Autologous Irradiated Whole Cell Tumor Vaccines Lentivirally Engineered To Express Cd-80, Il-15 And Il-15 Receptor Alpha

Tech ID: 34487 / UC Case 2016-150-0

TECHNOLOGY DESCRIPTION

UNMET NEED: AML relapse rates, especially in older individuals, remain high due to the inability of current therapies to eliminate minimal residual disease (MRD), underscoring the need for innovative approaches to stimulate leukemia-specific immunity and improve long-term survival.

TECHNOLOGY: Researchers at UCSF have developed a cutting-edge immunotherapy approach using genetically engineered AML cell-based vaccines designed to stimulate the patient's immune system to target and eradicate residual leukemia after remission.

These vaccines incorporate a unique combination of interleukin-15 (IL-15) with its receptor (IL-15Rα) and CD80, a costimulatory molecule, to overcome the immune suppression caused by AML and generate strong, sustained anti-leukemic immunity.

Developmental status: preclinical proof-of-concept achieved in murine models. This technology is related to SF2019-086-0, which has received IND approval.

COMPETITIVE ADVANTAGE:

- **Overcomes AML immune suppression**: Combines IL-15 with its receptor and CD80 to stimulate robust cytolytic activity, even in immune-compromised environments.
- **Dual immune activation**: Simultaneously activates CD8+ T cells and natural killer (NK) cells for enhanced antitumor responses.
- **Personalized and targeted**: Uses autologous AML cells to present patient-specific antigens, addressing the challenge of diverse leukemia-associated antigens.
- **Potential for long-term immunity**: Demonstrated durable immunity and eradication of MRD in preclinical leukemia models, with 50% survival in post-remission vaccination studies.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	12,186,342	01/07/2025	2016-150
European Patent Office	Published Application	3515471	07/31/2019	2016-150

CONTACT

Lei Wan

lei.wan@ucsf.edu

tel: .



OTHER INFORMATION

KEYWORDS

AML, IL-15, CD80, Immunotherapy, Cell Therapy, Cancer Vaccine

CATEGORIZED AS

- Biotechnology
  - Health
  - Medical
    - Disease: Cancer
    - Therapeutics
    - Vaccines

RELATED CASES

2016-150-0

Canada	Published Application	2016-150

ADDRESS

UCSF

Innovation Ventures

600 16th St, Genentech Hall, S-272,

San Francisco,CA 94158

CONTACT

Tel:

innovation@ucsf.edu

https://innovation.ucsf.edu

Fax:

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