Selective Transfection of endometrial cancer cells by immnoliposome against MMP-2

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Abstract

Cancer specific gene delivery is challenging because a certain cancer marker does not identify different cancers originated from the same or different tissues. Yet, MMP-2 is well known for its correlation for angiogenesis and cancer invasion in almost all cancers. Also, it was reported that MMP-2 is often translocated onto endothelial or invading cancer cell membrane[1)]. In these reasons, anti-MMP-2 immunoliposome was produced and tested. Liposome was produced by evaporating and rehydrating mixture of lipids in chloroform (Phosphatidylcholine 50%, DC-cholesterol 45%, N-succinyl PE 3%, and cholesterol 2%). The MMP-2 antibody was conjugated by urethane bond formation with N-succinyl PE[2)]. Mirus, a commercially available polyamine transfection reagent was used as the control. As the results, neither Mirus nor the immunoliposome did show high and specific gene transfer. However, when the two were mixed with an appropriate ratiowith DNA, we were able to see specific and efficient gene transfer to human endometrial cancer cells(HEC-1A) that had been co-cultured with normal cells. In conclusion, targeting invading cancers with MMP-2 was successful in case of HEC-1A cells and deserves much attention for targeted therapeutic gene delivery. This study was supported by HTPEB (HTPEB 01-PJ11-PG9-01NT00-0036).