

Immunohistochemical expression of EML4-ALK in NSCLC in Greece: first results (2015-2017)

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Presentation

In 2012, lung cancer was the most frequently diagnosed cancer and the leading cause of cancer death in both sexes, around the world [1]. The World Health Organization (WHO) estimates that lung cancer is the cause of 1.59 million deaths globally during the same year [1].

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Non-small cell lung cancer (NSCLC) accounts for 85%–90% of all lung cancers, while small cell lung cancer (SCLC) has been decreasing in frequency (from 17% to 13%) in many countries over the past two decades [2].

In Greece, between 2009 and 2013, according to the cancer registry of the Hellenic Society of Pathology (HSP), primary lung cancer is the third most frequent malignancy among men and the fourth among women (unpublished yet data).

In NSCLC a number of genetic alterations have been identified, two of which—EGFR mutations and the ALK (anaplastic lymphoma kinase) rearrangements—determining a now approved selective pathway-targeting systemic therapy. ALK fusion is encountered more frequently (but not exclusively) in never smokers or light smokers, younger patients, and the adenocarcinoma subtype, with a prevalence of around 5% for adenocarcinomas.

Treatment with ALK tyrosine kinase inhibitors is effective and nowadays it constitutes an approved first-line therapy.

Immunohistochemistry, when appropriately validated and subjected to external quality assurance, has a high positive and negative predictive value for ALK fusion detection.

Keeping up with recent data, the Hellenic Society of Pathology designed a prospective study regarding ALK immunohistochemical expression, which started in November 2015.

Tumor tissue of primary, locally advanced or metastatic NSCLC, obtained from surgical specimens, fine-needle biopsies (FNB), bronchial biopsies or formalin-fixed, paraffin embedded cell blocks, were used.

The project was scheduled to be performed utilising the Ventana BenchMark XT or BenchMark GX fully automated slide stainers, with the VENTANA anti-ALK (D5F3) Rabbit Monoclonal Primary Antibody, the OptiView DAB IHC Detection Kit and the OptiView Amplification Kit. Sixteen (16) laboratories (of the public or private sector) with experience in handling lung carcinoma specimens participated in this project, and most of them have been participating in external quality control programs (exclusively UKNeqas).

Until today, 1415 cases were examined, most of which were FNB and bronchoscopy specimens. Of these 1415 cases, 53 were interpreted as positive, giving a positivity percentage of 3.75%.

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References

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