BioShuttle-mediated Plasmid Transfer

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Abstract:

An efficient gene transfer into target tissues and cells is needed for safe and effective treatment of genetic diseases like cancer. In this paper, we describe the development of a transport system and show its ability for transporting plasmids. This non-viral peptide-based BioShuttle-mediated transfer system consists of a nuclear localization address sequence realizing the delivery of the plasmid pH11S-IRES-EGFP coding for two independent reporter genes into nuclei of HeLa cells. The quantification of the transfer efficiency was achieved by measurements of the sodium iodide symporter activity. EGFP gene expression was measured with Confocal Laser Scanning Microscopy and quantified with biostatistical methods by analysis of the frequency of the amplitude distribution in the CLSM images. The results demonstrate that the “BioShuttle”-Technology is an appropriate tool for an effective transfer of genetic material carried by a plasmid.

Key Word:
Quantification of gene transfer; non-viral vectors; nucleus-addressed delivery, gene targeting

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