Induced Synthetic Intracellular Cytokine And Growth Factor Circuits For Cell Autonomous Control Of Cell Signaling, Proliferation, Survival And Cell State

Tech ID: 34503 / UC Case 2024-112-0

VALUE PROPOSITION

Cell therapies hold a lot of therapeutic promise across disease areas. One of the challenges in cell therapy development is finding a way to uniquely activate proliferation or survival of an engineered immune cell, without bystander activation of other cells that can detect that factor, or suppression by competitor cells that consume the cytokine of interest.

TECHNOLOGY DESCRIPTION

UCSF investigators have developed a genetically encoded molecular platform that enables immune cytokines and their receptors to signal from within the cell (intracellularly). This platform provides a powerful method to drive the proliferation or survival of immune cells, which could be used to improve therapeutic immune cells, particularly T cells (e.g. CAR T cells).

RELATED MATERIALS

▶ Allen, G. M., Frankel, N. W., Reddy, N. R., Bhargava, H. K., Yoshida, M. A., Stark, S. R., Purl, M., Lee, J., Yee, J. L., Yu, W., Li, A. W., Garcia, K. C., El-Samad, H., Roybal, K. T., Spitzer, M. H., & Lim, W. A. (2022). Synthetic cytokine circuits that drive T cells into immune-excluded tumors. Science, 378(6625).

PATENT STATUS

Patent Pending

CONTACT

Lei Wan

lei.wan@ucsf.edu

tel: .



OTHER INFORMATION

KEYWORDS

CAR T, platform, Genetic engineering, T cells

CATEGORIZED AS

- ▶ **Biotechnology**
  - ▶ Health
- ▶ **Medical**
  - ▶ Disease: Autoimmune and Inflammation
  - ▶ Disease: Blood and Lymphatic System
  - ▶ Disease: Cancer
  - ▶ Disease: Central Nervous System
  - ▶ Disease: Infectious Diseases
  - ▶ Therapeutics
- ▶ **Research Tools**
  - ▶ Other

RELATED CASES

2024-112-0

ADDRESS

UCSF

Innovation Ventures

600 16th St, Genentech Hall, S-272,

San Francisco,CA 94158

CONTACT

Tel:

innovation@ucsf.edu

https://innovation.ucsf.edu

Fax:

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