

Technology Offer F47272

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Method for producing autonomously contracting cardiac muscle cells from adult stem cells, in particular human adult stem cells

Key words: pharmacology, drug development, organotypic model system

Heart failure is one of the main causes of death in industrialised countries and is a result of the inability of mature heart muscle cells (cardiomyocytes) to divide and replace damaged heart muscle. Since the therapeutic use of embryonic cardiomyocytes is prohibited in most countries, adult human stem cells could represent an alternative for regenerative medicine. Adult stem cells of different origin have previously been injected intramyocardially in order to be converted to cardiomyocytes. However, the retention of the cells within the heart and the effect on ejection fraction has been poor.

The Invention

The invention comprises a bidirectionally transformable stem cell patch (BTS), covering pluripotent adult stem cells that have been isolated from exocrine gland tissue of the pancreas or the salivary gland of an organism, a porous matrix for receiving the cells and a broad supporting surface of the BTS for placement on a broad myocardial wound surface, wherein the BTS is configured such that the stem cells can get into contact on both sides with cells from an adjacent tissue or with substances produced by said cells whereby a transformation/differentiation of the stem cells can be induced or stimulated.

Market potential

- Cardiac regeneration

State of Development

In further studies, the intra-myocardial homing of glandular stem cells (GSCs) was analyzed and compared to mesenchymal stem cells (MSCs), using a large animal model. Six weeks after injection, MSCs were rarely found within the myocardium, whereas almost all GSCs remained in the myocardium.

Branch

Pharma, Biotech

Patent situation

Patent granted (DE, EP, CA, US)

Offer

Co-operation, Contract research, License, Sale

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