

Non Viral Delivery of PEI/DNA Complex with Specific Peptide

오지선, 김정숙, 김은미, 박민아, 장재형*
연세대학교 화공생명공학과
(hanas.jang@gmail.com*)

Gene delivery received attention as a novel method for gene therapy. Especially non-viral delivery is safe and forms the complex easily. however; it has low gene delivery efficiency. To enhance it, this study focuses on the non-viral vector that consists of novel peptide which derived from virus. The peptide is an innovative material, and it is applied with polyethylenimine and DNA to increase the transfection efficiency. The uniqueness of the peptide is its derivation from adeno-associated virus r3.45 which was obtained by directed evolution toward rat neural stem cell. It has been proved to be a great tool to infect human neural stem cells. Hence, with the peptide, the positive effect in the non-viral delivery can be anticipated. In the experiment, the complex consists of PEI, DNA, and the peptide is used. The ternary complex was confirmed successfully by gel retardation. In the case of transfection into several cell lines, complex with ternary complex shows higher efficiency than binary complex. In conclusion, this specific peptide takes an important role in enhancing transfection. For the further study, application into the human neural stem cells will be researched.