

Three-Dimensional System for Ex-Vivo Tissue or Cell Growth

Description:

This invention is an enhancement to an engineered tissue system that may be used in drug discovery, vaccine development, biomaterial development or developmental cell biology. The enhancement allows biologically relevant tissues to be grown ex vivo. This invention uses lobed/channeled fibers, where lobed/channeled indicates a non-circular cross-section that allows fluid movement along the fiber in a 3-dimensional tissue system to improve transfer of nutrients, waste products and growth factors. The addition of these specialized fibers allows the movement of fluids through a gel environment and allows the development of larger masses of tissue. These lobed/channeled cross-sectional areas allow channels for wicking of fluids into and out of the tissue construct, overcoming limitations of traditional tissue engineered devices, which are diffusion limited.



Applications:

- Drug discovery
- Vaccine development, biomaterial development and developmental cell biology
- Breast, skin, hernia mesh, vascular graft, heart valve, ligament, tendon and bone tissues
- Development of test systems for therapeutics
- Implantable devices

Benefits:

- Improves transfer of nutrients, waste products and growth factors
- Allows the movement of fluids through a gel environment
- Allows development of larger masses of tissue

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Additional Terms: Tissue Engineering, Three-dimensional (3-D), Test System, Fiber, Biomaterial
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