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P 050 - Development of the Genetic Marker Panels for an Early Diagnosis of Lung Cancer in Kazakhstan

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In the list of causes of death rates in Kazakhstan oncological diseases ranks second. The situation is caused by the fact that most tumors are detected in the latest stages of disease because of the fact that early diagnosis isn't popular among the population. For introducing the latter it is necessary to identify the most common mutation in Kazakhstan. In this connection the aim of our study is to developing the panel of genetic markers for an early diagnosis of lung cancer in Kazakhstan.

The study is being performed on a cohort of the lung cancer patents from Almaty city and its vicinity diagnosed and underwent treatment at the Almaty Oncology Center. A panel of the major lung cancer susceptibility and driver genes including EGFR, KRAS, ALK, HER-2/*neu*, FGFR1, PIK3CA, ROS-1, c-MET, BRAF, and BORIS was selected in order to detect EGFR, KRAS germline genomic polymorphisms by PCR with subsequent analysis of RFLP (Restriction Fragment Length Polymorphism), gene deregulation in the tumors by detecting gene/chromosome rearrangements, amplification events by FISH (Fluorescence *In Situ* Hybridization) and gene upregulation at the protein level by IHC (Immunohistochemistry). The lung cancer TMA (Tissue MicroArray) from Kazakhstan was constructed and analyzed in the FISH and IHC studies. The results of the Molecular Profiling study of the lung cancer from Kazakhstan will be presented.

P 051 - Nuclear Localization of CD133 Plasma Membrane Glycoprotein in Sarcoma Cells

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CD133 is a cell surface glycoprotein that is widely used for the identification of stem cells. Furthermore, its glycosylated epitope, AC133, has recently been discussed as a marker of cancer stem cells in various human malignancies. During our recent experiments on rhabdomyosarcomas (RMS), we unexpectedly identified an atypical nuclear localization of CD133.

We analyzed the nuclear localization of CD133 using 5 RMS cell lines in a detailed study. First, we employed three independent anti-CD133 antibodies (both rabbit polyclonal and mouse monoclonal) for indirect immunofluorescence. Furthermore, confocal microscopy followed by software cross-section analysis, transmission electron microscopy and cell fractionation with immunoblotting were used for verification and results undeniably confirmed the presence of CD133 in the nuclei of stable minor subpopulations (from 3,4 to 7,5%) of RMS cell lines.

Thereafter, the same nuclear localization was confirmed also in two other types of sarcomas: Ewing's sarcoma and osteosarcoma. Although the roles of CD133 in the cell nucleus remains unclear, our results indicate that this atypical nuclear localization of CD133 in a minor subpopulation of cancer cells is a common phenomenon in sarcoma cell lines.

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