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An off-the-shelf dendritic cell-based cancer vaccine

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TECHNOLOGY DESCRIPTION

This novel therapeutic platform is a next-generation dendritic cell (DC) vaccine engineered to overcome the fundamental limitations of autologous DC approaches. Instead of relying on a patient’s own immune cells, this vaccine utilizes stem-cell–derived DCs that lack MHC I and MHC II molecules, eliminating the risk of unwanted immune suppression. These “blank slate” DCs are then *dressed* with the membrane of a patient’s tumor cells, incorporating the full spectrum of tumor-specific antigens. The result is a powerful, off-the-shelf cellular vaccine capable of priming a broad, personalized anti-tumor immune response without the need for autologous cell manufacturing.

Competitive Advantages

Potent Tumor Immune Activation

By combining the absence of endogenous MHC with the full repertoire of tumor antigens from membrane dressing, these engineered DCs drive robust T-cell priming and enhance anti-tumor cytolytic activity. This approach enables effective targeting even in immunologically “cold” tumors where predefined antigens fail.

Scalable, Manufacturable, and Consistent

Stem-cell–derived DCs eliminate the need for leukapheresis, dramatically reducing cost, complexity, and variability. These cells can be expanded, genetically modified, and banked at scale, supporting broad commercial deployment and combination therapy strategies.

Broad Oncology Applicability

Applicable across advanced solid tumors and hematologic cancers, including multiple myeloma, lymphomas, and leukemias. This vaccine offers a platform technology suitable for diverse patient populations and tumor types

RELATED MATERIALS

PATENT STATUS

Patent Pending

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OTHER INFORMATION

KEYWORDS

Dendritic Cell, Cancer

Vaccine, Solid Tumors

CATEGORIZED AS

- ▶ Medical
- ▶ Disease: Cancer
- ▶ Vaccines

RELATED CASES

2024-173-0

STATE OF DEVELOPMENT

Preclinical studies demonstrate that dressed stem-cell–derived DCs elicit a markedly stronger T-cell response compared to both naïve T-cells and T-cells primed by non-dressed DCs. Enhanced cytolytic activity has been observed across multiple cancer models, including B-lymphoblast and histiocytic lymphoma cells. The platform is now positioned for IND-enabling studies and strategic partnerships to support clinical translation.

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