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

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Technology description

Native cross-linking hydrogels for implants, tissue support, and other medical uses
#chemical #therapeutics #devices
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 formin situfrom a liquid precursor with rapid crosslinking

Institution

Northwestern University

Inventors

Bi-Huang Hu

联系我们

叶先生

电 话：021-65679356

手 机：13414935137

邮 箱：yeyingsheng@zf-ym.com