Native Chemical Ligation in Biocompatible Hydrogels for Wound Healing and Drug Delivery

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Technology description

Short Description

Native cross-linking hydrogels for implants, tissue support, and other medical uses

Abstract

Because their properties are similar to those of human tissues, hydrogels have been widely used as implantable medical devices. There is a medical need for hydrogels that can be put into place through minimally invasive means and those that solidify under physiological conditions. A native chemical ligation method was previously developed that achieved this cross-linking, but the process released a by-product that was potentially toxic to cells. Northwestern researchers have reworked this native chemical ligation method to achieve a single product without the release of toxic smaller molecules. The hydrogels composed of these products can be used for a variety of medical applications, including tissue repair, wound healing, drug delivery, device coating, and biosensors.

Application area

Timed-release medical implants with pharmacological agents

Tissue supports for wound healing or other repair

Biosensors

Device coatings

Advantages

Nontoxic

Can form in situ from a liquid precursor with rapid crosslinking

Institution

Northwestern University

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