

The Office of Technology Management

UNIVERSITY OF TEXAS  ARLINGTON

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In-situ Engineered Bone Tissue Using Autologous Progenitor Cells

INVENTOR: Liping Tang

TECHNOLOGY NEED

Bone loss often occurs as a result of open fractures, osteomyelitis fractures which fail to heal, congenital malformations, tumors, and osteoporosis. In recent years, significant progress has been made in the development of tissue engineered bone designed to replace or bridge large bone defects. Typical tissue engineering strategies involve the use of an implant which integrates with existing bone tissue to restore bone and to some extent, the function of the damaged bone. Adult mesenchymal stem cells (MSCs) have shown great promise in regenerating tissue engineered tissues and organs. However, these approaches are still plagued by limitations associated with the recovery, differentiation ability and survival of autologous MSCs.

INVENTION DESCRIPTION/SOLUTION

A novel process of creating bone tissue with the use of biodegradable polymer scaffolding has been presented herein. The biodegradable polymer scaffolding inserted into a patient's abdomen attracts stem cells that in turn create a bone tissue. This process will allow surgeons to establish a "mini-bioreactor" in a patient's own body. Bone tissue can be generated in few weeks through this process, rather than months of existing processes in a lab setting. A physician will be able to inject the scaffolding material into the area where the patient's bone needs to grow or repair, and the patient's cells never have to leave the body, thereby cutting down on cost, surgery time and enhance patient comfort.

PUBLICATION

Shen J, Nair A, Saxena R, Zhang CC, Borrelli J Jr, et al. (2014) "Tissue engineering bone using autologous progenitor cells in the peritoneum".

APPLICATIONS

- Orthopedics
- Dental

KEY BENEFITS

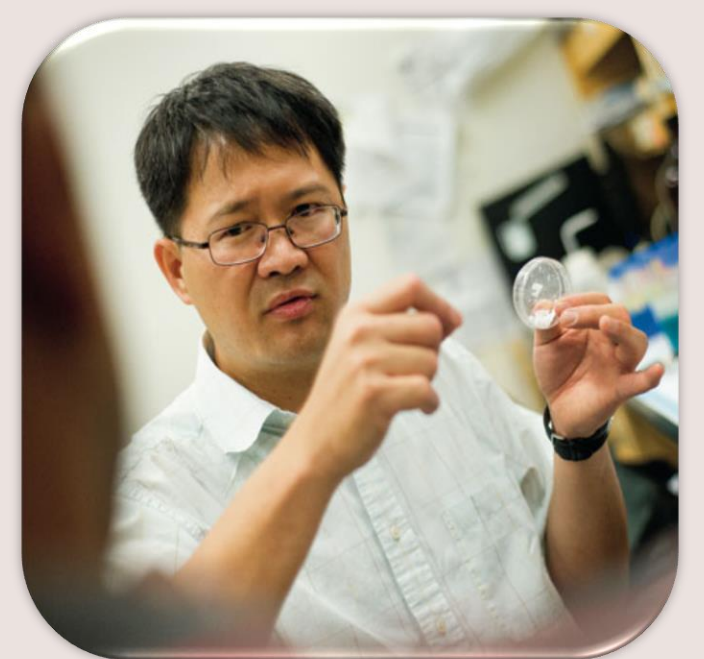
- Cost effective
- Reduction in surgical time
- Increase in patient comfort

STAGE OF DEVELOPMENT

Lab tested

INTELLECTUAL PROPERTY STATUS

PCT application WO2015148775A1



More about the Inventor:
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