Nanostructured biomaterials for bone and/or cartilage regeneration

New generation of functionalized implants for robust and rapid bone, cartilage or osteochondral regeneration

KEYWORDS

Regenerative medicine
Osteochondral unit
Nanoactive biomaterials

PATENTS

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TECHNOLOGY

Nanofibrous PCL scaffold with nano-reservoirs of therapeutic molecules for slow and controlled release over the period of tissue re-growth. The biomaterial may optionally comprise living cells such as osteoblasts and/or chondrocytes and is adaptable according to the width of the lesion.

APPLICATION

- Regenerative medicine

INNOVATION ADVANTAGES

- Tissue regeneration in depth and to the heart of the implant
- No need to use autograft implantation
- No component of animal origin, which eliminates any inherent risk of infection, immunogenicity and variability of product
- Same technology for bone and cartilage indications, unique solution for osteochondral regeneration
- Elasticity and flexibility
- Requires minimal surgical procedures such as laparoscopic or arthroscopic intervention

DEVELOPMENT STATUS

- Conclusive preliminary tests in different animal models for either bone and/or cartilage regeneration (mice, dogs, sheeps…)
- *In vitro* characterization of the materials (non-GMP)
- Determination of the regulatory frame

- Ongoing:
  - Definition of the requirements for GMP production
  - GLP studies in sheeps for osteochondral regeneration

Partnership: seeking partners for co-development

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