

Keywords: smart biomaterials; drug delivery; controlled release

Introduction

Smart biomaterials have revolutionized the field of drug delivery. These materials are designed to respond to specific stimuli, such as temperature, pH, or enzymes, to release drugs in a controlled manner. This allows for more precise and effective treatment of various diseases. In this article, we will explore the concept of smart biomaterials and their applications in controlled drug delivery.

1.

Understanding smart biomaterials

Smart biomaterials are typically composed of polymers that can change their properties in response to external stimuli. These polymers are often cross-linked to form a network that can swell or shrink depending on the environment. For example, hydrogels are a type of smart biomaterial that can absorb water and swell when exposed to it. This swelling can trigger a release of drugs from the polymer network.

2.

Applications in controlled drug delivery

There are many potential applications for smart biomaterials in controlled drug delivery. One example is the use of these materials to treat cancer. By targeting specific types of cells, smart biomaterials can deliver drugs directly to the tumor site, reducing side effects and improving treatment outcomes.

3.

Methods

Polymer synthesis and characterization

- $\vdash \neg A \rightarrow B$ (1), $\vdash A \rightarrow C$ (2), $\vdash B \wedge C$ (3), $\vdash \neg A \rightarrow D$ (4),
 $\vdash \neg A \rightarrow E$ (5).

Encapsulation of drugs

Stimuli-Responsive Design

- $(\dots, \dots, \dots, \dots)$.
• \vdash

Characterization of drug release

- A 8

Biocompatibility and cytotoxicity assessment

- E
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