

Multicellular Tissue and Organ Culture systems

Key words: adult stem cells, three-dimensional cell aggregates, organoid bodies, multicellular tissue, organ culture systems

Due to the constant lack of suitable donor tissues and donor organs and other disadvantages of natural tissue, e.g. rejection reactions and the risk of the transfer of diseases from the donor to the recipient, many efforts are being directed to the production of artificial tissues and organs as alternatives. A related object is the provision of treatment methods using these tissue and organ culture systems for restoring or assuming the function of damaged or lacking organs inside or outside the damaged body.

The Invention

The present invention is based on the finding that multipotent or pluripotent adult stem cells like those that can be obtained from exocrine glandular tissue can be made to aggregate and differentiate into three-dimensional cell aggregates, so-called organoid bodies (patent: multicellular testsystem), which already contain a spectrum of different cell types without the addition of special differentiation factors. These organoid bodies constantly continue to grow, if supplied with sufficient nutrients, and develop tissue-like or organ-like structures. They are also referred to in this stage as tissue bodies. Organoid bodies are the ideal starting material for producing multicellular tissue and organ culture systems whose structure largely corresponds to that of native tissues or organs or that result in the formation of such native structures in the body.

Market potential

- tissue engineering for therapeutic strategies
- production of tissue-specific or organ-specific substances

State of Development

One object of the invention is to provide improved multicellular tissue and organ culture systems, in particular human systems, that are constituted of several different cell types and comprise natural tissue and/or organ structures or that have the potential to develop them. Alternatives methods to the hanging drop to develop organoid bodies are also supposable.

Branch

Pharma, Medical technology

Patent situation

Granted (D, EP, IL, US)

Offer

co-operation, contract research, license, sale

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