

New Surface for Accelerated Cartilage Cell Growth

Tech ID: 20603 / UC Case 2009-001-0

TECHNOLOGY DESCRIPTION

Researchers at UC San Diego have developed a nanotube surface on titanium oxide (TiO₂) that markedly accelerates the growth of cells. This biocompatible material can be used to coat the surface of orthopedic implants to permit a stronger bond with bone as well as accelerate healing.

Early experimental results with cells in culture show strong cell adhesion with significantly enhanced formation of cells and associated growth.

Economical and convenient fabrication of the nano-structured substrate material has been demonstrated in the laboratory.

APPLICATIONS

This biocompatible material can be used to coat the surface of orthopedic implants to permit a stronger bond with tissue as well as accelerate healing for joint replacements, resulting in shorter recovery times for patients. It may also reduce failure rates for such surgeries. Growth factors or other molecules, such as DNA or small molecule drugs, may be loaded into the nanostructure to promote the growth of cells.

For cell culture applications, wafers of the nano-structured material can be inserted into cell culture plates or flasks for accelerated growth of cells.

STATE OF DEVELOPMENT

Patents pending

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	9,623,151	04/18/2017	2009-001

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OTHER INFORMATION

CATEGORIZED AS

- ▶ **Medical**
 - ▶ Devices
- ▶ **Nanotechnology**
 - ▶ NanoBio

RELATED CASES

2009-001-0, 2005-225-1, 2005-225-2