Science of omics and its role in human health care

Nawin Mishra
University of South Carolina, USA

Omics is derived from term Ome which means to include a complete description of a system. Thus, genome is derived from gene to become genome and genomics means the complete description of all genes or DNA sequences in a cell or in an organism. Likewise, proteome is derived protein and proteomics included the description of entire proteins of a cell or an organism. Advances in Genetics led to the development of the Sciences of omics and system Biology. They provide the tools for a better understanding of human diseases and for the development of new drugs and ultimately the possibility of personalized medicine. It is now possible to determine the entire DNA sequence of a genome as well as the entire protein sequence of a proteome in any organism because of the coming of throughput technologies and Bioinformatics. Thus omics includes genomics, epi-genomics, proteomics, metabolomics and similar branches of science which describe the characteristics of a cell and its components. Several conceptual and technological advances in Genetics, Bioinformatics and Molecular Biology made possible the emergence of the science of omics. My presentation will discuss some of these advances and the role of the science of omics in human health care including precision medicine.

Speaker Biography

Nawin Mishra received his B. S (Honors) and M.S degrees from Patna University (then nicknamed as Oxford of the East) in India and Ph. D Degree from McMaster University. He received his post –doctoral training with the late Nobel Laureate Professor E. L. Tatum at the Rockefeller University. He was a Fellow for Medical Research of the Jane Coffin Child Fund of the Yale University at the Rockefeller University for two years and then Research Associate with Professor Tatum where he initiated his work in what is now called as Proteomics and Metabolomics. There he also devised the first gene transfer in a eukaryote, Neurospora crassa. Later he joined the University of South Carolina Molecular Biology Group and Chairman of the Microbiology dept in the Medical School and remained as Professor of Genetics in the Dept. of Biological Sciences. He was also a Visiting Professor at the Max Planck Institute for Molecular Biology in Heidelberg, Germany and in Genetic Institute of Greenwood, SC. In addition to a large number of articles published in leading journals, he has published two books by John Wiley & Sons of New York, one on Proteomics in 2010, this book has been endorsed by Nobel Laureate Professor Gunter Blobel.

e: ncmishra@mailbox.sc.edu

Notes: