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Pattern of Glycosphingolipids expression during development and differentiation of stem cell

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Gangliosides are complex glycosphingolipids (GSLs) with N-acetylneuraminic acid (NeuAc), which are major cytoplasmic membrane constituents in a variety of mammalian cells and have been shown to perform important regulatory roles in cell proliferation, differentiation, cell signal transduction, and are highly expressed in the vertebral central nervous system. Embryonic stem (ES) cells have become a powerful tool for in vitro investigation of developmental processes at both cellular and organism levels, and offer tremendous potential for clinical application as an unlimited source of cells for transplantation and tissue generation therapies. Various studies have been conducted to explain the differentiation of ES cells such as neuronal differentiation. In high-performance thin-layer chromatography (HPTLC) result and Immunofluorescence stain result, ganglioside GM1 was significantly observed in mouse ES cells. Ganglioside GM3 was significantly expressed in the differentiated neuronal cells after 4 days of culture. The staining sites with the anti-GM1 and anti-GT1b MAb were observed in differentiated neuronal cells after 9 days of culture. These results suggest that ganglioside GM1 may be to activate maintain of mouse ES



cell colony *in vivo*, and GM3 may be to affect the early differentiation neuronal cells from EB. Also, GM1 and GT1b may be to affect the differentiated neuronal cells after 9 days of culture.

KeyWords: *Ischemia; cerebral cortex; Gangliosides; monoclonal antibody; HPTL*