



# Detection of *CK19*, *LUNX*, and *KS1/4* mRNA expression in the peripheral blood for diagnosis of micrometastases in patients with non-small cell lung cancer and their clinical implications

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**ABSTRACT.** The expression of *CK19*, *LUNX*, and *KS1/4* mRNA biomarkers was detected in the peripheral blood of non-small cell lung cancer (NSCLC) patients to investigate the feasibility of indicating lung cancer micrometastases. Micrometastases were identified in the peripheral blood of 32 NSCLC patients, 15 benign pulmonary disease (BPD) patients, and 10 healthy volunteers by reverse transcriptase-polymerase chain reaction. The detection rates of *CK19*, *LUNX*, and *KS1/4* mRNA-positive cells in the peripheral blood obtained from the NSCLC group were 34.4% (11/32), 37.5% (12/32), and 25% (8/32), respectively. *CK19*, *LUNX*, and *KS1/4* mRNA-positive cells were detected in 6.6% (1/15), 0.0% (0/15), and 13.3% (2/15) of the patients with BPD, respectively. However, the healthy group did not express any of the three markers. The expression of *CK19*, *LUNX*, and *KS1/4* mRNA was significantly higher in the NSCLC group than that in the healthy and BPD groups ( $P < 0.05$ ). *CK19* and *LUNX* mRNA may be ideal biomarkers indicating micrometastases in patients with NSCLC; however,

the diagnostic applicability of *KS1/4* mRNA remains uncertain. The rate of expression of *CK19* was not correlated with the clinicopathological characteristics ( $P > 0.05$ ). The rate of expression of *LUNX* and *KS1/4* was closely related to the clinical stage ( $P < 0.05$ ), and not related to the clinical characteristics of the disease (age, gender, smoking history, pathological type, histologic classification, and differentiation;  $P > 0.05$ ).

**Key words:** Non-small cell lung cancer; Micrometastases; *CK19* mRNA; *LUNX* mRNA; *KS1/4* mRNA; RT-PCR