

The Office of Technology Management

UNIVERSITY OF TEXAS  ARLINGTON

Artificial Thin Films for Biological and Medical Applications

Tech ID: UTA 12-05

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TECHNOLOGY NEED

The basal lamina has been recognized as an integral component of the human body due to its roles in several intercellular processes and interactions. The importance of the basal lamina and its potentials have encouraged scientists and medical doctors to develop more authentic and reliable artificial models for both research and practical purposes. However, the current models of basal lamina are composed of a very limited number of proteins, do not have the mechanical strength for self-supporting, and exist in very simplistic forms. These problems alone have limited the scope of usage in both research and medical practices.

INVENTION DESCRIPTION/SOLUTION

Researchers at UT Arlington have developed a model for the basal lamina using extracellular matrix films that can serve as effective and more sophisticated artificial models than existing models. The films are uniform, ultrathin, and size-controllable. These films solve the problems of limited mechanical strength and protein complexity in current membrane models. Moreover, they introduce a new and desirable characteristics such as: customizable combinations of properties, solid-free standing, and controllable permeability.

APPLICATIONS

- Microfluidic devices
- Artificial biological organs for clinical practices
- Medical and biomedical engineering research

KEY BENEFITS

- Reliable mechanical strength
- Solid-free standing
- Semi-permeable
- Optically transparent
- Capable of forming 3D structures
- Free or substantially free of adhesive material
- Engineered combinations of properties

STAGE OF DEVELOPMENT

Prototype

INTELLECTUAL PROPERTY STATUS

[US Patent No. 9,644,177](#)



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