Billing Code 4167-05-P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

Government Owned Invention Available for License: Selective Expansion of Engineered TCR-T Cells for Use in Adoptive Cell Immunotherapy

AGENCY: National Institutes of Health, HHS.

ACTION: Notice.

SUMMARY: The National Cancer Institute (NCI) seeks capable licensees interested in commercializing T cell receptor (TCR)-engineered T cells expressing murine/human hybrid receptors.

FOR FURTHER INFORMATION CONTACT: Inquiries related to this license opportunity should be directed to: Andrew Burke , Ph.D. at Email: *burkear@mail.nih.gov* or Phone: 240-276-5484

SUPPLEMENTARY INFORMATION: TCR-T therapies, particularly those targeting patient-specific neoantigens, remain a promising approach to the treatment metastatic cancers. Contemporary gene engineering techniques permit both the targeted integration of the exogenous receptor(s) and further genetic manipulation of the host cells to enhance persistence and performance following adoptive transfer (e.g., through disruption of immune checkpoints such as (*CISH* or *PD1*). However, these techniques often suffer from low transduction efficiencies and may result in the generation of infusion products with sub-optimal percentages of targeted cells.

NCI scientists designed a new method that enables the selective expansion of T lymphocytes, under GMP conditions, that have been engineered to stably express a murine-human hybrid TCR. These hybrid TCRs consist of human variable regions and murine constant regions. The inventive approach uses irradiated feeder cells and an anti-mouse TCR beta constant region antibody (e.g., H57) to provide stimulation, enabling the specific activation and expansion of T cells transduced with the hybrid TCRs. Critically, replacement of the OKT3 activating antibody from the standard rapid expansion protocol with

one specific for the TCR murine constant region prevents the outgrowth of non-transduced cells. Consequently, the new method produces a cell population highly enriched for the desired engineered cells.

NCI seeks to market this method, which is analogous to an antigen-specific stimulation of the T cell, to companies interested in developing personalized ACT companies interested in developing personalized ACT.

"This Notice is in accordance with 37 C.F.R. § 404.4 Authority to grant licenses."

NIH Reference Number: E-143-2024-0.

Related Technologies: E-101-2024-0.

Product Type: Oncology | Immunology.

Therapeutic Area(s): Therapeutic.

Development Stage: Clinical Phase II.

Publications:

- Parkhurst M, et al. Adoptive transfer of personalized neoantigen-reactive TCR-transduced T cells in metastatic colorectal cancer: phase 2 trial interim results. (PMID 38992129).
- Kim SP, et al. Adoptive cellular therapy with autologous tumor-infiltrating lymphocytes and T-cell receptor-engineered T cells targeting common p53 neoantigens in human solid tumors. (PMID 35749374).
- Lowery FL, et al. Molecular signatures of antitumor neoantigen-reactive T cells from metastatic human cancers. (PMID 35113651).

Patents: Filed internationally.

Potential Commercial Applications:

- Enables the GMP production of personalized T cell therapy products targeting tumor specific mutations with a high percentage of engineered cells.

Competitive Advantages:

- Increased therapeutic benefit due to enhanced persistence and performance following adoptive T cell transfer.
- Increased therapeutic benefit due to improved surface expression of the therapeutic TCR αβ.
    - TCR alpha/beta chains substantially eliminate the risk of mis-pairing with the endogenous alpha/beta chain sequences expressed by the host cell.
- Improved manufacturing since the population is highly enriched for the desired engineered cells.
    - Greatly increases the frequency of tumor-specific T cells following expansion, exceeding what is achieved using alternative methods to generate mutation- or tumor-specific T cells.

Collaboration Opportunity: Researchers at the NCI seek licensing for TCR-engineered T cells that will facilitate the ACT process.

Dated: July 13, 2026.

Richard U. Rodriguez,

Associate Director,

Technology Transfer Center,

National Cancer Institute.

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