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Editorial

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Editorial on Advanced Nanomedicine

Manu Mitra*

Alumnus of University of Bridgeport, Department of Electrical Engineering, Bridgeport, Connecticut, United States

***Corresponding author**
Manu Mitra, Alumnus of University of Bridgeport, Department of Electrical Engineering, Bridgeport, Connecticut, United States, E-mail: mmitra@my.bridgeport.edu

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Introduction

In advanced nanomedicine not only construction and repairing of human biological systems; but also monitoring and controlling can be implemented using nanostructures and nanobots at molecular level. The future of nanomedicine is not only riveting but also captivating in most of the areas of human biological system. Few of them are discussed below from abundant advanced nanomedicine research which will aid in the long run.

Smart Drugs Using Gold Nanoparticles

Gold nanoparticles made of gold atoms having diameter of around billionths of a meter which can be coated with a biological protein and combined drugs to enable the treatment to transport through the body and reach the affected area. This technique was developed by scientist from University of Lincoln, UK. It is used to 'decorate' gold nanoparticles with a protein of choice so that they can be used to tailor drug to more precisely target an area on the body, for instance cancer tumor.

Novel Nanomedicine in Progression of Pancreatic Cancer

Pancreatic cancer is one the most aggressive cancers known today. Prof. Ronit Satchi-Fainaro Et al. has examined pancreatic cancer cells and designed an inverse correlation between the signatures of miR-34a, a tumor suppressant, and PLK1, a known oncogene. Levels of miR-34a were low in pancreatic cancer mouse models, although the levels of oncogene were high. This correlation made sense for an aggressive cancer. Then researchers performed RNA profiling and analysis of samples were taken from pancreatic cancer patients. The molecular profiling discovered the same genomic pattern that was found earlier in mouse models of pancreatic cancer.

Then scientists invented a novel nanoparticle that selectively delivers genetic material to tumour and avoids side effects in neighboring healthy tissues.

Fluorescent Nanomedicine can Kill Remaining Cancer Cells

Researchers from Oregon State University have created a nanomedicine platform for cancer that can assist doctors to know which tissue to cut out as well as kill any malignant cells that cannot be surgically removed.

Nanoparticles tightly loaded with a dye complex compound injected intravenously or into the peritoneum, the abdominal cavity. When it reaches at the tumour site, the tumour's intracellular environment effectively flips the switch on the compounds fluorescence. Any glowing areas that can't be removed are given phototherapy; irradiated with infrared laser, which causes nanoparticles to heat up and kill the left over cancer cells.

Nerve Cell Regeneration Through Nanomedicine

It is already known that injured neurons in the central nervous system do not regenerate. The ability to regenerate nerve cells in the brain cell could decrease effects of trauma and disease dramatically.

Dr. Mauris N. De Silva describes novel nanotechnology based that includes the use of magnetic nanoparticles and magnetic fields for addressing challenges associated with regeneration of central nervous system after injury. "By providing mechanical tension to the re-growing axon, we may be able to enhance the regenerative axon growth in vivo." This mechanically induced neurite outgrowth may demonstrate a possible technique for bypassing the inhibitory interface and the tissue beyond Central Nervous System (CNS) related injury.

Medical Nanobots for Tissue Repair

Academics have designed a medical nanobot which can repair tissue which uses three major functions. First to use nano laser to remove any infected cells including harmful bacteria and virus. Second is to clean the infected area using nano chemical to avoid remaining spores does not spread to other parts. Third is to repair the tissue. And because complex nature of work, multiple medical nanobots are introduced in to the body. All are programmed to identify infected/damaged tissue, clean and repair.

In conclusion, International Journal of Nanotechnology and Nanomedicine (ISSN: 2476-2334) will be dedicated to continue its responsibility to focus with the international research community to achieve clearest possible scientific picture on coming up extent of Nanotechnology and Nanomedicine for exceptional quality for human kind [1-6].

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