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POLYPLEX FORMATION BY NOVEL SURFACE ACTIVE COMB-LIKE POLYAMFOLYTES AND PLASMID DNA

N. S. Finiuk, T. Y. Vitak, N. Y. Mitina, Y. Z. Filyak, O. S. Zaichenko, R. S. Stoika

Institute of Cell Biology of National Academy of Sciences of Ukraine, Lviv
Lviv National Polytechnic University

Ivan Franko National University of Lviv

Formation of the interpolyelectrolytic complexes (polyplexes) of plasmid DNA and novel surface active comb-like polyampholytic carriers was studied. To do that, the method of determining DNA retardation during its electrophoresis in the agarose gel was used. Optimal conditions for the formation of such polylexes were defined: PC concentration 0.1–0.003 %, pH 7.4, 20 min, 24 °C. It was found that polyampholyte possessing quaternized amino-containing side chains is capable to form the most stable polyplexes with plasmid DNA. The association of DNA with polyampholytic carriers and its release from such complex do not cause changes in DNA structure. Therefor, the polyampholytic carriers under study protected DNA from its nuclease cleavage. Thus, novel surface active comb-like polyampholytes are perspective carriers for delivering DNA to the recipient cells.

Key words: plasmid DNA, polyampholytic carriers, stability of polyplexes, DNA electrophoresis.