

Drug Development and Recent Achieved

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Introduction

Developing a commercially successful drug involves a series of compromises. No more than 1% of drugs in the discovery and development pipeline will reach the marketplace. Failure rates are too high, and all too often drug candidates fail relatively late in development, having already consumed substantial time and resources. The pharmaceutical industry has poured millions of dollars into new technologies of drug development, automation, steps toward miniaturization, and robotics-based strategies.

In this regard, many advances have been made to date in basic sciences and genetics, including the recognition of the role of genetic differences in the illness of people, the use of genetic information of the patient in predicting how to respond to a specific drug, and It is also building new biological and recombinant drugs. Despite the potential of many of these technologies to revolutionize the drug system, many of them entering this field are subject to the development and advancement of novel methods in the design and manufacture of drug delivery systems in a smart and personalized way.

Recently, 3D printing and nanotechnology have come to the forefront of its high resilience to traditional pharmaceutical industry practices, as well as the ability to build systems with complex geometry and structure, as a solution to this challenge and to operate a customized drug delivery perspective.

3D printing

The high flexibility of this method provides many features in the customized delivery area. Including the possibility of making medicines with different doses of the therapeutic element based on age, gender, metabolic capacity, etc., making polypills to put all the

daily doses of a person in a pill, designing and constructing an implant High-compatibility medication with patient anatomy, or even the manufacture of attractive drugs to increase the acceptance of medication in children.

Nanotechnology

Currently, the use of nanoparticles (NPs) in medicine is rapidly expanding for diagnostic or treatment purposes. Unique properties of NPs include their small size, wide surface area and the ability to use NPs as a vehicle for the transport of other compounds. Nanoparticles can be used in the diagnosis of cancer, blood vessel visualization and single cells diagnostic.

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