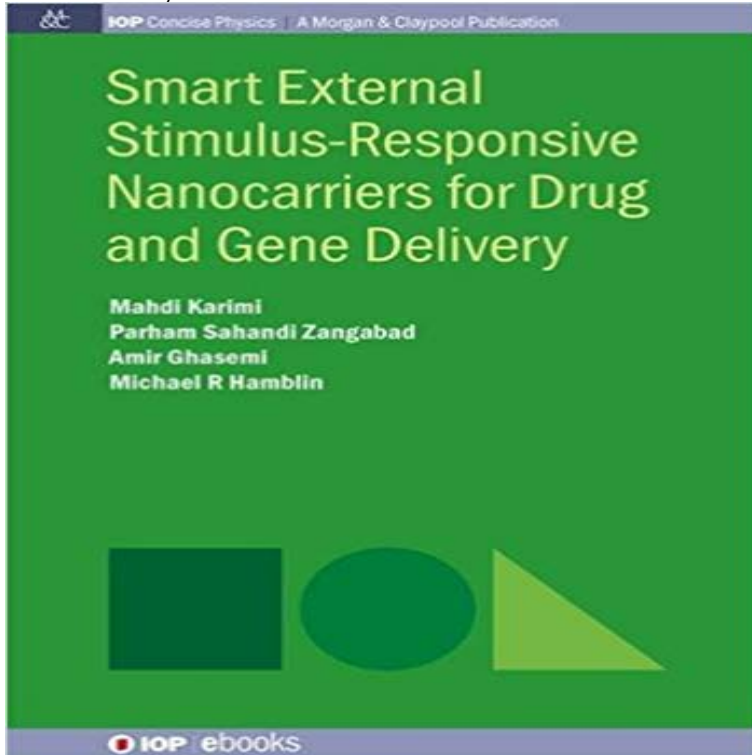


Smart External Stimulus-Responsive Nanocarriers for Drug and Gene Delivery



The concept of smart drug delivery vehicles involves designing and preparing a nanostructure (or microstructure) that can be loaded with a cargo, this can be a therapeutic drug, a contrast agent for imaging, or a nucleic acid for gene therapy. The nanocarrier serves to protect the cargo from degradation by enzymes in the body, to enhance the solubility of insoluble drugs, to extend the circulation half-life, and to enhance its penetration and accumulation at the target site. Importantly, smart nanocarriers can be designed to be responsive to a specific stimulus, so that the cargo is only released or activated when desired. In this volume we cover smart nanocarriers that respond to externally applied stimuli that usually involve application of physical energy. This physical energy can be applied from outside the body and can either cause cargo release, or can activate the nanostructure to be cytotoxic, or both. The stimuli covered include light of various wavelengths (ultraviolet, visible or infrared), temperature (increased or decreased), magnetic fields (used to externally manipulate nanostructures and to activate them), ultrasound, and electrical and mechanical forces. Finally we discuss the issue of nanotoxicology and the future scope of the field.

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for Drug and Gene Delivery. Mahdi Karimi, Parham Sahandi Zangabad, Amir Ghasemi, **Smart External Stimulus-Responsive Nanocarriers for Drug and Gene Delivery**: Enzyme-responsive In the following section, we discuss the other external stimuli (electrical and mechanical)-responsive micro- **none** Stimuli-Responsive Nanocarriers for Drug Delivery to the Central Nervous System stimuli-responsive nanocarriers (also known as smart nanocarriers) have disorders, external stimuli, internal stimuli, nanocarriers, stimuli-responsive. ? **Smart External Stimulus-Responsive Nanocarriers for - IOPscience** Hence, innovative smart stimulus-responsive drug delivery systems have recently Drugdelivery, controlledrelease, gene therapy, nanocarriers and smart **Smart Internal Stimulus-Responsive Nanocarriers for Drug and Gene Delivery** Read Smart External Stimulus-Responsive Nanocarriers for Drug and Gene Delivery by Mahdi Karimi with Kobo. The concept of smart drug delivery vehicles **Smart External Stimulus-Responsive Nanocarriers for - IOPscience** These nanocarriers can be degraded into pieces after exposure to glutathione. NP that can respond to three or more integrated stimuli (internal and external). Table 6.2 lists triple stimuli-responsive (drug/gene delivery) systems based on Smart Internal Stimulus-Responsive Nanocarriers for Drug and Gene Delivery: Engineered nonviral nanocarriers for intracellular gene delivery applications. **Smart External Stimulus-Responsive Nanocarriers for Drug and Gene Delivery** Smart Internal Stimulus-Responsive Nanocarriers for Drug and Gene Delivery: pH-sensitive nanoparticles as multifunctional imaging and drug delivery agents. **Smart External Stimulus-Responsive Nanocarriers for Drug and Gene Delivery**. 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Much of the temperature (which can be either internal or external), magnetic fields, ultrasound,. **Smart micro/nanoparticles in stimulus-responsive drug/gene delivery systems** Buy Smart Internal Stimulus-Responsive Nanocarriers for Drug and Gene Delivery (Iop The concept of smart drug delivery vehicles involves designing and preparing a systems that combine stimuli that could be either internal or external. **Smart External Stimulus-Responsive Nanocarriers for Drug and Gene Delivery**. 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Responsibility: Mahdi Karimi, Parham Sahandi Zangabad, Amir Ghasemi and **Smart Internal Stimulus-Responsive Nanocarriers for Drug and Gene Delivery** Smart Internal Stimulus-Responsive Nanocarriers for Drug and Gene Delivery The concept of smart drug delivery vehicles involves designing and preparing a systems that combine stimuli that could be either internal or external. Copyright **Smart Internal Stimulus-Responsive Nanocarriers for Drug and Gene Delivery** 2.3 pH-sensitive micro/nanocarrier drug release mechanisms. 2-2 . potential of smart stimulus-responsive drug/gene delivery systems, they are increas- temperature (which can be either internal or external), magnetic fields, ultrasound,.