Dissolvable Calcium Alginate Microfibers via Immersed Microfluidic Spinning

Tech ID: 33568 / UC Case 2023-755-0

BRIEF DESCRIPTION

A novel method for producing dissolvable alginate microfibers critical for advanced tissue engineering and microfluidic network fabrication.

SUGGESTED USES

- Tissue engineering and regenerative medicine
- Fabrication of vascularized tissue implants
- Development of embedded microfluidic networks for biological research
- Advanced applications in microelectronics requiring precise micro- and nanofiber structures

FEATURES/BENEFITS

- Simplified fabrication process compared to traditional methods
- Precise control over fiber diameter and topology
- Ability to dissolve fibers quickly, leaving behind hollow microfluidic channels
- Cost-effective and less complex setup
- Enables the creation of vascularized tissue constructs and advanced tissue engineering applications

TECHNOLOGY DESCRIPTION

Researchers at UCI have developed an innovative approach to fabricate dissolvable calcium alginate microfibers using immersed microfluidic spinning, creating micro- and nanofibers essential for various applications, especially in biotechnology and microelectronics. Unlike conventional methods that are complex and costly, this technique employs a simplified setup to produce microfibers with controlled diameters and topologies, which can be easily dissolved to form embedded microfluidic networks.

STATE OF DEVELOPMENT

Experimental Stage

PATENT STATUS

Patent Pending

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INVENTORS

- Kulinsky, Lawrence

OTHER INFORMATION

CATEGORIZED AS

- **Biotechnology**
  - Other
- **Materials & Chemicals**
  - Other
- **Medical**
  - Devices
  - Other
- **Engineering**
  - Other

RELATED CASES

RELATED MATERIALS

» Dissolvable Calcium Alginate Microfibers Produced via Immersed Microfluidic Spinning - 01/26/2023

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Polymer Based High Surface Area Multi-Layered Three-Dimensional Structures
- Stepwise Fabrication of Conductive Carbon Nanotube Bridges via Dielectrophoresis
- Guided Template Based Electrokinetic Microassembly (TEA)

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