Biomarkers in the accurate classification of non-small cell lung carcinomas (NSCLC) for targeted therapies: An evidence-based practice

The current recommendations of IASLC (International Association for the Study of Lung Cancer) and the WHO classification (2015 edition) emphasize the use of minimal tumor tissue for morphological diagnosis and for immunohistochemical (IHC) stains. Accurate classification of NSCLC into adenocarcinoma (ADC) and/or squamous cell carcinoma (SqCC) plays a crucial role in molecular targeted therapies and clinical management of lung cancer patients. The morphological heterogeneity and updated classification criteria of lung cancer present diagnostic challenges in using small biopsy specimens. The distinction between ADC and SqCC may be difficult in small fine needle aspiration (FNA) biopsy specimens. Here, we will discuss the sensitivity and specificity of commonly used IHC biomarkers, including TTF-1, Napsin A, CK7, P63, P40 and CK5/6 in the classification of NSCLC. Furthermore, the combination of several individual IHC markers into a novel triple biomarker is increasingly used in daily practice. We will also discuss our data of this novel triple biomarker in the sub-classification of NSCLC, including its limitation and diagnostic pitfall. The optimal goal of current practice is preservation of tumor tissue for molecular analysis, and to provide the guidance for molecular targeted therapy.

Biography

Qing Kay Li is an associate professor of pathology at the Johns Hopkins University School of Medicine. She has the American Board of Pathology certification in anatomic and clinical pathology, and subspecialty certification in cytopathology. Her areas of clinical expertise include surgical pathology and cytopathology. Dr. Li is also a faculty member and co-PI at the Johns Hopkins Biomarker Discovery Center. Her research interests are focusing on the application of advanced cellular and molecular techniques to the field of cytopathology and cancer biology, particularly in the field of early detection of lung and prostate cancer.

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