



NATIONAL INSTITUTE OF CHEMISTRY

Sectors: Life Sciences, Medicine

Industries: Healthcare

CELL-BASED DEVICE FOR LOCAL TREATMENT WITH THERAPEUTIC PROTEINS

TYPE OF COOPERATION

Technology licensing opportunity

INTELLECTUAL PROPERTY

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DEVELOPED BY

Department of Synthetic Biology and Immunology

MORE INFORMATION ABOUT THE INVENTION



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According to market research, advanced wound care market will reach €12.5bn by 2022. One of the main market drivers are certain medical conditions such as diabetes which exposes patients to higher risk of developing wounds. Due to the aging population, the prevalence of diabetes will increase. In addition, the healthcare expenditures of every developed country are also increasing and finding solutions for providing care with less surgeries and hospital stays is a necessity. Stem cell therapy is one of the approaches to provide advanced wound care yet it still faces a series of difficulties and increased costs due to an autologous process.

Our approach is using stable cell lines which decreases costs of a therapy, can prolong cells therapeutic effect and has a capability to be fully personalized based on the patient's needs. It can be applied to many medical conditions such as wounds, bone fractures.

Technology

The Institute's invention is a device that is comprised of a Teflon tube, permanently sealed on both ends, which contains stable cell lines. Different types of injuries demand different types of regenerative process and the device usually carries multiple types of cells, secreting multiple types of growth factors. This approach enables more control over the regeneration process and consequently better outcomes. The device was tested in a mouse model for two applications; wound healing and bone regeneration. In both cases we achieved positive outcomes.

Main advantages

- No immune-rejection and dangerous proliferation of cells;
- Personalized therapy, the ability to address various stages of wound regeneration;
- Targeted localized treatment;
- Longevity of the therapeutic device in comparison to isolated growth factors (tested up to 21 days; potentially extended);
- Affordable, no need to perform an autologous process.

Keywords

Regenerative medicine, cell therapy, therapeutic proteins, personalized treatment

