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CEIBioTIC GRANADA

NEW BIOMATERIAL FOR BONE TISSUE REGENERATION

Researchers from the University of Granada and the Andalusian Health Service have developed a new biomaterial based on echinoderm ossicles and an *in vitro* method of preparing it for bone lesions treatment. The present invention is highly biocompatible and exhibits *in vivo* functionality, which represents an improvement in bone tissue regenerative medicine, with potentially better results in terms of bone regeneration and repair than other currently available materials.

Technology for Licensing

Keywords:

Tissue engineering, human bone, biomaterial, regenerative medicine, traumatology, orthopedic diseases, Holothuria.

Description:

Hard tissue injuries, especially bone, are very difficult to treat due to their special biological and functional characteristics. Most of the biomaterials currently available for the treatment of bone injuries have very poor biocompatibility and functionality *in vivo*.

To date, the treatments and materials used in severe injuries to human bone result in very slow biointegration in the bone and low success rates. Therefore, the search for new highly biocompatible materials for use in the repair of bone defects is a priority in the field of trauma.

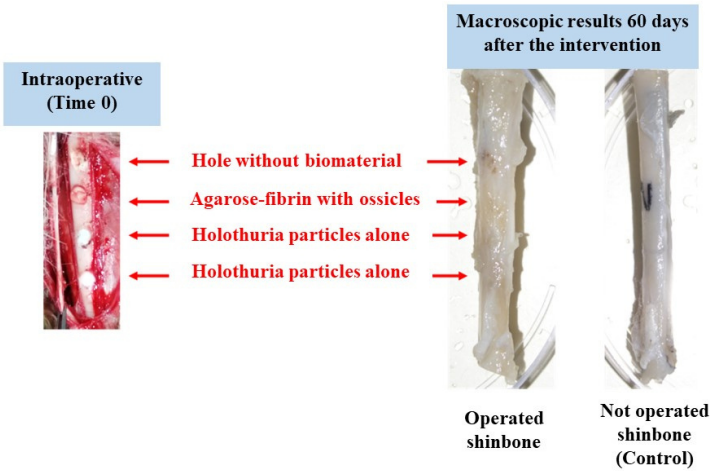
In this context, researchers have developed a process for obtaining and using a new biomaterial employing for the first time dermal ossicles from Holothuria echinoderm. The surface of the ossicles is potentially highly biocompatible, which supports its clinical use as an inducing agent for bone regeneration.

The results obtained from the *ex vivo* and *in vivo* biocompatibility and efficacy studies confirm the proper biointegration process of the biomaterial, with the absence of signs of necrosis, tumor, infection, hemorrhage or rejection. Furthermore, greater bone repair and regeneration are demonstrated in bone defects treated with holothurian ossicles

Advantages and Benefits

- Highly biocompatible material
- Simple manufacturing
- Potentially useful for *in vivo* regeneration
- Better bone regeneration results than other available materials
- Optimum porosity and roughness conditions to be used in regenerative medicine
- Material available in nature
- Promotion of fishing communities

Macroscopic image of the rabbith shinebone 60 days after surgery



Actuación en el marco del Proyecto ILIBERIS: Actuaciones Singulares de Transferencia de Conocimiento en el CEI BIOTIC. Objetivo prioritario OP.01 "Potenciar la investigación, el desarrollo tecnológico y la innovación"

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