

## Cancer-reactive T cells from Peripheral Blood

### Summary (1024-character limit)

T-cells capable of reacting to mutations in cancer patients have potential use as therapeutics. Identifying and isolating these cells from patients is a crucial step in developing these treatments. Researchers at the National Cancer Institute (NCI) have developed a novel method of isolating mutation-reactive T-cells from a patient's peripheral blood lymphocytes (PBL). The NCI, Surgery Branch, is seeking statements of capability or interest from parties interested in collaborative research to further develop, evaluate, or commercialize this method of isolating mutation-reactive T-cells from peripheral blood.

### NIH Reference Number

E-149-2015

### Product Type

- Therapeutics

### Keywords

- T-cells, Immunotherapy, Cancer, T-cell Receptor, TCR, mutation-reactive T-cells, Gros, Rosenberg

### Collaboration Opportunity

This invention is available for licensing and co-development.

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### Description of Technology

Adoptive cell therapy (ACT) using genetically engineered T-cell receptors (TCRs) is a promising cancer treatment. These TCRs target genetic mutations unique to patients and play an important role in tumor regression. However, mutation-reactive T-cells and their TCRs can be difficult to identify and isolate from patients. Therefore, we need more efficient methods of isolating mutation-reactive T-cells for use with ACT.

Researchers at the National Cancer Institute (NCI) have developed a novel method of isolating mutation-reactive T-cells from a patient's peripheral blood lymphocytes (PBL). The researchers found that mutation-reactive T-cells in the PBL are enriched with various markers including CD8, programmed cell death 1 (PD-1), and T cell immunoglobulin and mucin domain 3 (TIM-3). These T-cells and their TCRs can

be isolated from the blood and then administered to patients as a cancer therapeutic.

The National Cancer Institute, Surgery Branch, is seeking statements of capability or interest from parties interested in collaborative research to further develop, evaluate, or commercialize this method of isolating mutation-reactive T-cells from peripheral blood.

### Potential Commercial Applications

- Personalized immunotherapy to treat cancer patients
- Research tool to identify T-cells and TCRs targeting patient-specific mutation

### Competitive Advantages

- Applicable to patients without tumors available for resection
- More cost effective compared to surgical resection for procurement of tumor infiltrating lymphocytes

### Inventor(s)

[Steven A. Rosenberg \(NCI\)](#), [Alena Gros \(NCI\)](#)

### Development Stage

- Pre-clinical (in vivo)

### Publications

Gros A, et al, Prospective identification of neoantigen-specific lymphocytes in the peripheral blood of melanoma patients. [[PMID 26901407](#)]

Gros A, et al. PD-1 identifies the patient-specific CD8<sup>+</sup> tumor-reactive repertoire infiltrating human tumors. [[PMID 24667641](#)]

### Patent Status

- **U.S. Provisional:** U.S. Provisional Patent Application Number 62/155,830 , Filed 01 May 2015
- **Foreign Filed:** International Patent - Patent Application PCT/US2016/030137 , Filed 29 Apr 2016

### Related Technologies

- [E-229-2014 - T-Cell Therapy Against Patient-Specific Cancer Mutations](#)
- [E-233-2014 - T-Cell Therapy Against Patient-Specific Cancer Mutations](#)
- [E-269-2015](#)

### Therapeutic Area

- Cancer/Neoplasm