

Nano Technology in New Drug Discovery and Development

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DESCRIPTION

In terms of drug discovery and development, the current role of nanotechnology is to improve diagnostic methods, develop improved drug formulations and drug delivery systems to treat diseases. The revolutionary form of nanotechnology provides innovative solutions, providing researchers with stronger analytical capabilities and higher data quality, while reducing samples in storage and detection of molecules, cells, and libraries. The advancement of this technology is now beginning to overcome the initial challenges of insufficient performance, unreliable data, and various other issues.

The drug discovery industry has become a highly competitive market and continues to face the challenge of finding better drug discovery technologies. In a market that may face increasingly severe regulatory challenges, price pressures, and various other bottlenecks, the industry must discover and develop innovative drugs for various diseases. Today, almost all pharmaceutical companies follow a common technical process to discover drugs. These include the cloning and expression of human enzymes and receptors in a format that enables high-throughput, automated screening, and combinatorial chemistry applications. The genomics and proteomics revolution has provided a wealth of data on the molecular components of life, providing unprecedented targets and clues for the drug discovery industry.

In order to increase productivity and maintain thousands of market shares, pharmaceutical and biotechnology companies have invested heavily in innovative technologies in recent years to speed up the drug discovery and development process. Applications range from target identification and verification to clinical trials, management, marketing and sales. In the past decade, technological changes have allowed the drug discovery process to evolve into a system in which new targets for new lead molecules can be quickly discovered, sometimes difficult targets. Although miniaturized automated steps and robot-based strategies have greatly increased the throughput of compound synthesis and screening, they have only just begun.

The introduction of microarrays on a chip and laboratory technology (LOC) revolutionized the drug discovery process. These innovative technologies can generate high-value information in a short period of time, thus minimizing the guesswork involved in selecting drug candidates, leads, and targets. Now, more cutting-edge technologies, such as nanotechnology, will further simplify the drug discovery process, working at a much smaller level than traditional microarrays through miniaturization, automation, speed and reliability. The Nanotechnology Foundation originated from decades of research in many different fields. The chemical manufacturing of complex products including additional manufacturing systems, would become a very powerful technology was realized earlier. Nanometer technology, as the name suggests, refers to the research and development of technologies on the atomic, molecular, and macromolecular scale, leading to the research of structures and devices with controllable operations and length scales ranging from 1 to 100 nanometres. Objects on this scale, such as "nanoparticles," exhibit new features and functions that are significantly different from those seen on the body scale. The small size, surface customization, improved solubility, and versatility of nanoparticles have opened up many new avenues of research for biologists. The ability to interact with complex biological functions in new ways that operate at the scale of biomolecules are the new properties of nanomaterials.

The interdisciplinary researchers are provided with opportunities to design and develop multifunctional nanoparticles to detect, diagnose and treat diseases such as cancer with this rapidly growing field. In the field of drug discovery and development, the main focus of nanotechnology is to improve diagnostic methods, develop improved drug formulations and drug delivery systems to improve the treatment of diseases. The scientific community is paying increasing attention to the new chemical and physical properties of nanomaterial in order to develop new applications to improve human health.

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Received: November 23, 2021; **Accepted:** December 07, 2021; **Published:** December 14, 2021

Citation: Saranya S (2021) Nano Technology in New Drug Discovery and Development. J Bioequiv Availab.13:446.

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