**ABSTRACT**

This project mainly aims about using of NANOTECNOLOGY to analyze molecular mechanisms of different kinds of cancers. Nanotechnology which includes biotechnology has recently been applied to study various cellular processes, such as cell cycles and cell migration, providing rich spatial and temporal phenotype information. Many opportunities and challenges exist in combining nanotechnology with genomics signal processing techniques to develop more accurate and sensitive biomedical devices for cancer genomics and proteomics to obtain a better understanding of the cellular and molecular mechanisms of different kinds of cancers. In this article, we present the applications of new nanotechnology treatments using nanoscale that include nanoparticles and devices for genomic signal processing (GSP) in cancer research.