

## **SELECTION AND CLONING OF T LYMPHOCYTES IN A MICROFLUIDIC DEVICE**

### **ABSTRACT**

Methods of expanding T lymphocytes in a microfluidic device are provided. The methods can include introducing one or more T lymphocytes into a microfluidic device; contacting the one or more T lymphocytes with an activating agent; and perfusing culture medium through the microfluidic device for a period of time sufficient to allow the one or more T lymphocytes to undergo at least one round of mitotic cell division. The expansion can be non-specific or antigen-specific. T lymphocytes produced according to the disclosed methods are also provided, along with methods of treating cancer in a subject. The methods of treating cancer can include isolating T lymphocytes from a tissue sample obtained from the subject; expanding the isolated T lymphocytes in a microfluidic device; exporting the expanded T lymphocytes from the microfluidic device; and reintroducing the expanded T lymphocytes into the subject.

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