Research & Reviews: Journal of Pharmaceutics and Nanotechnology e-ISSN: 2347-7857
P-ISSN: 2347-7849

Nano-medicine in the Treatment of Human Tumours

George Orwell*

Department of Engineering and Technology, University of South Africa, Pretoria, South Africa

Commentary

Received: 30- May-2022, Manuscript No. JPN-22- 68519; **Editor assigned:** 2- Jun-2022, Pre QC No. JPN-22-68519 (PQ); **Reviewed:** 16- Jun-2022, QC No. JPN-22- 68519; **Revised:** 23-Jun-2022, Manuscript No. JPN-22-68519 (A); **Published:** 31-Jun-2022, DOI:10.4172/23477857.10.1.004

***For Correspondence:**
George orwell, Department of Engineering and Technology, University of South Africa, Pretoria, South Africa

E-mail: George@mail.edu.com

About the Study

The use of nano medicine in the treatment of human tumours has special benefits. New therapeutic approaches that can be utilised to combat viral infections and increase treatment efficacy have been made possible by nano medicine. Nucleic acids are used as pharmaceuticals in nucleic acid treatments, including DNA and RNA (which regulate genetic information). The drug discovery technology of the future, nucleic acid medicine, has a radically different mode of action than conventional pharmaceuticals.

We go over the various nucleic acid medications. The production of new nano carriers and medication delivery methods is essential for the advancement of nanomedicine. But there is still a lot to learn in the new subject of nanomedicine. We think about how nanotechnology and nanomedicine might be used to treat cancer. The development of cancer nanomedicine has historically concentrated on enhancing the transport and effectiveness of cytotoxic medicines into tumours. It is also taken into consideration to build immune-modulatory nanomedicine for cancer immunotherapy applications. Green nanomedicine refers to the use of ecologically friendly and green chemistry to the field of drug delivery based on nanotechnology.

When manufactured nano-devices and nano-structures are used to operate massively in parallel at the single-cell level, performing "single-cell medicine," the goal of nano-medicine is to comprehensively monitor, control, build, repair, defend, and improve human biological systems at the molecular level. Our approach to the diagnosis, treatment, and prevention of disease will change significantly as a result of the integration of nanoscale technology with the field of medicine. Instead of only treating diseases at the organ level, we will start diagnosing and treating illnesses at the single-cell level, for instance.

As it relates to nanomedicine, general principles of nanotechnology include:

1. The strategy used by cells to direct molecules within a cell and/or direct molecules or machines to the right cells in the body is known as biomimicry. Size and location influence biological effectiveness and biocompatibility. Design therapeutic systems with feedback control.
2. Engineer molecules to carry out certain physical functions, such opening ion channels, to change the behaviour of cells and organisms.
3. "Pseudointelligence" produced by intelligent design, such as Extracellular Matrix (ECM) molecular self-assembly.
4. A highly interdisciplinary endeavour, the development of nanotechnologies typically requires expertise in biology, engineering, chemistry, and physics. Living systems' functional characteristics are determined by both their component components and how they are put together. This assembly determines how the parts interact with one another, the kind and flow of information inside the system, and the outputs that the system generates.

Thus, one biological principle that may be crucial for the development of nanomachines in medicine is that spatial management of nanomachine distribution directly influences the effectiveness of macromolecular assembly and the type of the work product produced by this assembly. By using membranes and anchoring molecules to bring together substrates and enzymes, spatial control can be obtained (e.g., as occurs in the endoplasmic reticulum for synthesis of ECM proteins, in the mitochondrial membrane for electron transport, and on the cell surface for ECM ligand integrin-mediated changes in intracellular signaling).

The field of brain prosthetics makes use of this idea. On the other hand, this engineering strategy also enables molecular segregation (e.g., segregation of lysosomal enzymes from the cytoplasm). Engineered scaffolds that offer this spatial control can be made using techniques based on Micro Electro Mechanical Systems (MEMS) or Nano Electro Mechanical Systems (NEMS). To make artificial organelles that mimic those found in nature, one may alternatively use block co-polymer membranes or a synthetic lipid bilayer.