[PE3-3] [2003-10-11 09:00 - 12:30 / Grand Ballroom Pre-function]

Topical delivery of smad3 antisense using cationic solid lipid nanoparticle(SLN): therapeutic potential use and prevention of keloids

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Keloids are characterized by abnormal proliferation of fibroblasts and overproduction of collagen. Recently, it is reported that transforming growth factor beta (TGFb) and its signaling molecule, SMAD3 are related to the mitogenic effect of fibroblasts and a stimulatory factor for collagen synthesis. Cationic SLN was developed to improve the complex formation of DNA/SLN and enhance the uptake efficiency to cells. SLN was formulated by DC-Chol, DOPE, trimyristin as a solid core and other surfactant. The physical properties of the SLN and the ATS/SLN complex were characterized. We have assessed the in vitro effects of smad3 antisense (ATS) on proliferation, collagen synthesis in keloid fibroblast and used cationic SLN for dermal carrier. After cells were transfected with ATS/SLN complex, uptake efficiency and pattern of the complex were evaluated using flow cytometry and confocal microscope. The inhibitory effects of ATS on keloid fibroblast proliferation were analyzed using growth inhibition assay and western blotting. The average size and zeta potential of SLN were 80.0 ± 6.53 nm and 42.1 ± 1.18 mV respectively. The SLN showed a stable distribution of size and zeta potential up to two months at least. The complex size of ATS/SLN increased to 200-300 nm. ATS inhibited keloid fibroblast proliferation and decreased collagen formation. Blocking SMAD3 activity with smad3 ATS led to growth inhibition of keloid fibroblast. From the results, it is suggested that SMAD-dependant TGFb signaling pathway involves in the regulation of keloid fibroblast proliferation. Smad3 ATS using stable cationic SLN may provide a novel approach in treatment and prevention of keloid.

[PE3-4] [2003-10-11 09:00 - 12:30 / Grand Ballroom Pre-function]

Sialoglycoconjugate-specific lectin from Maackia fauriei

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A lectin has been purified from the bark of the legume Maackia fauriei. This lectin, MFA, was found to agglutinate human ABO erythrocytes at a titer of 256. The results from electrophoretic analyses, gel-filtration chromatography, and enzyme linked lectinsorbent assay indicate that MFA is an acidic glycoprotein, and exists as a tetramer of 30 kDa subunits that are linked by noncovalent bonds. The activity of MFA is critically dependent upon $CaCl_2$. MFA demonstrated high homogeneity with the lectins from M. amurensis, which is the only legume source of lectins that bind to sialoglycoconjugate, in its N-terminal amino acid sequence and amino acid composition, The hemagglutination activity of MFA was specifically inhibited by N-acetylneuraminic acid, Neu5Acα2-3Galβ1-4GlcNAc, and sialoglycoconjugates such as fetuin, bovine submaxillary mucin and thyroglobulin. MFA exerts cytotoxic effects on human breast cancer, human melanoma, and human liver cancer cell lines but had no effect on the human colorectal cancer cell line. It is especially noteworthy that the deleterious effect of MFA on the viability of human breast cancer cell was greater than that of other sialic acid-binding lectins.

[PE3-5] [2003-10-11 09:00 - 12:30 / Grand Ballroom Pre-function]

Galactosylated PEI-PEG as nonviral gene transfer agent for hepatocyte targeting and imaging probe

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