Cellular Transplantation and Tissue Engineering 2012 vol.7 N3, pages 142-145

Chromatographic purification of plasmid DNA for clinical applications (gene therapy)

Romanova J., Salafutdinov I., Zamalyutdinova N., Rizvanov A.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

For the successful application of plasmid vectors in gene therapy protocols it is necessary to develop methods for purification of highly homogeneous preparations of recombinant DNA that do not contain contaminants, primarily chromosomal DNA, bacterial proteins, RNA and endotoxins. In the course of our study we performed optimization of the purification of plasmid supercoiled DNA by three chromatographic steps from an alkaline lysate of bacterial strain of E. coli. We determined an optimal conditions for alkaline lysis step in order to increase the yield and minimize the duration of the plasmid purification by gel filtration.

Keywords

Anion exchange chromatography, Gel filtration, Gene therapy, Recombinant DNA plasmid, Salting-out chromatography