Complexes

Chae Min Jung°, Chung Hesson, Kwon Ick Chan, Chung Jin Wook, Park Jae Hyung, Sohn Young Taek, Jeong Seo Young
Biomedical Research Center, Korea Institute of Science and Technology, Seoul, Korea Dept. of Pharmacy, Duksung Women's University, Seoul, Korea, Biomedical Research Center, Korea Institute of Science and Technology, Seoul, Korea, Dept. of Radiology, College of Medicine, Seoul National University, Seoul, Korea, Dept. of Pharmacy, Duksung Women's University, Seoul, Korea

A cationic lipid emulsion (o/w) containing lipiodol and 1, 2-dioleoyl-sn-glycero-3-trimethylammonium-propane (DOTAP) has been prepared as a gene delivery system. In order to increase the transfection efficiency of the lipiodol emulsion, 1, 2-dioleoyl-sn-glycero-3-phospho -ethanolamine (DOPE) and polyoxyethylene sorbitan monooleate (Tween 80) were incorporated as additional lipids. By including DOPE and Tween 80, the cationic emulsion became a more potent gene carrier under in vitro condition in the presence of serum, and under in vivo condition. The role of protamine sulfate on cationic lipid emulsion-mediated gene transfer was also tested. The particle size and the zeta potential of the lipiodol emulsion as well as the DNA/Carrier complexes were examined in order to evaluate the physical stability. The particle size of the DOTAP/DOPE/Tween 80 emulsion was 71 nm, and this particle was more stable than those in the DOTAP emulsion in PBS with or without serum. When the DOTAP/DOPE/Tween 80 emulsion was combined with DNA, the size and the zeta potential of the complex were 220~300 nm and +30mV, respectively. The DNA /Emulsion/Protamine sulfate complex delivered DNA effectively to spleen through a single intravenous injection in mice. The feasibility study of DNA/Carrier complexes as a local injection carrier was performed by injecting the complex via hepatic artery of rabbit VX2 tumor model. When the DNA/Emulsion (DOTAP/DOPE/Tween 80) complex was administrated to hepatic artery, DNA was localized at the tumor site more specifically when compared with the DNA/Emulsion (DOTAP) complex.

[PE1-7] [2003-10-11 09:00 - 12:30 / Grand Ballroom Pre-function]

Enhanced Stability of Acetyl-L-Carnitine Tablet under Accelerated Storage Condition

Kwon Min Chang°, Wang Hun Sik, Shim Ji Yeon, Park Jun Sang
GL PharmTech Corp.

Acetyl-L-carnitine (ALC), an endogenous component of L-Carnitine, is the acetyl ester of carnitine that has been reported to be beneficial in depressive disorders and Alzheimer's disease.ALC is so hygroscopic that deliquescence took place when it absorbed moisture by 15%(w/w) in a week and then reached steady-state at 45%(w/w) in 40℃, 75% RH storage condition. Therefore it is necessary to prevent ALC from absorbing atmospheric moisture.For this purpose, we chose hydroxypropylmethylcellulose phthalate (HPMCP), an enteric polymer, as a film former. After two weeks' storage under 40℃, 75% RH without a package, HPMCP-coated ALC tablet absorbed moisture only below 20%(w/w), while control product, Nicetyl? tablet coated with cellulose acetate phthalate (CAP) represented moisture absorption up to 32%(w/w).This result demonstrated that HPMCP could be much more effective to protect the ALC tablets against moisture under severely humid circumstances as well as to reduce the cost for tight moisture-proof package.

[PE1-8] [2003-10-11 09:00 - 12:30 / Grand Ballroom Pre-function]

Electrospun poly (lactic-co-glycolic acid)(PLGA) nanoparticles for controlled drug delivery system

Lee Jue-Yeon°, Lee Meong Hee, Park Won-Ho, Min Beong-Moo, Lee Seung-Jin
College of Pharmacy, Ewha Womans University, College of Pharmacy,Ewha Womans University, College of Engineering, Chungnam National University, College of Dentistry, DRI, Seoul National University

In many biodegradable polymers recently investigated, poly(lactic acid)(PLA) or poly(lactic-co-glycolic acid)(PLGA) have extensively been utilized as drug delivery systems for sustained release drug delivery. Recently, there has been increased interest in electrospinning, which can produce fibers that are sub-micron in diameter. This technique has been applied to various micro/nano fabrication areas using numerous polymers but