

## 2<sup>nd</sup> International Conference on **Predictive, Preventive and Personalized Medicine & Molecular Diagnostics**

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## Epigenetic and genetic approaches in personalized medicine in cancer

Cancer is a genetic and epigenetic disease. Biomarkers identified recently have helped in cancer detection, diagnosis, prognosis, and follow up of survival. Cancer is one of the leading causes of death in the United States, and more than 1.5 million new cases and more than 0.5 million deaths were reported during 2010 in the United States alone. Following completion of the sequencing of the human genome, substantial progress has been made in characterizing the human epigenome, proteome, and metabolome; a better understanding of pharmacogenomics has been developed, and the potential for customizing health care for the individual has grown tremendously. Recently, personalized medicine has mainly involved the systematic use of genetic or other information about an individual patient to select or optimize that patient's preventative and therapeutic care. Molecular profiling in healthy and cancer patient's proteinaceous, genetic, and metabolic profile could be used to tailor medical care to that individual's needs. A key attribute of this medical model is the development of companion diagnostics, whereby molecular assays that measure levels of proteins, genes, or specific mutations are used to provide a specific therapy for an individual's condition by stratifying disease status, selecting the proper medication, and tailoring dosages to that patient's specific needs. Additionally, such methods can be used to assess a patient's risk factors for a number of conditions and to tailor individual preventative treatments. Recent advances, challenges, and future perspectives of personalized medicine in cancer are discussed.

## Biography

Mukesh Verma is a Program Director and Chief in the Methods and Technologies Branch (MTB), Epidemiology and Genetics Research Program (EGRP) of the Division of Cancer Control and Population Sciences (DCCPS) at the National Cancer Institute (NCI), National Institutes of Health (NIH). Before coming to the DCCPS, he was a Program Director in the Division of Cancer Prevention (DCP), NCI, providing direction in the areas of biomarkers, early detection, risk assessment and prevention of cancer, and cancers associated with infectious agents. Dr. Mukesh Verma holds a M.Sc. from Pantnagar University and a Ph.D. from Banaras Hindu University. He did postdoctoral research at George Washington University and was a faculty member at Georgetown University. He has published 136 research articles and reviews and edited three books in cancer epigenetics and epidemiology field.

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