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

Cho DueHyeon, Ryu ChangSoo, Park JeeHun°, Kim HaHyung

College of Pharmacy, Chung-Ang University, Seoul 156-756, Korea

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

Jung ByungWook, Chung YoungYun, Koo WanMo°, Kim HaHyung

College of Pharmacy, Chung-Ang University, Seoul 156-756, Korea

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

bark of *Maackia fauriei*. This purified lectin exhibited the same hemagglutination inhibition and molecular characterization as lectin purified using conventional purification methods.

[PE3-4] [04/18/2003 (Fri) 09:30 - 12:30 / Hall P]

Sialic acid-binding protein from mushroom *Paecilomyces japonica*

Ryu ChangSoo, Kim KiDon°, Kim ByungSu, Kong KwangHoon, Kim HaHyung

College of Pharmacy, Chung-Ang University, Seoul 156-756, Korea, College of Natural Science, Chung-Ang University, Seoul 156-756, Korea

Carbohydrate-binding proteins have been isolated from various sources, including plants, animals, fungi, and bacteria, and they have been used extensively in the detection, localization, and isolation of glycoconjugates. Many carbohydrate-binding proteins are purified from mushrooms, however, only a few proteins with sialic acid-binding specificity have been reported. In the present study, a novel sialic acid-binding protein, designated PJA, has been purified from the mushroom *Paecilomyces japonica*, followed by extraction and affinity chromatography. PJA exhibits hemagglutination activity to human ABO, mouse, rat, and rabbit erythrocytes. This hemagglutination activity is specifically inhibited by *N*-acetylneuraminic acid as well as by glycoprotein containing *N*-acetlyneuraminic acid. The carbohydrate-binding activity of PJA was stable at pH values of 4.0-8.0, and at temperatures below 55℃. The results of sodium dodecyl sulfate-polyacrylamide gel electrophoresis, gel filtration chromatography, and carbohydrate analysis indicate that PJA is a monomer glycoprotein with a molecular mass of approximately 16 kDa comprising a hybrid-type oligosaccharide containing *N*-acetylneuraminic acid, D-mannose, and N-acetyl-D-glucosamine. PJA exerts cytotoxic effects on human pancreas cancer AsPC-1cells and human stomach cancer SNU-1 cells.

Poster Presentations - Field F1. Clinical Pharmacy

[PF1-1] [04/18/2003 (Fri) 09:30 - 12:30 / Hall P]

The Effect of Sun Ginseng on Hemodynamics and Body Temperature in Healthy Young Men

Lee Jeehwan°[1)], Cho JungAh[1)], Ki ChanYoung[1)], Park JeongHill[2)], Park ManKi[2)], Han YongNam[1)2)]

[1)]Natural Products Research Institute, Seoul 110-460, and [2)]College of Pharmacy, Seoul 151-742, Seoul National University, Korea

The current study was performed to observe the effect of Sun Ginseng (SG) on hemodynamics such as blood flow rate (BF), blood flow velocity (BV), heart rate (HR), systolic blood pressure (SBP) and diastolic blood pressure (DBP), and body temperature (BT) in healthy young men. This is a randomized, single-blind study observed during 6 hrs after orally single administration of SG. Forty-one subjects were divided into four groups, such as control (n=13), SG 0.6 (n=9), SG 1.2 (n=10) and SG 3.6 (n=9). In BF, BV and HR, there were no intergroup statistical differences observed, but in BT (p=0.0367), SBP (p=0.0011) and DBP (p=0.0030) observed. In BF, there was one significant increase versus control 3 hrs after administration of 1.2 g (p=0.0244), and in