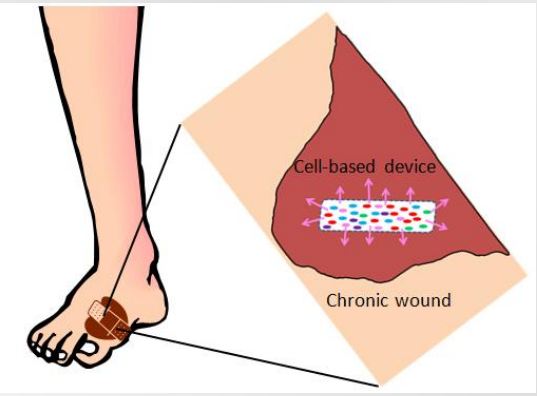
NATIONAL INSTITUTE OF CHEMISTRY

RESEARCH DOMAINS: Synthetic biology

INDUSTRIES: Pharmaceutical industry

CELL-BASED DEVICE FOR LOCAL TREATMENT WITH THERAPEUTIC PROTEINS



This invention presents a therapeutic device comprising cells secreting a combination of therapeutic proteins, where the cells are located in a container which enables the exchange of nutrients and therapeutic proteins. Our approach is inspired by stem cells but is safer in comparison because the cells are confined to the permeable container that allows the exchange of nutrients and therapeutic proteins with the surrounding tissue, more controllable since established and validated cell lines that secrete defined amounts of therapeutic proteins are used, affordable because the cell lines can be produced on a large scale for all patients and yet still be individualized by selecting a combination of therapeutic proteins required for the particular therapy.

Technology

In the cell-based device presented, the therapeutic effects of stem cells on the injured tissue are mimicked by encapsulated cells applied to the affected tissue. At the site of injury, these engineered cells are programmed to secrete therapeutic proteins.
The cell-based device could be used in various conditions in human and veterinary medicine where local treatment with therapeutic proteins is effective

Main advantages

- Safe and controllable cell device (cells are confined to immunoisolatory container)
- Affordable (based on bankable cell lines, does not require isolation of patient's own cells)
- Personalized and applicable in different medical conditions (the content of the device can be easily adjusted to suit specific person and condition)

Key words

Growth factors, cell encapsulation, personalized treatment

TYPE OF COOPERATION
R&D cooperation and technology licensing opportunity

INTELLECTUAL PROPERTY
EP3188712 (A1)

DEVELOPED BY
Department of Synthetic Biology and Immunology

CONTACT
Knowledge Transfer Office
P: 00386 1 4760 529
E: knowledge.transfer@ki.si

MORE INFORMATION ABOUT THE INVENTION

EUROPEAN UNION
EUROPEAN REGIONAL DEVELOPMENT FUND
INVESTING IN YOUR FUTURE

REPUBLIC OF SLOVENIA
MINISTRY OF EDUCATION, SCIENCE AND SPORT