CELL EXPANSION PLATFORM

Tech ID: 33963 / UC Case 2025-103-0

PATENT STATUS

Patent Pending

BRIEF DESCRIPTION

Systems for activating and expanding cell populations are useful for several applications. For example, mesenchymal stem cells (MSCs) are useful for tissue engineering, B cells for antibody production, non-mammalian cells for small molecule production and immune cells for re-infusion via adoptive immunotherapy. A current manufacturing bottleneck is the safe and rapid proliferation of cells. Accordingly, new compositions and methods to expand target cell populations are needed.

UC Berkeley researchers have developed a platform for the expansion and proliferation of cells by using a 2D hydrogel scaffold with tunable mechanics and incorporated streptavidin moieties. The system was validated by expanding human T cells and showed T cell expansion 41% and 70% greater than the current clinical standard. This greater fold expansion was preceded by increased metabolic and proliferation-related transcriptional activity.

SUGGESTED USES

- Expansion of cells, possibly for immunotherapy (e.g., T cell, CAR T Cell, NK Cell, iPSCs)
- Delivery of biotinylated proteins, drugs, small molecules, nucleic acids
- Isolation of labelled molecules or cells
- Sensing (biotinylated molecules or labelled molecules could be sensed)

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INVENTORS

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OTHER INFORMATION

CATEGORIZED AS

- **Biotechnology**
  - Other
- **Research Tools**
  - Other
- **Veterinary**
  - Other

RELATED CASES

2025-103-0

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Nanostructures For Gene Delivery
- Cell Culture System With Altered Cellular Microgravity And Shear Stress

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