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Use of Luminex xMAP bead-based suspension array for detecting microRNA in NSCLC tissues and its clinical application

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ABSTRACT

Background. We measured the expression of microRNA (miRNA) in non-small cell lung cancer (NSCLC) tissues using the Luminex xMAP bead-based suspension array. We discuss the feasibility of employing this method to detect miRNA in NSCLC and explore its value as a high-throughput miRNA array.

Methods. We performed the methodological analysis of xMAP with oligoribonucleic acid references. We detected the expression of miR-21, miR, miR-31, miR-222, miR-145 and miR 40 NSCLC cancer tissues and adjacent normal tissues by xMAP bead-based suspension array. We selected miR-191 and miR-103 as the house-keeping genes (internal control). We also analyzed the relationship between xMAP and RT-PCR.

Results. The methodological analysis parameters of xMAP are quite good. The expression of miR-21, miR, miR-31 and miR-222 was higher in NSCLC tissues than in adjacent tissues, while the expression of miR-145 and miR-126 was lower in NSCLC tissues than in adjacent tissues. The expression of miR-145 and miR-126 decreased with disease progression. The intraassay and interassay coefficients of variation were lower in xMAP than in RT-PCR. xMAP proved cheaper and more flexible in detecting multiple miRNAs of one sample.

Conclusions. The Luminex xMAP bead-based suspension array for detecting miRNA has many advantages, such as allowing a smaller sample size (only 2 μL), no sample amplification, fast detection, high throughput, and flexible combination of multiple detection targets. The high throughput testing technology shows a great advantage in saving time and labor. We found that the Luminex xMAP bead-based suspension array is a good and feasible method for detecting miRNA expression with high-throughput technology.

Key words: microRNA, miRNA, NSCLC, xMAP bead-based suspension array.

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