

## A Role of Nanotechnology In Biomedical Applications

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### ABSTRACT

Nanotechnology is the application of Nano science which is the study of Nanometer size material below 1 micrometer (1 $\mu$ m) size. Nano scale is defined in Nano meter ( $10^{-9}$ ). In recent years Nanotechnology is the most active research field and it has the ability to control and manipulate matter in Nano size. Nanotechnology is combine knowledge from the fields of Physics, Chemistry, Biology, Medicine, Engineering and informatics. All field interaction nanoparticles deal about less than 100 nanometers. Naturally, some particles are obtained such as minerals, catalysis and some porous materials they have same properties, particularly the Nano scale features. Some nano material can be artificially produced and used for multiple applications. One of the major fields of benefit is biomedical applications. This article is analyzed specifically for biological applications of nanotechnology. A list of some specific biological applications of nanotechnology is Smart drug delivery system, gene therapy, drug therapy, MRI contrast enhancement. Progress in nanotechnology and its application in medicine have provided new opportunities and different smart systems. Such systems can improve the intracellular delivery of the drugs due to their multifunctionality and targeting potential. In drug therapy, we face problems of inefficacy or nonspecific effect hence; nanosystems are developed for target drug therapy. In gene therapy using non-viral systems, nanotechnology is used so that non-viral systems can be developed that are as effective as viral systems in gene transfection. Nano-MRI drastically expands the capabilities of traditional MRI down to the nanometer scale.