

A Microfluidic Biosensor for Detection of EGFR 19 Deletion Mutation Targeting Non-Small Cell Lung Cancer on Rolling Circle Amplification

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Abstract : Epidermal growth factor receptor (EGFR) 19 deletion mutation gene is over-expressed in carcinoma patient. EGFR 19 deletion mutation is known as typical biomarker of non-small cell lung cancer (NSCLC), which one section in the coding exon 19 of EGFR is deleted. Therefore, there have been many attempts over the years to detect EGFR 19 deletion mutation for replacing conventional diagnostic method such as PCR and tissue biopsy. We developed a simple and facile detection platform based on Rolling Circle Amplification (RCA), which provides highly amplified products in isothermal amplification of the ligated DNA template. Limit of detection (~50 nM) and a faster detection time (~30 min) could be achieved by introducing RCA.

Keywords : EGFR19, cancer, diagnosis, rolling circle amplification (RCA), hydrogel

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