

## Lung cancer molecular profiling in clinical practice

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Lung cancer is the leading cause of death from cancer for both men and women worldwide. Majority of lung cancer patients are in the advanced stage at the time of diagnosis and palliative management with chemotherapy and/or radiation being the treatment of choice. The overall response rate is low with a five year survival for a late stage disease being only about 4-5%. These conventional methods also cause significant cytotoxicity /adverse effects to the patients. Recent advances in lung cancer molecular genotyping provide the basis for personalized targeted therapy. It targets the individual's genetic makeup with encouraging clinical outcomes for highly selected lung cancer patients. Current treatment options are available against lung cancer cells exhibiting mutations of the genes encoding the epidermal growth factor receptor (EGFR) and anaplastic lymphoma kinase (ALK) by inhibiting tyrosine-kinases associated with the mutant genes. There are a variety of mutant genes in lung cancer cells which cause cancer cell proliferation, and many of these genes are mutually exclusive. Over 600 cases of surgically resected non-small cell lung cancer including adenocarcinoma, squamous cell carcinoma, large cell carcinoma and a miscellaneous group were selected for the study and all of them were investigated by molecular analysis for six possible gene mutations including KRAS, EGFR, ALK, BRAF, PIK3CA, and HER2 in a multiplexed fashion. The results of the molecular tests were crossed against the clinical data and pathological findings for each case to determine any correlations among them. The analysis yielded positive correlations between presence of a mutation with gender, survival rate, cancer type, vascular invasion and smoking history. The study provides valuable information of lung cancer molecular profiling in the clinical setting with significant impact in the clinical practice.

### Biography:

Dr. Zhaolin Xu, MD, FRCPC, FCAP, is a professor in the Department of Pathology, Dalhousie University, and a pulmonary pathologist and cytopathologist in the Queen Elizabeth II Health Sciences Centre in Halifax, Canada. He obtained Fellowship Certifications from both the Royal College of Physicians and Surgeons of Canada and the American Board of Pathology. In addition Dr. Xu is a cancer researcher and holds the position of Senior Scientist in the Beatrice Hunter Cancer Research Institute, Canada. He is the Expert Panel Member in the Lung National Cancer Pathology and Staging Multidisciplinary Expert Panel, Canadian Partnership against Cancer (CPAC). He is also the Chair of Pathology Working Group and Network Member, Pan-Canadian Lung Cancer Screening Network, CPAC, and Medical Advisory Committee Member, Lung Cancer Canada.