Vaccines Using Macrophage Suppression

Tech ID: 34387 / UC Case 2024-592-0

ABSTRACT

Researchers at the University of California, Davis have developed a technology that introduces vaccines that express macrophage-suppressing molecules to significantly enhance inflammatory T-cell functions for improved immune responses.

FULL DESCRIPTION

The vaccines utilize macrophage-suppressing molecules and novel IL-10 variants and fusion proteins to promote the development of a substantial quantity of antigen- or cancer-specific T cells. These T cells are capable of secreting inflammatory cytokines and responding to MHC class-Ib-restricted "supertopes," leading to improved vaccine efficacy with reduced toxicity.

APPLICATIONS

- Development of effective vaccines for infectious diseases and cancer.
- Customizable platforms for vaccine development across various diseases with enhanced T-cell mediated immunity.
- Therapeutic interventions for diseases requiring targeted T-cell responses without the adverse effects of generalized immune activation.

FEATURES/BENEFITS

- Reduces vaccine-associated toxicity while enhancing immune response.
- Generates a larger quantity of antigen- or cancer-specific T cells secreting inflammatory cytokines.
- Facilitates the development of T cells capable of IFN-gamma secretion, targeting MHC class-Ib molecules such as HLA-E.
- Adaptable to multiple vaccine vector platforms, increasing versatility.
- Reduces non-specific inflammatory effects and toxicity commonly associated with T-cell activation in vaccines.
- Overcomes the limitations of current methods that fail to reliably expand T cells responding to "supertopes" and restricted by MHC class-Ib molecules.
- Addresses the challenge of off-target effects and complexity in cytomegalovirus-vectored vaccines.

PATENT STATUS

Patent Pending

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INVENTORS

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OTHER INFORMATION

KEYWORDS

administration, autoimmune disease, allergic reaction, cytokine, fusion protein, immune cell stimulation, immunosilent, inflammatory disease, interleukin-10, HIV, hepatitis, myeloid cells, vaccine, viral vector

CATEGORIZED AS

- **Biotechnology**
  - Health
- **Medical**
  - Delivery Systems
  - Disease: Autoimmune and

Inflammation

▶ Disease:

Infectious Diseases

▶ Therapeutics

RELATED CASES

2024-592-0

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

▶ Affinity Targeted Immunogens

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