

# What's new in the WHO classification of tumors of lung and pleura

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The World Health Organization (WHO) tumor classification fascicles (*so-called Blue books*) are periodically updated in light of significant changes in the understanding of new tumor entities identification, tumor prognosis and innovation of immunohistochemical stains and/or molecular biology of tumors. Information on pathologic and genetic classification and grading of tumors are used worldwide and the *WHO Classification of Tumours of the Lung, Pleura, Thymus and Heart* was updated in 2015<sup>1</sup>. In this monographic issue of *Pathologica*, expert pathologists of the Pleuro-Pulmonary Pathology Group (GIPP) have selected important topics of pleuro-pulmonary pathologies to review and discuss based on the news contained in the new 2015 *Blue book*.

In particular, Kuhn and colleagues<sup>2</sup> have critically reviewed the new classification of pulmonary adenocarcinoma, the neoplasm becoming the most common lung tumor accounting for more than 50% of all pulmonary malignancies<sup>3</sup>. The authors also illustrated the morphologic criteria in the differential diagnosis between reactive and neoplastic glandular proliferations as well as the role of immunostains in defining unusual variants of adenocarcinoma and in discriminating primary versus metastatic adenocarcinomas.

Ascoli and collaborators<sup>4</sup> reviewed the diagnostic, prognostic and predictive features of pleural mesothelioma. The authors discussed the use of ancillary techniques in the differential diagnosis of reactive and malignant mesothelial growths, the possibilities in diagnosing mesothelioma on cytology based on new international guidelines and novel findings of molecular biology of familial and sporadic mesotheliomas<sup>5-8</sup>.

Since the identification of epidermal growth factor receptor (*EGFR*) mutations in lung adenocarcinoma in 2004 and the other targetable oncogenes (e.g., *ALK*, *BRAF*,

*ROS1*), the role of pathologists in the choice of therapeutic strategies in lung cancer has radically changed<sup>9,10</sup>. Barbareschi and co-authors<sup>11</sup> have analyzed the use of various tumor tissue (cytology and histology), including the advent of liquid biopsy, to determine present and future predictive biomarkers and the new methodologies that presumably will characterize the future laboratory of predictive molecular biology.

Finally, Mengoli and co-workers<sup>12</sup> introduced the clinic-pathologic and immunohistochemical and molecular characteristics of the new tumor entities that have been included into the 2015 WHO classification of lung tumors, then detailing on myxoid sarcoma, PEComa, carcinoma with NUT translocation (NUT-carcinoma), myoepithelial tumor/carcinoma, angiomatoid fibrous histiocytoma, pneumocytic adenomyoepithelioma and ciliated muconodular papillary tumor.

As highlighted from the contributions of the colleagues here, the new WHO classification has changed several aspects of the pathologists' routine practice and represents a modern integrated clinical, radiologic, and molecular approach to deal with thoracic cancer.

We are entirely sure that the contributions included here will enjoy the readers in increasing the knowledge of several features of neoplastic thoracic pathology.

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