

Liposome-mediated *in Vivo* Delivery of Transgene by Vein Injection

Choi, Seung Kyu, Choi, Sung Sik, Hwang, Chang Nam and Lee, Sang Ho

Collage of Life Sciences/ Graduate School of Biotechnology, Korea University, Seoul
136-701, Korea.

Direct gene transfer to mammalian tissues has significant potential for gene therapy and transgenesis. Liposome-mediated *in vivo* transfection has begun to gain attention as an alternative to viral vectors, and may also be a good mode of transfection in gene transfer. Interestingly, polymerized cationic liposomes are reported to be very stable in the bloods and efficient for *in vivo* gene transfer. To examine a possible gene delivery *in vivo*, we investigated the efficacy and safety of the liposome-mediated gene transfer using vein injection in chick or mouse as model animals. The number of injected pGFP-LacZ using either a commercial or home-made liposomes was 8 and 19 at 16 and 7 day of hatch, respectively. One of injected chick of each experiments was analyzed and the rest is being bred. In mouse, 4/22 showed expression of pGFP-LacZ but 8/22 showed no expression and the remaining animals are also being bred. After injection of liposome/pGFP-LacZ complex into wing vein of 7 or 16 day-old chick, pGFP-LacZ was detected in various tissues isolated from not only young chick but also old chick were turned out to possess exogenous DNA. Transcripts and proteins of the transgene were also detected by RT-PCR or histochemical analysis, respectively. These results suggest that injected DNA were inserted to genome and produced mRNA and proteins in various tissues and may give an important tools for effective gene delivery in gene therapy or transgenesis.

Key words) *Transgene delivery, Vein injection, Liposome*