

Inverted Well Plate for Large-Scale Cell Culture

Inventors: Blair T. Stocks, Shayn M. Peirce-Cottler, Ph.D., Adam J. Katz, M.D.

EXECUTIVE SUMMARY

This invention is the inverted complement of a 96-well plate made to increase cell transfer efficiency and decrease the time needed for high-quantity cell culture. Using this unique tool, cells are suspended and grown in an inverted position before being transferred to a standard 96-well plate for storage.

BACKGROUND

Standard culture and transfer of mammalian cells require repetitive pipetting of hanging drop cultures inside a petri dish by a technician. This method, however, is considered inefficient, is low-yield and carries a high risk of cross-contamination; in addition, many cells are often lost in the process of transferring to storage. These problems plague current research and clinical cell culture and transfer procedures.

INVENTION DESCRIPTION

This technology makes possible the large-scale culture and transfer of human cells for the clinical treatment of chronic wounds. An inversion of a 96-well culture plate, the invention provides a unique and effective home for cells that need to be hydrated during the incubation period and then transferred to growth media, where they will be stored in a high-throughput and efficient manner. This high-throughput cell fabrication device significantly reduces time for cell culture and transfer, ultimately streamlining chronic wound treatment or research. The device can be inexpensively manufactured via polystyrene injection molding with disposability in mind, to avoid sterilization costs and possible patient cross contamination.

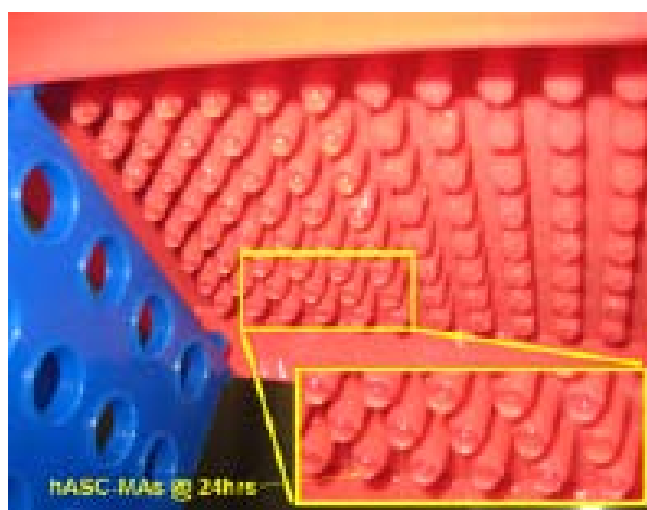
ADVANTAGES

The invention:

- Effectively cultures large quantities of cells
- Increases the percentage of cells successfully transferred to storage plate
- Significantly decreases the transfer time of cells to storage plate
- Normalizes the ratio of transferred cells per storage plate well
- Decreases manufacturing and sterilization costs

APPLICATIONS

This high-throughput cell culture and transfer method and device can replace current methods of cell preparation used for clinical therapy of chronic wounds and for other research endeavors that require cell culture.



Courtesy of Stocks, Peirce-Cottler, Katz