Immunohistochemical detection of EGFR mutations and ALK rearrangement in lung adenocarcinoma

Epidermal growth factor receptor (EGFR) gene mutational analysis and anaplastic lymphoma kinase (ALK) gene rearrangement detection are standard for guiding the treatment of advanced-stage lung adenocarcinoma. The lung biopsy specimens may contain a limited number of tumor cells for extracting enough DNA for gene mutational analysis, or performing fluorescence in-situ hybridization (FISH) to determine the genetic translocation. Immunohistochemistry (IHC) may be an alternative approach. Studies were performed to further validate the sensitivity and specificity of the antibodies against EGFR with del E746-A750 in exon 19 and L858R in exon 21 or ALK, and to determine if the immunostaining with these antibodies is a reliable screening method in the detection of these two genes abnormalities in the biopsied and resected lung adenocarcinomas. Sections from the tumor specimens were immuno stained with these antibodies and the same specimens were used for DNA purification, analysis for EGFR mutations, and FISH for the detection of ALK rearrangement with break-apart probes. Based on the molecular testing, the overall sensitivity and specificity are high for antibodies against EGFR with del E746-A750 and L858R mutations and ALK. IHC is a very useful screening method for detecting EGFR gene mutation and ALK gene rearrangement.

Biography
Haodong Xu received his MD, MS, and PhD from Suzhou Medical College. He subsequently completed a residency in Anatomic and Clinical Pathology at Barnes-Jewish Hospital/Washington University School of Medicine, and a fellowship at the Armed Forces Institute of Pathology. He is currently Professor of Head and Neck and Cardiothoracic Pathology at the David Geffen School of Medicine at UCLA. In addition, his interests also include molecular mechanisms of lung, head and neck tumors, and fibrosing interstitial pneumonia, and his basic research is focused on delineating the regulation mechanisms of voltage-gated cardiac ion channels.

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