

## Introduction

Nanotechnology and nanoscience's are commonly seen as providing a significant advantage to many areas of study and applications. Nanotechnology means the production and use of materials, equipment, and systems in nanoscale. The effect of nanotechnology on healthcare is already being felt, as different nanotechnology ideas have been developed in this pharmaceutical field

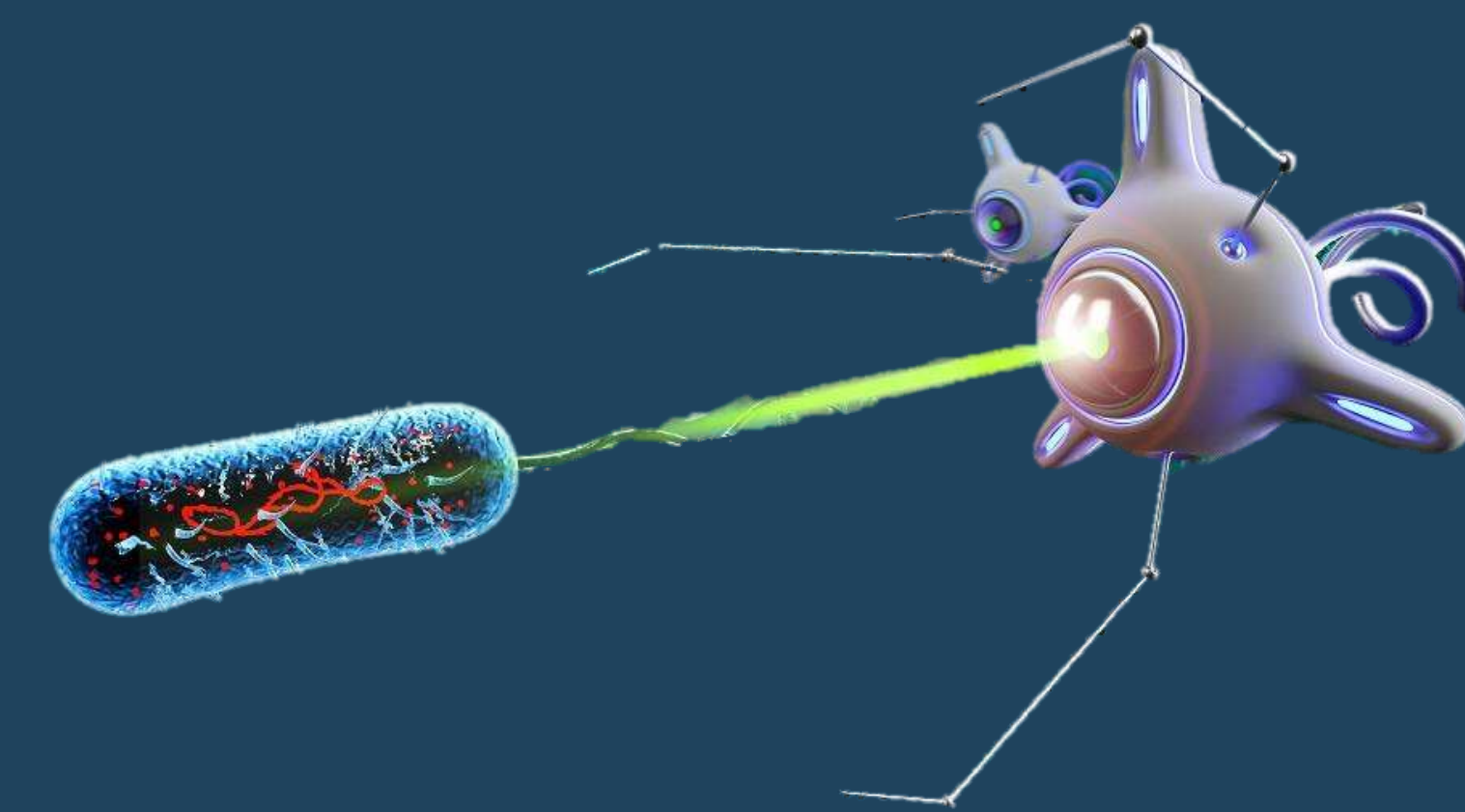
## Nanoparticles

Nanoparticles are colloidal particles, ranging from 1 to 1000 nm, and are mainly composed of different macromolecules in which the therapeutic drugs can be adsorbed, entrapped, or covalently attached

## Characteristics

- Nanoparticles should have the ability to be combined with ligands .
- Therapeutic agents should be completely released from nanoparticles at an optimal rate .
- Nanoparticles should be biocompatible, biodegradable .
  - Nanoparticles should be stable in storage .

