

DESIGN AND FABRICATION OF POLYMERIC PILLAR ARRAYS AS DIFFUSION BARRIERS

Tech ID: 33352 / UC Case 2024-053-0

PATENT STATUS

Patent Pending

BRIEF DESCRIPTION

It is believed that the use of non-animal models (NAM) improves the ability to predict drug risk and efficacy and keep the costs of developing a new drug down. The FDA has identified microphysiological systems (MPS) or organ-on-chips (OoCs) as one of the key in vitro NAM platforms. MPS devices recapitulate key physiological features such as the continuous flow of nutrients, mimicry of physiologically relevant ratios of blood to tissue volume ratios, and relevant tissue architecture for heterotypic and homotypic cell interactions. A key aspect of these MPS devices is the separation of cell chamber/s and/or media compartments that act as conduits of nutrient delivery. Thus, the need to have a diffusion barrier that mimics the transport of nutrients and cellular agents across cellular/media compartments is critical in achieving a physiologically relevant model.

UCB researchers have developed a design and method of making a pillar array that is easy to fabricate and provides a better biologically-relevant diffusion barrier for molecules and biological agents such as cells and can be used for controlling the diffusion of nutrients and migration of cells in culturing platforms, especially for the fast-growing number of microphysiological systems (MPS) or organ-on-chips (OoCs).

SUGGESTED USES

- » drug discovery
- » non-animal models to predict drug risk and efficacy

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Universal Coating Compound
- Growth Factor Sequestering and Presenting Hydrogels
- Isolation Of Cardiac Stem/Progenitor Cells Expressing Islet-1
- Formation Of Porous Scaffolds Of Growth Factor Sequestering Hydrogels By Cryogelation
- Novel Solid Lipid Nanoparticle To Improve Heart Cardio Protection
- Bioinspired Hydrogels for the Treatment of Volumetric Muscle Loss Injury

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INVENTORS

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OTHER INFORMATION

CATEGORIZED AS

- » Medical
- » Research Tools
- » Screening
- » Research Tools
- » Other
- » Screening Assays

RELATED CASES

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