



DATA SHEET

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Gangliosides

Catalogue # 8G16

The gangliosides are ceramide-based glycosphingolipids which contain one or more sialic acid residues in the complex glycosyl headgroup. The gangliosides exhibit enormous diversity of glycosyl headgroup structures, with over 100 species of gangliosides identified from a variety of tissues. They are particularly abundant in the nervous system where they could play an important functional role due to their involvement in a number of interaction process with cell external ligands and cell membrane components.

Product Description

Our gangliosides have been purified by repeated HPLC. The final product have purity from 95 to 98 % (determined by TLC) and are supplied in lyophilized form. The purified gangliosides are stable for at least one year at +4°C. For TLC they can be dissolved in chloroform-methanol, 2:1 (v/v), 1 mg/ml. Gangliosides can be solubilized also in deionised water up to 20 mg/ml, in these condition they form micelles. The critical micelles concentration is around $10^{-7} - 10^{-9}$ M, depending of number of sugars. After sterilization by filtration aqueous ganglioside solutions does not require addition of preservative.

Application

High pure gangliosides can be used for characterization of different cell type-specific disorders. Incubation of the cells in the presence of purified gangliosides leads to insertion of these glycolipids into the cell membranes, specifically altering the binding capacity of the membrane for hormones, bacterial toxins and growth factor. Single-cell morphology as well as cell-cell interaction and differentiation can be studied by using gangliosides in in vivo models.

Immunization of animals with purified gangliosides produces anti -ganglioside antibodies. Animals injected with these antibodies are excellent models for studies of epilepsy and other neurological disorders. Removal of sialic acid from purified gangliosides leads to highly potent antigens - asialoglycolipids, which have been shown to be specific determinants of the immune system (B- and T- cell marker). In addition, purified gangliosides can be used as biological substrates and inhibitors of glycosyltransferases and glycosidases in the study of the metabolic pathway of glycostructures.

Gangliosides purified from bovine brain.

Gangliosides from bovine brain contain the both N-acetyl- and N-glycolylneuraminic (sialic) acids. The major species of sphingosine base chain are C 18:1 and C 20 :1 in the ratio 3:2.

Cat. 8G16-1b

Asialo-GM1 from bovine brain. MW 1263

Prepared from the GM1 ganglioside from bovine brain.

Cat. 8G16-2b

Ganglioside GM1 from bovine brain. MW 1545

Useful as an antigen and receptor for cholera toxin, growth inhibitor marker in fibroblasts and marker for lymphoid subpopulations. Stable for the majority of sialidase. [2]

Cat.8G16-3b

Ganglioside GM2 from bovine brain. MW 1383

Known as oncofetal immunogenic antigen, marker of lymphocytes from cancer patient. Stable for the majority of sialidase.

Cat.8G16-4b

Ganglioside GM3 from bovine brain. MW 1179

Known as the main extraneuronal ganglioside. Useful as a substrate for sialidase, after this treatment gives the corresponding lactosylceramide. Also known as the co-receptor of cell growth factor (EGF and FGF). Antibodies to GM3 inhibit 3T3 and NIL cell growth.

Cat. 8G16-5b

Ganglioside GM4 from bovine brain. MW 1017.

Ganglioside converted to the galactosylceramide by bacterial or other sialidase

Cat.8G16-6b

Ganglioside GD1a from bovine brain. MW 1827

One of the main neuronal gangliosides. Useful as a differentiation marker of tumor cell growth. Can be converted to GM1 by bacterial and other sialidase from mammalian sources without detergent.

Cat.8G16-7b

Ganglioside GD1b from bovine brain. MW 1827

One of the main neuronal ganglioside with disialo linkage. May act as a co-receptor for bacterial toxins (tetanus, botulinus) and marker of neural tumors (astroglioma). Can be used as immunogen for production of monoclonal antibodies that do not cross-react with GT1b or GD2.

Cat. 8G16-8b

Ganglioside GD2 from bovine brain MW1665

Prepared from bovine GD1b ganglioside enzymatic disintegration of the terminal galactose. Known as a specific cancer ganglioside. The antibodies to the GD2 inhibit cell attachment to various extracellular matrix proteins (collagen, vitronectin, laminin, fibronectin).

Cat. 8G16-9b

Ganglioside GD3 from bovine brain MW1461

One of the most important markers for malignant melanoma. Antibodies to the GD3 ganglioside can induce partial remission of tumor growth in animals as well as in humans via enhancement of cytotoxic and proliferative response of lymphocytes.

Cat. 8G16-10b

Ganglioside GT1b from bovine brain. MW 2109

Useful as an inhibitor of Con A-stimulated mutagenesis in murine T-cells. Marker of lymphocytes from cancer patient. Readily convert to the GM1 ganglioside by using bacterial or other sialidase from mammalian tissue without detergent.

Cat.8G16-12b

Ganglioside GQ1b from bovine brain. MW 2391

A typical marker of the peripheral area of biopsy specimens for human gliomas. Can be used as high-sialylated substrate for neuraminidase.

Cat. 8G16- 14b

Ganglioside GD3 from bovine milk. MW1456

One of the most important markers for malignant melanoma. Antibodies to the GD3 ganglioside can induce partial remission of tumor growth in animals as well as in humans via enhancement of cytotoxic and proliferative response of lymphocytes.

Cat.8G16-15b

Asialo-GM2 from bovine brain (MW1103)

Prepared from the GM2 ganglioside from bovine brain.

Gangliosides purified from human brain

Ganglioside from human brain contain the N-acetylneuraminic acid only.