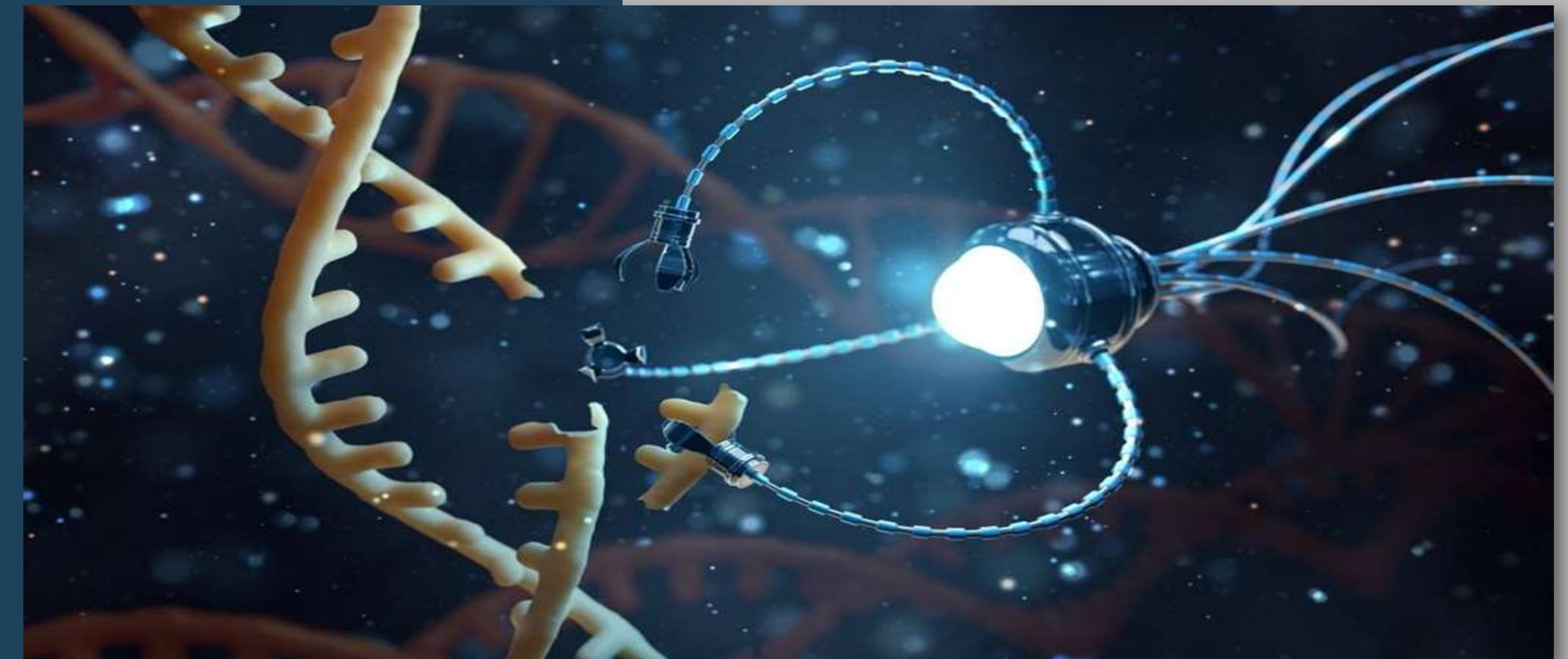
# Nanotechnology in The development of new drug regimens



## Examples

Name	Date	Active ingredient	Effect
Lipodox®	FDA 2003	Aprepitant	antiemetic
Abelcet®	FDA 1995	amphotericin B	antifungal

