Substrate-mediated viral gene delivery system by catecholamine immobilized surfaces

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Gene therapy is a therapeutic method to treat human disease by modifying the genes of cells. One of the important criteria of a successful gene therapy is the efficiency of gene delivery with safety. Recently, lots of protocols have been developed for gene delivery systems using viral and non-viral vectors. AAV is widely used for the viral gene delivery with safety and efficiency. However, it may have limitations in the stimulation of stem cells due to its low transfection efficiencies.

In this study, we developed substrate-mediated viral gene delivery system with adhesive materials using for macro-patterned gene delivery by "pipet drawing". We used sticky viruses for patterned gene delivery system to various cell lines especially human neural stem cells. Development of gene delivery system to stem cells has an importance in the gene therapy and tissue engineering applications, due to its enormous potential to threat many diseases which have no effective therapy until now.