

Development of microchip CE-SSCP system for nucleic acid detection

신기영, 정규열†

포항공과대학교

(gyjung@postech.ac.kr†)

Microchip electrophoresis-based genetic analysis systems are very useful because of rapid analysis, less sample/reagent consumption, and portability. Among the many other electrophoretic techniques, single strand conformation polymorphism (SSCP) analysis is one of promising genotyping method due to its simplicity and versatility. In SSCP analysis, the electrophoretic mobility variation comes from sequence-induced folded conformation difference of single strand DNA. Based on this principle, even a single base difference between DNA fragments being tested can be discriminated. However, the most critical limitation of SSCP analysis on microchip is low separation resolution resulting from short separation channel length, thus its application had been limited. In this study, we developed high resolution Pluronic-filled microchip SSCP by controlling the width of the channel. To improve resolution, we tested various channel widths and found that 300um showed the highest resolution. This analysis system was successfully applied to the various genetic analyses including food-borne pathogen detection and SNP marker detection.