# Forty Years of the International Association for Study of Lung Cancer Pathology Committee

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**Abstract:** Lung cancer classification during the last four decades has undergone major changes and evolution, mostly lead by pathologists who were actively involved in the International Association for the Study of Lung Cancer (IASLC) Pathology Committee. The Committee members have led the development and writing of the second (1981), third (1999 and 2004), and fourth (2015) editions of the World Health Organization classifications on lung tumors. Committee members were responsible for defining and refining the classifications of small-cell carcinoma and adenocarcinoma subtypes that are relevant to their clinical behavior. Particularly notable was development of the 2011 IASLC/American Thoracic Society/European Respiratory Society international, multidisciplinary lung adenocarcinoma classification. The multidisciplinary approach that represents the IASLC culture in research, education, and practice in clinical management of lung cancer patients have paved the way for integrating pathology practice into the new era of personalized cancer care.

**Key Words:** World Health Organization classification, Histopathology, Molecular pathology, Epidermal growth factor receptor, Anaplastic lymphoma kinase.

(*J Thorac Oncol.* 2014;9: 1740–1749)

The International Association for the Study of Lung Cancer (IASLC) was established in 1974 to promote all aspects of research in lung cancer and thoracic malignancies and improve lung cancer patient outcome through prevention, better diagnosis, and treatment. As an international and multidisciplinary organization, the pathology community was engaged to play a role in this effort. The development and role of Pathology Committee has been an evolution, with large parts being intimately associated with the development of lung cancer classification during the last four decades (Fig. 1). However, with more recent advances on molecular diagnoses in lung cancer, the committee has also assumed leadership roles in the development of guidelines and standards on molecular testing for lung cancer. This article is meant to highlight and archive some of the important works and roles that IASLC Pathology Committee and its members have undertaken, in the context of the 40th Anniversary of IASLC.

## EVOLUTION OF IASLC PATHOLOGY PANEL/COMMITTEE

### 1970s and 1980s

In 1982, the Pathology Panel of the IASLC was officially recognized by the IASLC Board and approved by the General Assembly as recorded in the IASLC Newsletter, September 29, 1982. However, leading up to this event, a group of lung cancer pathology experts (Fig. 2) coordinated by Dr. Raymond Yesner (New Haven, CT) had already been working together on the lung cancer classification. In 1977, Dr. Yesner was asked by the World Health Organization (WHO) to be the chairman of the 2nd edition of the WHO classification of lung tumors and to coordinate this group through 1981, when the *World Health Organization, Histological Typing of Lung Tumours*, 2nd edition was published.[1]

After the 1981 WHO classification was published, a proposal was made to the IASLC Board to form a Pathology Panel by Drs. Mary J. Matthews, Fred R. Hirsch, Adi Gazdar, Yukio Shimosato, and Raymond Yesner. The purpose of the Panel at that time was summarized in Table 1. After formal constitution of the Panel, the group focused on the classification of small-cell lung cancer (SCLC) and its subtypes: the classical "oat cell" carcinoma (lymphocyte-like), the intermediate subtype, and the combination of SCLC and non–small-cell lung cancer (NSCLC).[2] Based on ongoing cell line studies, mainly performed at the National Cancer Institute, Bethesda, MD, evidence emerged that there were significant biologic differences between classical oat cell carcinoma ("classical" cell lines) and the intermediate subtypes (corresponding to "variant" cell lines).[3] The biologic differences in

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Disclosure: The authors declare no conflict of interest.

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DOI: 10.1097/JTO.0000000000000356



