Dissolvable Calcium Alginate Microfibers Produced via Immersed Microfluidic Spinning towards Fabrication of Microfluidic Networks

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

BRIEF DESCRIPTION

An innovative technique to produce dissolvable calcium alginate microfibers using an immersed microfluidic spinning process for creating tissue constructs and vascularized tissue implants.

SUGGESTED USES

·Tissue engineering, including vascularized tissue implants.

·Biotechnology research and applications.

FEATURES/BENEFITS

·Simple technique to create a stochastic network of dissolvable fibers appropriate for highly vascularized tissue constructs.

·Cost-effective compared to traditional fluidic spinning techniques.

·Minimized complexity inherent in microfabricated chips or coaxial needles.

TECHNOLOGY DESCRIPTION

Alginate microfibers with diameters of tens to hundreds of microns are important for tissue engineering, but these diameters are impossible to fabricate via electrospinning and can only be produced via fluidic spinning. Typically microfluidic spinning produces fibers that are not easily dissolvable and fluidic spinning techniques require complicated microfabricated ships or coaxial needles, introducing significant costs and complexity. The Kulinsky lap has developed a simple setup, using a single needle, for immersed microfluidic spinning of dissolvable calcium alginate microfibers to create highly vascularized constructs for tissue engineering and implants.

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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