Biodegradable Hydrogels For Drug Delivery

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Biodegradable Hydrogels For Drug Delivery

The presence of a specific BIODEGRADABLE HYDROGELS 63 glycosidase in certain regions in the body can be used to develop site-specific drug delivery hydrogels [5,19,20]. Drugs will be released upon degradation of the hydrogels by the specific enzymes.

Biodegradable hydrogels in drug delivery - ScienceDirect

The advances made in the area of controlled drug delivery during the last two decades are remarkable ….Of the many polymeric materials, biodegradable hydrogels present unique advantages and opportunities in the development of …delivery devices….We have undertaken the challenge of putting together information relevant to biodegradable hydrogels in one place.

Biodegradable Hydrogels for Drug Delivery: 9781566760041 ...

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Biodegradable Hydrogels for Drug Delivery - 1st Edition ...

Tethering drug substances to a gel network is an effective way of controlling the release kinetics of hydrogel-based drug delivery systems. Here, we report on in situ forming, biodegradable hydrogels that allow for the covalent attachment of peptides or proteins.

Biodegradable Hydrogels for Time-Controlled Release of ...

Biodegradable Hydrogels for Controlled Drug Delivery 1 Introduction. Biodegradable hydrogels are cross-linked three-dimensional structures that are capable of being broken... 2 Properties of Hydrogel. Hydrogels are the classic biomaterials endowed with very exciting properties. Their in-vivo... 3 ...

Biodegradable Hydrogels for Controlled Drug Delivery ...

Biodegradable Drug Delivery Systems 189 8.1 Mechanisms of Drug Release 190 8.2 Drug Release from Hydrogels with Biodegradable Backbones

199 8.3 Drug Release from Hydrogels with Degradable Crosslinking Agents 215 8.4 Drug Release from Hydrogels with Biodegradable Pendant Chains 219 8.5 References 223 Chapter 9. Future Development 233 9.1 Drug ...

BIODEGRADABLE HYDROGELS FOR DRUG DELIVERY

Therefore, injectable biodegradable hydrogels as drug delivery systems for chemotherapeutics have become a matter of importance. Here, we review the application of a variety of injectable hydrogel-based drug delivery systems, including thermosensitive, pH-sensitive, photosensitive, dual-sensitive, as well as active targeting hydrogels, for the treatment of different types of cancer.

Injectable hydrogel-based drug delivery systems for local ...

Recent years have seen an increase in DDSs development for controlled and extended delivery of anti-VEGF drugs in the form of ocular implants, cell-based systems, injectable nano-/micro-particles, injectable hydrogels, and composite systems.8Among these systems, injectable polymeric particles offer a good controlled and extended drug release (from months to years).

Characterization of Biodegradable Microsphere-Hydrogel ...

Improving the delivery of hydrogels Hydrogels used in drug delivery are usually formed outside of the body and impregnated with drugs before placement of the hydrogel–drug complex in the body. A wide range of cross-linking strategies can be used, including UV photopolymerization and various chemical cross-linking techniques.

Hydrogels in drug delivery: Progress and challenges ...

Although the ideal properties of stimuli-sensitive injectable hydrogels depend basically on their intended application, the design of injectable hydrogels for drug delivery applications must fulfill some important requirements: (a) aqueous polymer solution viscosity must be low (free flowing) enough to facilitate the easier subcutaneous injection, (b) fast gelation is needed to minimize the initial burst release; (c) the hydrogel must be biocompatible and biodegradable, and its degradation ...

In situ gelling pH- and temperature-sensitive ...

One of the best features of these biopolymers is their ability to cross-linked to form a biodegradable hydrogels, which gained widespread attention in various fields, such as drug delivery, 49 ...

Biodegradable Hydrogels for Drug Delivery | Request PDF

As a drug delivery system (DDS), Yan et al. prepared a hyaluronic acid hydrogel from hyaluronic acid hydrazide derivatives. They combined rhBMP-2 to form ectopic bone beneath the dorsal muscle fascia of rats.

Biodegradable Polymers as Drug Delivery Systems for Bone ...

Thermosensitive in situ hydrogels, which are commonly utilized for drug delivery purposes are liquid at room temperature (20–25°C) and form viscous gels at body temperature (34–37°C). The polymers used in these systems have a lower critical solvent temperature; the temperature at which the sol–gel transition occurs.

Hydrogel Biomaterials for Application in Ocular Drug Delivery

We have developed an approach to prepare drug-releasing Tetra-PEG hydrogels with exactly four cross-links per monomer. The gels contain two cleavable β-eliminative linkers: one for drug attachment that releases the drug at a predictable rate, and one with a longer half-life placed in each

cross-link to control biodegradation.

Biodegradable tetra-PEG hydrogels as carriers for a ...
microsphere-thermoresponsive hydrogel drug delivery system (DDS) capable of releasing bioactive aflibercept in a controlled and extended manner for 6 months. MATERIALS AND METHODS: The DDS was fabricated by suspending aflibercept-loaded poly(lactic-co-glycolic acid) microspheres within a biodegradable poly(ethylene

Biodegradable Microsphere-Hydrogel Ocular Drug Delivery ...
Mechanism of Drug Release from Biodegradable Implants Implantable drug delivery devices generally consist of a drug reservoir surrounded by a polymer or a drug polymer mixture. When inserted into the desired area of the body, the drug will be released at a pre-determined rate as the polymer degrades.

Implantable Polymeric Drug Delivery Devices ...
Biodegradable polymeric microneedles were developed as a method for achieving sustained transdermal drug release. These microneedles have potential as a patient-friendly substitute for conventional sustained release methods. However, they have limitations related to the difficulty of achieving separation of the needles into the skin.

Hydrogel swelling as a trigger to release biodegradable ...
In this work, we developed a biodegradable and injectable composite drug delivery system (DDS), camptothecine (CPT) loaded polymeric microsphere in thermosensitive hydrogel, for colorectal peritoneal carcinomatosis (CRPC) therapy. In our previous studies, we found that poly(ε-caprolactone)-poly(ethy ...