

3D Matrices for Growing and Differentiating Progenitor and Stem Cells (Yissum)

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Improved methods for culturing tissue and stem cells

Categories	Stem cells, Tissue culture, Research/development tools
Development Stage	<i>In-vitro</i> proof of concept in various engineered tissues
Patent Status	Patent published in Europe, allowed in United States, filed in Israel PCT publication number: WO 03/060062
Market Size	Tissue engineering and stem cells revenues in excess of \$10 billion by 2013

Highlights

- All epithelial tissues in nature interact with an extracellular matrix. In spite of this, traditional cell culture is carried out on monolayers in plastic and does not take into account the interrelationships of other cells in tissue
- These new methods use novel 3D organ-specific matrices as a more natural environment to culture all types of cells and to manipulate stem cells into specific organs

Our Innovation

- Broad platform technology using three-dimensional, organ-specific matrices for growing different types of cells, including stem cells, ex vivo
- Organ-specific matrices induce stem cells to differentiate into required organ
- Isolation of specific stem cells from a mixture of early-differentiating stem cells through their binding affinities to organ-specific matrix regions

Key Features

- Matrix is specific for any type of organ; encourages stem cells to differentiate into pathways normally followed by cells of that specific organ
- Method for preparing engineered organs to be used in vitro or for transplantation in vivo
- Can use adult or embryonic stem cells to generate organized engineered tissue
- Potential products include: 1de.

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