

3rd International Conference and Exhibition on **Biosensors & Bioelectronics**

August 11-13, 2014 Hilton San Antonio Airport, San Antonio, USA

Differentiating disease from health using nanotechnology and microfluidics

Samir M Iqbal

University of Texas at Arlington, USA

Cancer has been the most fatal disease for last several decades. Some types of cancers remain silent at early stages and are usually diagnosed at advanced and incurable phases. Some other types result into poor survival rates owing to recurrence and metastasis. Early detection of cancer and non-intrusive approaches to monitor prognosis can have immediate and far-reaching impacts on the lives of cancer patients. Diseases are initially expressed at molecular and cellular scales and identification of specific markers at such small scales would be a great step toward early detection. The study of biological molecules and diseased cells require sensing devices with molecular selectivity. Bio-nanotechnology and BioMEMs have proven promise to go down to the cellular/molecular scales with unprecedented selectivity. This talk will focus on recent advancements in fabricating nanoscale devices and nano-object mediated modalities that allow probing, detection and characterization of biological entities, their development and interactions. The state of the art in microfabrication and nanotechnology that has facilitated techniques to examine the presence or absence of particular disease biomarkers at molecular and cellular scale will be discussed. Some work done in my lab on the integration of biomedical engineering, nanoscience and nanotechnology, with particular focus towards their application in diverse areas like nanomanufacturing, molecular diagnostics, chip-based recognition of cancer cells and site-specific controlled drug delivery systems will be presented.

Biography

Samir M Iqbal received his Bachelor's in Electrical Engineering from NED University of Engineering and Technology, Karachi, Pakistan, in 1997, and earned his PhD from Purdue University, West Lafayette, Indiana, USA in 2007. He worked as a Post-Doctoral Research Associate in the Discovery Park of Purdue University before joining University of Arlington in 2007. He holds courtesy appointment in the Department of Bioengineering which is a joint program of the University of Texas at Arlington and University of Texas Southwestern Medical Center at Dallas. He is the director of Nano-Bio Lab and has published more than 35 papers in reputed journals.

smiqbal@uta.edu