ISSN: 1556-0864/14/0912-1740

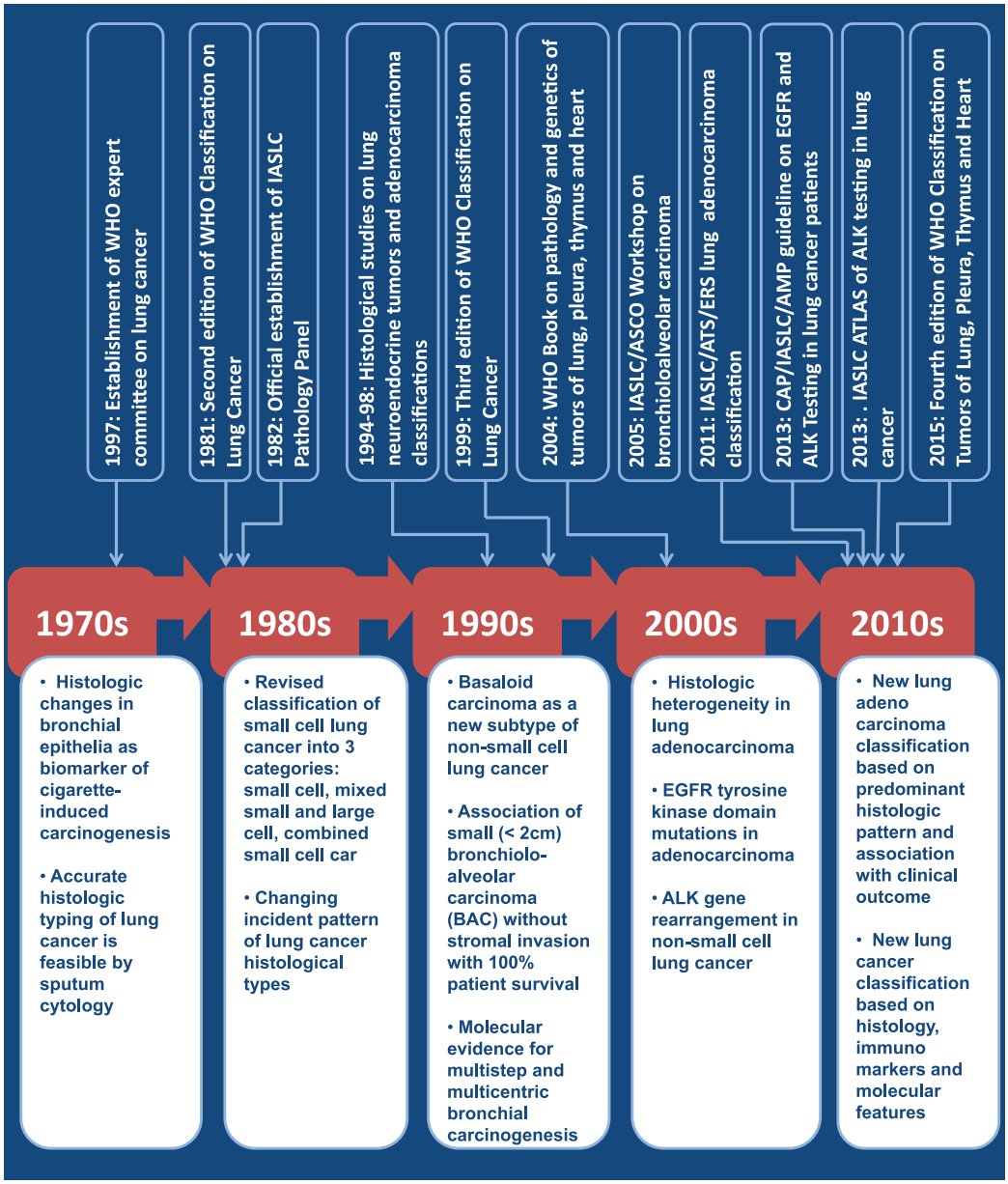


**FIGURE 1.** IASLC contribution to the progress made in pathology of thoracic malignancies during the last 40 years. Upper panel illustrates the milestone in histologic classification of lung cancer and contribution by members of IASLC pathology committee. Lower panel highlights major progress in pathology research during each decade since 1970s. IASLC, International Association for the Study of Lung Cancer; EGFR, epidermal growth factor receptor; ALK, anaplastic lymphoma kinase.

characteristics of the cell lines encouraged the IASLC pathology group to evaluate differences in clinical characteristics for SCLC patients having classical oat cell carcinoma versus those with intermediate subtypes. The latter morphologic subtype was also termed 22/40 based on the mixture of SCLC (in the WHO classification termed 22) and the large-cell carcinoma (in the WHO classification termed 40). Some clinical studies were performed showing that patients with tumor of the 22/40 subtype had a poorer response to chemotherapy and shorter survival compared with patients with the pure SCLC morphology.[2,4] However, other studies showed no difference, and the IASLC Pathology Panel tried to determine whether the differences in clinical outcome were based on different histopathologic interpretation of the WHO subtypes.[5] Several publications were made from the IASLC pathology group on this issue including a proposal for modification of the histologic subclassification of small-cell carcinoma.[2,6] However, through these studies, the morphologic and biologic heterogeneity of malignant lung tumors was recognized, and further studies emerged demonstrating the heterogeneity in NSCLC.[7] Clinical studies emerged and also demonstrated chemotherapy effect of certain histologic subtypes of NSCLC, and the tasks for the IASLC Pathology Panel expanded as more pathologists became involved in its activity (Table 2).

 