

Sensitive detection of human cancer-related SNPs using high resolution CE-SSCP analysis system

황희성¹, 신기원¹, 정보람¹, 정규열^{2,1,*}

¹포항공과대학교 시스템생명공학부;

²포항공과대학교 화학공학과

(gyjung@postech.ac.kr*)

Capillary electrophoresis-single strand conformation polymorphism (CE-SSCP) analysis is known as a simple and rapid molecular marker detection technique such as detections of single nucleotide polymorphisms (SNPs). Due to its high sensitivity and great reproducibility with conformation dependent separation of single strand DNA, CE-SSCP shows great capability for detecting SNPs. However, conventional polymer matrices generally used for CE-based analysis has poor resolution in CE-SSCP since it is optimized for molecular weight dependent separation.

In this study, we introduced new polymer matrix for high resolution CE-SSCP analysis. The model systems were SNP sites of human cancer-related genes which were frequently detected on cancerous tissues. To improve resolution, various PCR amplicons that including target SNP sites were designed, which were varied in length, relative SNP position, and fluorescent dye position. The results showed that SNPs detection using newly introduced polymer matrix could detected SNPs much more sensitively when compared with conventional homopolymer matrix.