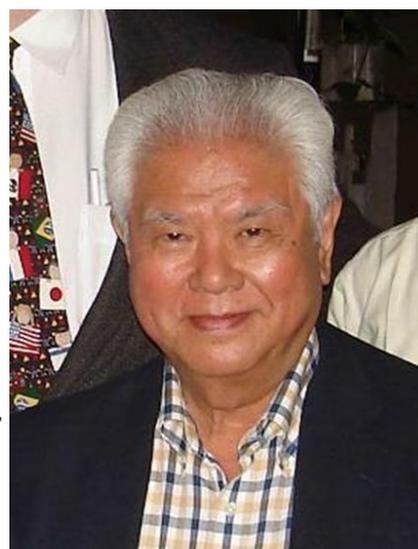


Pioneer of Lung Cancer and Mediastinal Tumor Pathology: Remembering Dr. Yukio Shimosato

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Dr. Yukio Shimosato, a pioneer in the field of lung cancer and mediastinal tumor pathology, passed away on October 22, 2021, at the age of 90. Dr. Shimosato served as chairperson at the Department of Pathology, National Cancer Center Tokyo, from 1980 to 1996. He was one of the leaders in formulation of lung cancer classification standards, as shown in the photograph



of the WHO Expert Committee on Lung Cancer taken in Geneva, Switzerland, on October 24, 1977, after which his contributions continued, including the 1999 and 2004 WHO classifications of lung cancer. Dr. Shimosato was also involved in establishing the Pathology Committee of the IASLC and an original panel member together with Drs. Mary J. Matthews, Fred R. Hirsch, Adi Gazdar, and Raymond Yesner. He served as a panel member from 1983 to 1998 and also participated in publication of the second and third editions of the WHO classification of lung cancer. At the 7th World Lung Cancer Conference in 1994, Dr. Shimosato received a Merit Award for his lifelong dedication to lung cancer research.



World Health Organization Expert Committee on Lung Cancer, Geneva, Switzerland, October 24, 1977: standing (right to left): Raymond Yesner, Chairman (USA); Dr. Wong (WHO); Roger Seal (Wales); WHO Representative; Herbert Spencer, MD (England); Leslie Sobin (WHO), Leiv Kreyberg (Norway); Yukio Shimosato (Japan); P. Mirejovsky (Czechoslovakia); E. Chaves (Brazil); J. Chretien (France); and K. Shanmugaratnam (Singapore). Seated (right to left): Dr. Sobin's secretary; L. G. Olchovskaya (USSR); Mary Matthews (USA); L. Hochholzer (USA); and O. Campobasso (Italy).

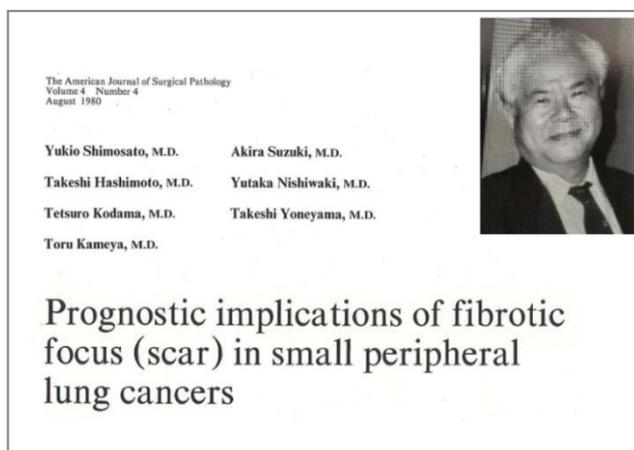
Until retirement from his wide-ranging academic activities, Dr. Shimosato published more than 300 articles, book chapters, and commentaries. Several of the major ones are summarized below. Along with outstanding academic achievements, Dr. Shimosato also provided tutelage for a large number of pathologists, surgeons, and oncologists in Japan and around the world, including Drs. Tsuguo Naruke, Ryosuke Tsuchiya, Tetsuro Kodama, Masayuki Noguchi, Akihiko Genma, Hisao Asamura, Yoshihiro Matsuno, and William Travis. In addition, his approach to thoracic pathology has had great influence on many researchers.



Dr. Yukio Shimosato and his wife, Kazuko, at his retirement celebration on March 15, 1996.

One of his early achievements was his work with bronchoscopy. In 1996, Dr. Shigeto Ikeda, a Japanese pulmonary oncologist, developed a flexible bronchoscope. This advancement allowed Dr. Ikeda and Dr. Shimosato, as well as other bronchoscopists in Japan to examine a series of hilar-type squamous cell carcinoma specimens. Based on those findings, Dr. Shimosato histologically classified the hilar lesions and proposed the concept of dysplasia-carcinoma sequence.

