Integrative Biology-2013
OMICS Group Conferences
Accelerating Scientific Discovery
International Conference on
Integrative Biology Summit
August 5-7, 2013 Embassy Suites Las Vegas, USA

The power of next generation sequencing and cancer

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Abstract

Next-Generation Sequencing (NGS) has significantly impacted life sciences research and revolutionized the approach to identify disease-linked genes including cancer. This high throughput sequencing of different cancer related genes is an essential step towards a deeper understanding of the cause and mechanism at the sequence level. NGS technology, in addition to providing information on gene expression alterations and isomer expression, identifies mutations (somatic and germline), deletions and amplifications. This molecular information of the cancer genome thus made available will be instrumental in providing insights and opportunities for novel approaches for targeted interventions for the treatment of cancer. The final outcome would be the possibility of routine cancer diagnostic tests and molecularly guided therapies in terms of formulating individualized treatment which will have fewer side effects.

The diagnostic applications of next-generation sequencing in clinical settings will eventually become a cost-effective and a feasible prospect. The importance of next-generation sequencing technology and the recent advancements and implementation of NGS data with special reference to cancer will be discussed.

Biography

Dr.Shashi Bala completed her Ph.D. from the University of Delhi, India, and post-doctoral studies in molecular biology/genetics of cancer from Institute of Human Genetics, University of Erlangen, Germany, and Human Cancer Genetics Division, The Ohio State University, Columbus, Ohio. She has worked at the Fels Institute for Cancer Research & Molecular Biology, Temple University, and is currently an Associate Wistar Scientist at The Wistar Institute, a prestigious NCI funded Cancer Institute. She has publications in peer-reviewed journals and has been a reviewer of research papers and international research grant proposal.