Projects proposal

Objective

The objective of this study is to identify potential biomarkers for the early detection of lung cancer using bronchial brushing specimens.

Resource available

Tumor protein 53 (TP53), TP63, Ki67, epidermal growth factor receptor (EGFR), minichromosome maintenance complex component 6 (MCM6), MCM7, uncharacterized proteins KIAA1522 and KIAA0317, and ubiquitin-protein ligase UHR1 (ICBP90) frequently present high expression in bronchial brushing specimens from patients with lung cancer as compared to those with benign lung lesions. A 6-protein panel consisting of TP53, Ki67, MCM6, MCM7, KIAA1522, and KIAA0317 was identified as the best combination, with sensitivity of 81.1% (309 of 381 specimens) for detecting non-small cell lung cancer (NSCLC) and 86.8% (145 of 167 specimens) for small cell lung cancer (SCLC) (specificity, 83.3%; 65 of 78 specimens). The combination of cytology and the protein panel significantly improved the sensitivity of bronchial brushing examination for detecting lung cancer, from 49.1% to 81% in early stage NSCLC (stage I and II, $P < 0.00001$). Moreover, the protein panel was positively associated with patient sex ($P = 0.00033$), tumor type ($P < 0.00001$), tumor location ($P < 0.00001$), and lymph node metastasis ($P = 0.028$). In summary, the 6-protein panel is a potential biomarker for the early detection of lung cancer in bronchial brushings.

Contact person

Jia-Jie Hao, Ph.D, Assistant Professor
State Key Laboratory of Molecular Oncology
Cancer Institute/Hospital, Chinese Academy of Medical Sciences & Peking Union Medical College, 17 South Panjiayuan Lane, Beijing 100021, China
E-mail: hjj8173@126.com
Tel: 86-10-8778-8425