Polyethylenimine (PEI) has been used as a non-viral gene delivery carrier. To improve the efficacy of transfection, transferrin was incorporated by covalent linkage to PEI. As a model plasmid DNA, pHME185/b-gal, a mammalian expression vector was used. The transferrin-polyethylenimine (TfPEI) was synthesized by conjugate PEI with transferrin using sodium periodate and characterized by FT-IR and 1H-NMR. Transfection activity was measured according to the assay of the expressed b-galactosidase. Electrophoretic mobility of TfPEI/DNA complex in agarose gel electrophoresis retarded over N/P ratio of 7. TfPEI showed higher transfection efficiency than PEI on HepG2 cells. From the cell viability results by the MTT method, TfPEI/DNA system showed low cytotoxicity.

[PE3-2] [04/18/2003 (Fri) 09:30 - 12:30 / Hall P]

Sialylated oligosaccharide analyses using high-performance liquid chromatography with a fluorescence detector

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N-acetylneuraminic acid is one of the major derivatives of sialic acid, is widely distributed in mammalian cells as the α2-3- or α2-6-linked nonreducing terminal residue of oligosaccharide chains of glycoconjugates, and plays important structural and functional roles at the cell membrane surface. The analysis of sialylated glycoproteins is an important part of glycoprotein characterization, especially because sialylation or desialylation in oligosaccharides often causes dramatic changes in the function of glycoproteins. In the present study, we prepared pyridylamino mono- or oligosaccharides such as sialic acid, mono- and disialylated biantennary oligosaccharides, and tri- and tetrasialylated triantennary oligosaccharides. The enzymatic hydrolysis to glycoproteins was performed using exoglycosidase or neuraminidase. The application of these pyridylamino mono- or oligosaccharides to a fluorescence detector in a conventional high-performance liquid chromatography system with a PALPAK type-A or -N column resulted in their successful detection, and they exhibited different retention times. These methods are used to analyze the structure of the sialylated oligosaccharide portion of glycoproteins in our laboratory.

[PE3-3] [04/18/2003 (Fri) 09:30 - 12:30 / Hall P]

Isolation of *Maackia fauriei* lectin using immunoglubulin Y-affinity chromatography

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Immunoglobulin Y (IgY) obtained from chicken as the immunization host brings several advantages to antibody production, such as improved yield, lower cost, longer stability, and higher specificity than mammalian immunoglobulin. In the present study, we attempted to purify *Maackia fauriei* lectin using antilectin IgY-affinity chromatography in order to produce a good yield and to reduce the purification time. A white Leghorn hen was immunized twice with previously purified lectin using a conventional chromatographic method.The yields of IgY were compared when using the water-dilution, polyethylene glycol, and carrageenan methods. Among these, the water-dilution method resulted in better isolation and purification of IgY, and had no adverse effect on the immunoactivity of IgY. The daily yield of IgY was observed by enzyme-linked immunosorbent assay, with a final yield of antilectin IgY from total IgY of 1.2%. The yielded IgY were used to prepare a IgY-affinity column conjugated with CNBr-activated Sepharose 4B, which resulted in the lectin being successfully purified in a single step from the