Affinity Targeted Immunogens

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ABSTRACT

Researchers at the University of California, Davis have developed an approach to elicit powerful immune responses by engineering the binding capabilities of single chain trimer (SCT) proteins to CD8.

FULL DESCRIPTION

Researchers at the University of California Davis have developed a technology that involves altering the binding affinity of single chain trimer (SCT) proteins to CD8. The SCT proteins are based on MHC-I, MHC-II, or MHC-E molecules. As a result of this engineering, the SCT proteins can elicit unique immune responses that are otherwise difficult to induce, tapping an underutilized immunologic resource. This technology improves capacity for immune surveillance through more potent and broadly reactive cytolytic T cells. In addition, it can enable the design of new immunogens that can target rare T cells of desired specificity, restriction, and/or affinity and expand those cells into effectors that are otherwise rare.

APPLICATIONS

- Development of more effective vaccines
- Treatment methods for various infectious diseases like HIV, SARS-CoV-2, HCV
- Therapeutics in oncology by targeting cancer neoantigens

FEATURES/BENEFITS

- Accesses a currently untapped aspect of human adaptive-immune potential
- Ability to confer new capabilities for immune surveillance
- Potentially more potent and broadly reactive cytolytic T cells
- Unique vaccine-induced T-cell clones
- Allows design of new immunogens that target rare T cells
- Overcomes limitations of conventional adaptive immune responses
- Helps prevent pathogens from escaping the immune response through T-cell immunodominance
- Addresses the evolution of HIV and other viruses to evade T-cell responses

PATENT STATUS

Patent Pending

INVENTORS

- Hartigan-O'Connor, Dennis

OTHER INFORMATION

KEYWORDS

T cell receptor, T-cell, T-lymphocytes

CATEGORIZED AS

- **Biotechnology**
  - Health
  - Other
- **Medical**
  - Disease: Infectious Diseases
  - Other
  - Therapeutics
  - Vaccines

RELATED CASES

2023-534-0

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Persistent Memory T-Cell Responses to Cancer and Infectious-disease Antigens by Manipulation of Amino Acid-catabolism Pathways
- Vaccines Using Macrophage Suppression

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