

CANCER IMMUNOTHERAPY USING VIRUS-LIKE PARTICLES

SUMMARY

NCI Technology Transfer Center is seeking to license and commercialize cancer immunotherapy using virus-like particles.

REFERENCE NUMBER

E-050-2014

PRODUCT TYPE

- Therapeutics

KEYWORDS

- virus-like particle
- VLP

COLLABORATION OPPORTUNITY

This invention is available for licensing.

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DESCRIPTION OF TECHNOLOGY

One major challenge in the development of effective cancer therapies is a lack of universal, cancer specific markers in target cells. The current standard therapies rely on surgery, chemotherapy, and radiation therapy. Such procedures lead to a population of resistant cancer cells that makes further applications of chemotherapy/radiation therapy ineffective. Additionally, the systemic application of chemotherapy lacks specificity and has off-target systemic effects that lead to adverse side effects. A considerable effort has been devoted to identifying and targeting specific extracellular cancer markers using antibody based therapies. However, diminished access to new cancer cell surface markers has limited the development of corresponding antibodies.

Investigators at the National Cancer Institute have discovered a novel method that employs presentation of intracellular cancer antigens on the cell surface to convert the tumor into induced antigen presenting cells. The technology utilizes virus-like particle (VLP)-mediated RNA delivery of therapeutic proteins, HLA II and CD80, to directly convert cancer cells into antigen presenting cells (APC) that activate helper and cytotoxic T cells against the tumor. This immunotherapy has the potential to induce tumor specific

responses with minimal toxicity to healthy cells.

POTENTIAL COMMERCIAL APPLICATIONS

- Cancer immunotherapy
- Cancer vaccine

COMPETITIVE ADVANTAGES

- Simple procedure for targeted delivery
- Therapy is effective for any cancer antigen, known or unknown
- More robust immune response

INVENTOR(S)

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DEVELOPMENT STAGE

- Pre-clinical (in vivo)

PATENT STATUS

- U.S. Filed: PCT/US2014/070552

RELATED TECHNOLOGIES

- [E-264-2011 - Virus-Like Particles That Can Deliver Proteins and RNA](#)

THERAPEUTIC AREA

- Cancer/Neoplasm