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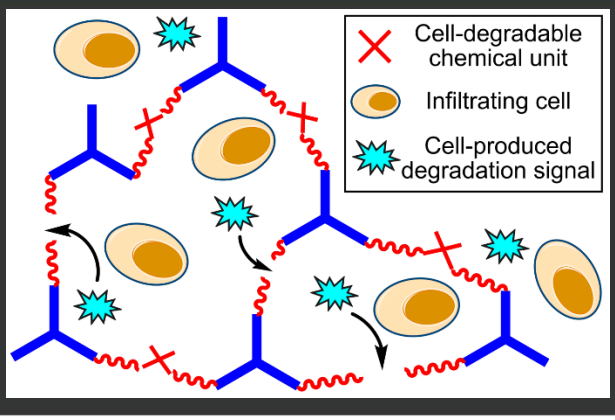

Novel Biodegradable Polymers for Patient-Specific Implant Degradation and Drug Delivery

TECHNICAL FIELD
Regenerative Medicine

APPLICATION
Biodegradable Scaffolds, Drug-loaded Implants

DESCRIPTION

Biomaterial implants fabricated from synthetic polymers have been extensively used in regenerative medicine applications and are regularly formulated into erodible drug delivery systems or degradable scaffolds. These implants are most commonly degraded by hydrolysis. While these materials can be effective, their degradation rates are pre-determined; this mismatch between rates of implant resorption and tissue regeneration can ultimately compromise the healing process.

To tie the rate of implant degradation and drug delivery to the specific patient, materials have been developed that react to specific biological stimuli, including enzymes, pH, or reactive oxygen species (ROS). ROS-responsive polymers are particularly promising in regenerative medicine since ROS levels are elevated in healing tissue. Typical ROS-responsive polymers, however, are minimally reactive at physiological ROS concentrations, and thus do not degrade or release drug compounds at a fast enough rate for many biomedical applications.

Dr. John Martin and his team have invented novel ROS-responsive biodegradable polymers that enable patient-specific degradation rates at physiologically relevant ROS levels. These optimally-responsive materials can be formulated into both erodible drug delivery systems and degradable scaffolds to improve healing outcomes in patients.

For discussions around learning more or licensing this technology, please contact Madison Bourbon today.

ADVANTAGES

- Patient-specific implant degradation and drug release
- Highly responsive at physiologically relevant conditions

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