Cat.8G16-1h

Asialo-GM1 from human brain (MW1263)

Prepared from the GM1 ganglioside from human brain.

Cat. 8G16-2h

Monosialoganglioside GM1 from human brain (MW 1537)

Useful as an antigen and receptor for a cholera toxin, growth inhibitor marker in fibroblasts and marker for lymphoid subpopulations. Stable for the majority of sialidase.

Cat.8G16-3h

Ganglioside GM2 from human brain. MW 1375

Known as oncofetal immunogenic antigen, marker of lymphocytes from cancer patient. Stable for the majority of sialidase.

Cat.8G16-4h

Ganglioside GM3 from human brain (MW 1171)

The most common and basic ganglioside presented in essentially all types of animal cells. GM3 and its derivatives play an important role in the immunoregulation of cells and the biosynthesis and metabolism of all higher gangliosides.

Cat. 8G16-5h

Ganglioside GM4 from human brain. MW 1009.

Ganglioside converted to the galactosylceramide by bacterial or other sialidase.

Cat. 8G16-6h

Ganglioside GD1a from human brain (MW1811)

One of the main neural gangliosides. Useful as a differentiation marker of tumor cell growth. Readily converted to GM1 by bacterial and other sialidase from mammalian sources without detergent.

Cat.8G16-7h

Ganglioside GD1b from human brain (MW1811)

One of the main neural ganglioside with disialo linkage. May act as a co-receptor for bacterial toxins (tetanus, botulinus) and marker of neural tumors (astroglioma). Can be used as immunogen for production of monoclonal antibodies that do not cross-react with GT1b or GD2.

Cat.8G16-8h

Ganglioside GD2 from human brain (MW 1649)

Prepared from human GD1b ganglioside by enzymatic disintegration of the terminal galactose. Known as a specific cancer ganglioside. The antibodies to the GD2 inhibit cell attachment to various extracellular matrix proteins (collagen, vitronectin, laminin, fibronectin).

Cat. 8G16-9h

Ganglioside GD3 from human brain (MW1438)

One of the most important markers for malignant melanoma. Antibodies to the GD3 ganglioside can induce partial remission of tumor growth in animals as well as in humans via enhancement of cytotoxic and proliferative response of lymphocytes.

Cat.8G16-10h

Ganglioside GT1b from human brain (MW2085)

Useful as an inhibitor of Con A-stimulated mutagenesis in murine T-cells. Marker of lymphocytes from cancer patient. Readily convert to the GM1 ganglioside by using bacterial or other sialidase from mammalian tissue without detergent.

Cat.8G16-12h

Ganglioside GQ1b from human brain. MW 2359

A typical marker of the peripheral area of biopsy specimens for human gliomas. Can be used as high-sialylated substrate for neuraminidase.

Cat.8G16-13h

Ganglioside GM3 from human liver (MW1214)

The most common and basic ganglioside presented in essentially all types of animal cells. GM3 and its derivatives play an important role in the immunoregulation of cells and the biosynthesis and metabolism of all higher gangliosides.

Cat.8G16-15h

Asialo-GM2 from human brain (MW1103)

Prepared from the GM2 ganglioside from human brain.

Product	Cat. #	Purity	Source
Asialoganglioside GM1	8G16-1h	>98%	Human Brain MW 1263
Asialoganglioside GM1	8G16-1b	>98%	Bovine Brain MW1263
Asialoganglioside GM2	8G16-15h	>98%	Human Brain MW1103
Asialoganglioside GM2	8G16-15b	>98%	Bovine Brain MW1103
Disialoganglioside GD1a	8G16-6h	>98%	Human Brain MW 1811
Disialoganglioside GD1a	8G16-6b	>98%	Bovine Brain MW 1827
Disialoganglioside GD1b	8G16-7h	>98%	Human BrainMW 1811
Disialoganglioside GD1b	8G16-7b	>98%	Bovine Brain MW 1827
Disialoganglioside GD2	8G16-8h	>98%	Human Brain MW 1649
Disialoganglioside GD2	8G16-8b	>98%	Bovine Brain MW 1665
Disialoganglioside GD3	8G16-9h	>98%	Human Brain MW1438
Disialoganglioside GD3	8G16-9b	>98%	Bovine Brain MW1461
Disialoganglioside GD3	8G16-14b	>98%	Bovine Milk MW 1456
Monosialoganglioside GM1	8G16-2h	>98%	Human BrainMW 1537
Monosialoganglioside GM1	8G16-2b	>98%	Bovine Brain MW 1545
Monosialoganglioside GM2	8G16-3h	>98%	Human Brain MW 1375
Monosialoganglioside GM2	8G16-3b	>98%	Bovine Brain MW 1383
Monosialoganglioside GM3	8G16-4h	>98%	Human BrainMW 1171
Monosialoganglioside GM3	8G16-4b	>98%	Bovine Brain MW 1179
Monosialoganglioside GM3	8G16-13h	>98%	Human Liver MW 1214
Monosialoganglioside GM4	8G16-5h	>98%	Human Brain MW 1009
Monosialoganglioside GM4	8G16-5b	>98%	Bovine Brain MW 1017
Tetrasialoganglioside GQ1b	8G16-12h	>98%	Human Brain MW 2359
Tetrasialoganglioside GQ1b	8G16-12b	>98%	Bovine Brain MW 2391
Trisialoganglioside GT1b	8G16-10h	>98%	Human Brain MW 2085
Trisialoganglioside GT1b	8G16-10b	>98%	Bovine Brain MW 2109