

CELL-CELL (DVD PAL 1+1 min loop, limited edition)

Mouse embryonic stem cells cultured by Sylvia Niebrügge, PhD
Cellular Automata Simulation and animation by Georg Mühleck

Cell Culture A:

Mouse embryonic stem cells were grown in a cell culture dish in an incubator environment. After attaching to the 2D-surface cells were proliferating and spreading out, appearing as a cell layer of individual shapes and morphologies forming a connected cell population. Within the cell population islands of communicating cells were observed. Cells were proliferating, dying, changing morphological appearance and even migrating following complex biological rules. Fascinated by the highly organized processes within the communicating system, single frames of the microscopic scenario were taken and visualize a biological system, in which individual cells behave as part of a communicating cell cluster of high complexity.

Cell Culture B:

Based on position, shape and volume of the cells in Cell Culture A, another culture was created. This time it was software generated, and shows an artificial cell system following an algorithm. These Cellular Automatas simulate cell clusters and movement based on the use of 'life' and 'heat' rules. We wanted to see, how a combined culture of two different systems supporting each other might look (e.g. by exchanging growth or differentiation factors and e.g. enhancing growth or differentiation (cell fate). The origin of biological life and the transition from unicellular to multicellular organisms allows the emergence of symbolic thought: a metasystem is formed by the communicative integration of a number of initially independent components, such as molecules, cells or individuals, and the emergence of a system steering or controlling their interactions.

A garden of cells, a dense island of one cell population within other populations might be created.

CELL-CELL has been realized through an art/science research collaboration with the approach of combining nature with simulation. In reality we are unable to produce cultures of two different systems such as an organic culture and a computer generated cell culture, which can support each other. We are not even sure whether we would like to produce such a set of cultures.

Georg Mühleck + Sylvia Niebrügge, Toronto/Berlin 2010

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