TECHNICAL DATA SHEET

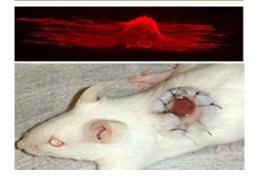
CHARACTERISTICS

Electrospun material simulating the microscopic structure of the extracelular matrix different body tissues and organs. Provides the structural scaffold for cellular adhesion, proliferation, migration and differentiation.

ADVANTAGES

Versatile product:

- 1a) Flexible orientation of nanofibers depending on the electrospinning parameters.
- 1b) Possible addition of bioactive agents (eg. growth factors) to enhance the effects.
 1c) Guidance for tissue regeneration in different organs.
 1d) Biocompatible and biodegradable material
- 1) Tested in vitro
 Guidance of neurite outgrowth
 in ganglionar explants.
- 2) Tested in vivo(mouse) as structural scaffold



PATENT ES P201600173 PCT ES 2017000029

Research of the University of Las Palmas de Gran Canaria (ULPGC)

HIBRID NANOFIBERS OF ALOE VERA

This biocompatible and biodegradable material serves as structural scaffold for the cell guidance and tissue regeneration, especially in the nervous tissue. This product offers more possibilities of successful tissue regeneration than others do.

Original research studies

Research group Neurogliociencia y Reparación Axonal (Nyra), Instituto Universitario de Investigaciones Biomédicas y Sanitarias (IUIBS-ULPGC)

The in vitro experimental data show a higher rate o neurite outgrowth (developing axons and dendrites) in presence of hibrid nanofibers of Aloe vera in comparison with similar experimental conditions in the presence of nanofibers with no Aloe vera composition and with other nanofibers described in the literature. We conclude that the presence of Aloe vera is key for this suscessful nerve growth.

What is the innovation?

The nervous tissue is present in all the body organs and systems and regulates the conditions of health, the inflammation and the healing process. It is one of the body tissues with more limited capacity of spontaneous regeneration. To date, the star procedure for nerve damage is the replacement with authologous (same body) and heterologous (different body) trasplantations. However, this procedure presents important limitations as the reduced disponibility of the former and the posibility of immunological rejection of the latter.

Alternatively, natural and synthetic materials mimetizing the microscopic structural organization of the extracelular matrix in healthy tissues can provide suitable microenvironmental conditions for the cell adhesion, proliferation, migration and differentiation.

There are other biocompatible and biodegradable materials with similar characteristics. However, none of them has demonstrated better results on neurite outgrowth and tissue regeneration than the invention described here.

"Possible development of dressings, sutures, meshes, nervous connection bridges" — "The nanofibers are biocompatible and biodegradable" —

INVENTORS

ULPGC

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Professor of Cell Biology in the ULPGC. Neurobiologist and gliologist. She ivestigated on the development and regeneration of the nervous system

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Associate Professor of Cell Biology in the ULPGC. Neurobiologist, gliologist. Physician.

The inventors are members of the following entities:

Sociedad Española de Neurociencia (SENC).

Red Glial Española (RGE).

Federation of European Neuroscience Societies (FENS).

International Brain Research Organization (IBRO).

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State of the technique

Product tested in vitro and in vivo testing (mouse).

Sectors of industrial application

Tissue engineering products: nervous connection bridges and others.

Sanitary products: wound dressings, sutures, surgical meshes.

INDUSTRIAL PROPERTY

Patent - Know How

Title owner: Universidad de Las Palmas de Gran Canaria (100%)

Number of National Application: P201600173 (08/03/2016)

State: APPROVED. (Process with previous exam)

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A61L27/54.

Number of PCT application: PCT ES 2017000029 (02/03/2017)

Specific knowledge linked to the research for its development and the placing on the market.

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