture of unidentified molecular weights. The molecular weight would be approximately 1,382 based on the following assumptions:

1) The sphingosine chain length is normal.
2) Stearic acid is the only fatty acid linked to the sphingosine amino group.
3) Only acetyl (not glycolyl) residues are bound to the sugar amino groups.

Ganglioside GM2 is a minor component of cell membranes that accumulates in Tay-Sachs and other genetic diseases. The hydrolysis of ganglioside GM2 has a requirement for the correct synthesis, processing, and ultimate combination of three protein gene products. A deficiency of any one of these proteins leads to a storage of this ganglioside, primarily in the lysosomes of neuronal cells. This accumulation occurs in three forms of GM2-gangliosidosis: Tay-Sachs disease, Sandhoff disease, or the AB-variant form.[1] Ganglioside GM2 is a metabolic degradation product from gangliosides that are channeled to the endosomal/lysosomal system. Complete degradation normally occurs with formation of the individual sugar (glucose, galactose, hexosamine, sialic acid) and lipid (ceramide, sphingosine, fatty acid) components of ganglioside GM2. Complex glycolipids such as ganglioside GM2 may be involved in regulation of neuronal development, but the downstream targets with which they may interact are not well defined.[3]

Gangliosides can be separated by thin layer chromatography[4] using resorcinol as the detection reagent.[5] A naphthoresorcinol-sulfuric acid spray reagent for detection of gangliosides on TLC plates can also be used.[6] They can also be assayed by a sensitive fluorometric method of the bound and free sialic acid present in brain gangliosides.[7] Methods of isolation and analysis have been reviewed.[8]

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This product is soluble in chloroform:methanol (1:1 [v:v], 10 mg/ml) yielding a clear to slightly hazy, clear to light yellow solution. Gangliosides, including ganglioside GM2, are soluble in dimethylformamide and tetrahydrofuran, and insoluble in non-polar solvents. Gangliosides form micelles in aqueous solution.[9]

Storage/Stability

Ganglioside GM2 is stable in methanol for a few days at room temperature, for several weeks in the refrigerator, and for months in the freezer.

References

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4. Mullin, B. R., et al., Quantitation of gangliosides in the picomolar range. J. Chromatogr., **305**, 512-513 (1984).
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