Enhanced cellular transfection for cancer therapy with virus-derived peptides conjugated with polyethylenimine

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An attractive strategy, which obtains new non-viral vectors with high gene delivery efficiency, was utilized to link peptides to polyethylenimine (PEI). The traditional non-viral vector has limitations such as disability of specific cell targeting and relatively low gene delivery efficiency compared to the viral vectors. To overcome these challenges, the peptides obtained by virus were conjugated to PEIs to enhance gene delivery efficiency and cell target capability. The Synthesized PEI vector has been a useful tool to fortify the gene delivery toward cancer cell. The novel compound was verified by FT-IR and NMR and we observed condensation of PEI-peptide and plasmid using the size analysis and the zeta potential analysis. It was observed that the internalization occurred through clathrin-mediated endocytosis because of the influence of the peptide. These results showed that the new hybrid gene vector may have a potential as a delivery vector for cancer gene therapy.