Abstract

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Microfluidic based Biosensing Technology Platforms for Detection of Biochemical Markers

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Abstract

The diagnosis of several serious diseases and medical conditions can be effectively performed by testing for specific molecules present in the body fluids. And the current strategies for diagnosing the diseases ranging from chronic to infectious conditions suffer from serious limitations, in terms of cost, availability, and effectiveness. Past several years, the microfluidics technology is shown as a promising technology for disease diagnosis, prognosis, and screening. This talk primarily focuses on highlighting the scientific insights involved in developing the microfluidics-based technology platforms for biomarkers detection. The fundamental aspects such as surface engineering, fluid- wall-molecular interactions, effect surface energies, biomolecular densities, orientations along with effect of nature of fluids such polar, electrolytic solutions while flowing in the microfluidic channels would be presented. In addition, the technological efforts in developing Si, Glass, Paper, and hydrogel-based sensing systems and translational efforts would be discussed. Further, future research directions in the development of biosensing technology for diagnosing various disease condition would also be discussed.

Biography

Dr. Ramchander Chepyala obtained a Ph.D. from IIT Kanpur, an M.Tech from the IIT Madras, and a B.Tech from NIT Warangal, all in Chemical Engineering. He did his post-doc in microfluidics and biosensors from IIT Bombay, MIT, USA and worked as a Scientific Researcher at FPC@DCU at DCU, Ireland. His research focuses on chemical sensors, microfluidics, lab on chip technologies and the accompanying transport, reactions. He published several scientific articles, book chapters, conference proceedings, and filed five patent applications. He co-founded GATEcounsellor, a web platform to promote higher education in India and #scibash.com that helps in providing information on funding, investment, relief and similar opportunities to start-ups.

