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Molecular profiling of cancer cells: Strategies for developing biomarkers for targeted therapies of cancer

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Cancer is developed due to the exposure of cells to various carcinogens which cause DNA damage as well as from genetic predisposition, where gene mutations are inherited from affected parents. Some forms of breast, colon and esophageal cancer are proved to be hereditary cancers and early detection of these cancers is very much essential. One of the main goals of cancer research is to identify molecules which are deregulated in the process of cancer development which can be used for early detection of cancer as well as to target cancer cells in vivo condition. These molecules are called biomarkers. The molecular biomarkers are mainly identified by using genomics, proteomics or imaging technologies such as PCR, Microarrays, FISH, etc. After completion of human genome project, the major challenge in oncology is to translate genetic information by advancement in several gene based technologies for diagnosis and management of various types of cancers. Recently, molecular profiling of tumor cells is also being used to determine specific types of malignancy. However, very few biomarkers are currently used as prognostic or predictive markers. Therefore, there is a great need to have a better understanding of new biomarkers of cancers and to translate them for use in early diagnosis and possible targeted therapies of cancers. This presentation will highlights most of the specific biomarkers which are presently used as a prognostic and predictive markers for breast, lung, colon, prostate, pancreatic and hematological cancers in human along with possible development in finding new biomarkers for better therapy.

Biography

Pravin D Potdar has completed his PhD from Cancer Research Institute, Tata Memorial Centre Mumbai in year 1991. He has worked as a Senior Scientist for 20 years at Cancer Research Institute (Present ACTRECT), and did extensive research on establishing Biomarkers for early detection of lung, breast and oral cancers. He has more than 30 years of research experience in the field of cellular and molecular biology of cancer and other genetic disorders. He was a Fellow of National Institute of Health (NIH), USA and also worked as a faculty at M.D. Anderson Cancer Centre, Houston, Texas, USA for 3 years. He is a recipient of prestigious National Cancer Institute, NIH, USA and a Birla Smarak Kosh, Mumbai awards for his contribution in cancer research. Presently, he is heading Department of Molecular Medicine & Biology at Jaslok Hospital & Research Centre, Mumbai for last 9 years. He has successfully sequenced BRCA1 and BRCA2 genes and Wilson Diseases gene in his laboratory and discovered specific novel mutations in Indian population. He is associated with many organizations and hold positions in their committees. He was honored with position of a Secretary for Scientific Advisory and Ethics Committee of Jaslok hospital for 5 years. He is presently "Vice President" of "Molecular Pathology Association of India (MPAI), upcoming organization in the field of Molecular Pathology. He has more than 50 publications in national & international journals, appointed as a reviewer for many national and international journals and attended several conferences, workshops

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