Baraah al-naout 3469  
Tasneem elkwafy 3405  
Rowida kosibat 3283



## Advantages

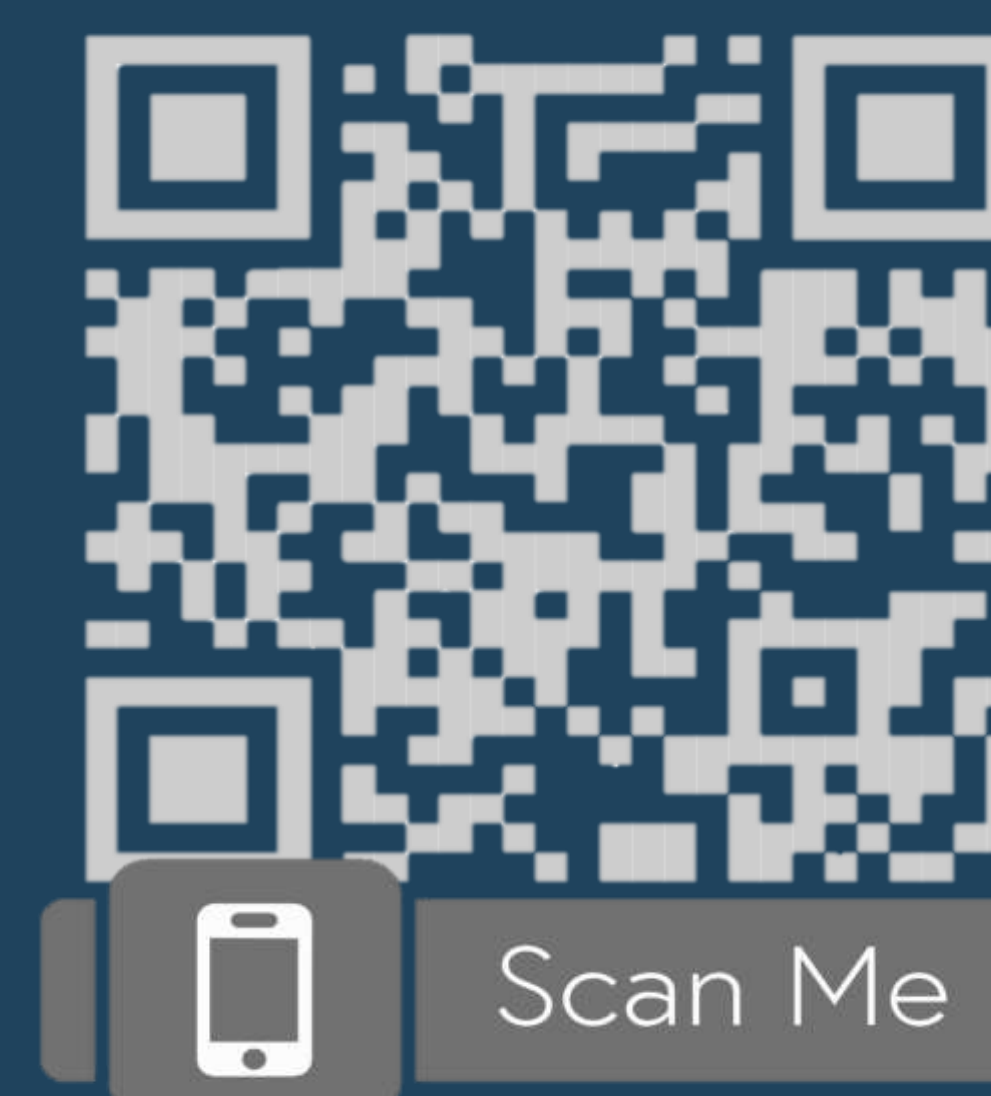
- Delivering therapeutic agents .
- Demonstrating better safety and efficacy.
- Releasing drugs at a constant rate .
- Allow passive targeting of malignancies .

## Reasons for failure

Failures emerged after clinical trials. The failures weren't in nanotechnology, as happened in 2019 after Merri mark Company Pharmaceuticals ended drug development due to clinical failure.

## The future outlook

Further advances in nanotechnology are expected to revolutionize medical care through more efficient, less toxic and smarter treatments that can be targeted at the site of the disease .



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