Dr. Shimosato also published an article presenting a dissenting opinion regarding “scar cancer” (*Narbenkrebs*), i.e., that tumors arise from fibrotic scars remaining after healing of some inflammatory lesions. The scar cancer concept had been accepted days, while his report at the beginning of the 1970s led to a paradigm shift. Dr. Mei Suzuki, supervised by Dr. Shimosato, analyzed 58 lung cancer specimens each with a diameter of less than 3 cm and found that such dense scars were formed during the course of malignant progression and not premalignant lesions of peripheral lung adenocarcinoma. He also observed that more dense scarring indicated a



Slide from a lecture, entitled “Morphogenesis of lung adenocarcinoma; What Dr. Shimosato’s pathology led us”, by Yoshihiro Matsuno, Hokkaido University, presented at Learning Expertise in Thoracic Surgery 2021, held in Tokyo on Sep 23, 2021.

more aggressive type of lung adenocarcinoma associated with an unfavorable prognosis. It was concluded that such scarring in lung adenocarcinoma was formed as a consequence of a biological reaction with the host during tumor development. Publication of this article led to widespread acceptance of cancer-associated scarring among many pathologists.



Photo taken at farewell party for Dr. Melissa Upton, who was a member of Dr. Shimosato's lab at the National Cancer Center Research Institute, Tokyo. Left, Dr. Shimosato; center, Dr. Upton; and right, Dr. Hirohashi.

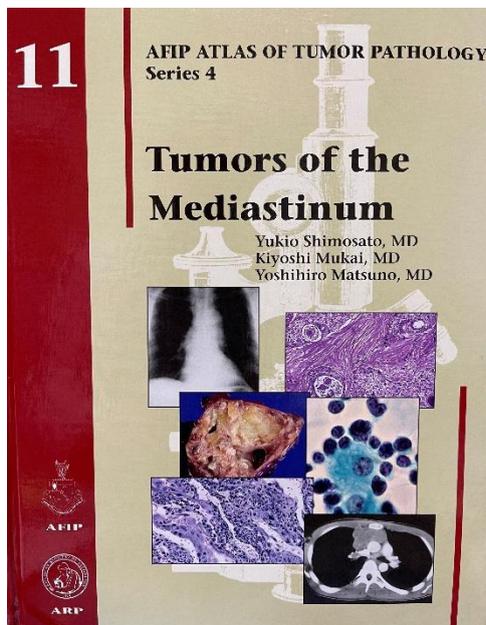
Dr. Shimosato was deeply involved in establishing the 1999 as well as the 2004 WHO classification of lung cancer, though he had also proposed his own classification for lung adenocarcinoma. That classification was unique, as it focused on cancer cell type by dividing adenocarcinomas into five subtypes; bronchial surface epithelium, bronchial gland, goblet cell,



2004 World Health Organization Writing Committee, Lyon, March, 2004: left to right: back row: Keith Kerr, Henry Tazelaar, Robert Loire, Alan Burke, David Dail, Elisabeth Brambilla, Allen Gibbs, Francoise Galateau-Salle, Francoise Bijuit-Thivolet, Paul Kleihues, Mojgan Devouassoux-Shisheboran, Michael O. Kurrer, Peter Möller, Bryan Corrin, and Andrew Nicholson; middle row: Victor Roggli, Andrew Churg, Alex Marx, Fabio Menestrina, Masayuki Noguchi, Douglas Flieder, Adi Gazdar, Philip Haseltion, Konrad Muller-Hermelink, and Thomas Colby. Front row: Wilbur Franklin, Leslie Sobin, Yukio Shimosato, Nancy Harris, Tseng-tong Kuo, Philip Cagle, Fred Hirsch, and William Travis.

club cell, and type II pneumocyte. This classification based on cellular characteristics is partially reflected in the molecular subtypes proposed by the TCGA project and also influenced the concept of the two-compartment model by Adi F. Gazdar, a giant in the field of molecular pathology, who passed away in 2019.

Dr. Shimosato also was a world leader in mediastinal tumors with many classical articles on thymoma and thymic carcinoma. In addition to contributions on thymic tumor classification, the article by Koga et al making a minor modification of the Masaoka System for Staging of thymic epithelial tumors is highly cited and had a significant impact on staging and management of thymic epithelial tumors. His many contributions to mediastinal pathology resulted in the invitation to be the lead author for the 4th Series AFIP Fascicle on Tumors of the Mediastinum, which he co-authored with Drs. Kiyoshi Mukai and Yoshihiro Matsuno and this was published in 1995.



Dr. Shimosato was one of the founders of the Pulmonary Pathology Society (PPS) which was organized at the United States and Canadian Academy of Pathology (USCAP) 84th Annual Meeting, Toronto, Ontario, March, 1995, and also the founder of the Japanese PPS (JPPS). All members of PPS and JPPS hope that the soul of Dr. Shimosato may rest in peace and be always with us.