A Method to Isolate Tumor Specific T-Cells or T-Cell Receptors from Peripheral Blood using In-vitro Stimulation of Memory T-Cells

Summary (1024-character limit)
The National Cancer Institute (NCI) seek research co-development or licensees for a method to isolate tumor specific T-cells or T-cell receptors from peripheral blood.

NIH Reference Number
E-238-2017

Product Type
- Therapeutics

Keywords
- Adoptive Cell Transfer therapy, ACT, T-cell Receptor, TCR, Immunotherapy, T-cell Isolation, In-vitro Stimulation, IVS, Rosenberg

Collaboration Opportunity
This invention is available for licensing and co-development.

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Description of Technology

Adoptive cell transfer (ACT) and T-cell receptor (TCR) therapies use lymphocytes that target somatic mutations expressed by tumors cells to treat cancer patients. One of the challenges of these therapies is the identification and isolation of mutation-specific cells and TCRs. While neoantigen specific cells are relatively abundant in the tumor, they are far less common in peripheral blood, a more accessible source of T cells.

Researchers at the National Cancer Institute (NCI) have developed a method to isolate neoantigen specific cells or TCRs from selected populations of peripheral T-cells by performing in-vitro stimulation (IVS) on autologous memory T-cells. These cells have been stimulated by their cognate antigens at the tumor site or its draining lymph nodes, and therefore are more relevant for clinical use.

The NCI, Surgery Branch, is seeking licensing and/or co-development research collaborations for the

development of a method to isolate tumor specific T-cells or T-cell receptors from peripheral blood. For collaboration opportunities, please contact Steven A. Rosenberg, M.D., Ph.D. at sar@nih.gov.

Potential Commercial Applications

- T-cell isolation for ACT or TCR therapy
- Solid or blood-borne cancers

Competitive Advantages

- Capable of identifying T-cells or TCRs against mutated epitopes that can be processed and presented in vivo by antigen-presenting cells
- Capable of isolating very low-frequency T-cell clones, e.g. neoantigen specific cells in the blood
- Useful for isolating neoantigen specific TCRs that can be transduced into autologous T-cells for ACT therapy
- Isolates T-cells or TCRs against known mutated driver genes to build a library of TCRs that can be used to treat multiple cancer patients across different histologies

Inventor(s)

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Development Stage

- Discovery (Lead Identification)

Publications

Cafri G, et al. Memory T cells targeting oncogenic mutations detected in peripheral blood of epithelial cancer patients. [PMID 30683863]

Patent Status

- **PCT:** PCT Application Number PCT/US2018/063563 , Filed 03 Dec 2018

Related Technologies

- E-085-2013
- E-149-2015 - Cancer-reactive T cells from Peripheral Blood

Therapeutic Area

- Cancer/Neoplasm