

## **21. New roles of brain glucosylated lipids**

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Glycosphingolipids and cholesterol form lipid microdomains in the plasma membranes. The microdomains were isolated biochemically as detergent-insoluble membrane (DIM) by sucrose density-gradient centrifugation of nonionic detergent lysate. We previously reported the presence of phosphatidylglucoside (PtdGlc)-based lipid microdomain distinct from the sphingolipids-based domains in the plasma membranes of HL60 cells. In order to understand the biological roles of these microdomains, we have isolated 50 clones of mouse monoclonal antibodies (MAbs) against the DIM fractions from HL60 and PC12 cells. We found that one of MAbs termed DIM21 preferentially reacted to PtdGlc. Immunohistochemical studies with DIM21 revealed that the antigen was strongly expressed in the fetal mouse brain in which the neuronal cells actively proliferate and migrate. Our observation indicates that PtdGlc might play a pivotal role in the development and differentiation of CNS.

PtdGlc has a mass number identical to phosphatidylinositol. The TLC migration pattern is almost identical to a major phospholipid PC (Phosphatidylcholine). These are major reasons why the presence PtdGlc has been overlooked until now. We recently have isolated the glycolipid to a pure form fetal rat brains and determined its complete configuration using 600MHz NMR. This is the first case of the presence of PtdGlc in the central nervous system. We suggest here that PtdGlc is a novel surface marker for the radial glia cells.