

Brachyury-directed Vaccine for the Prevention or Treatment of Cancers

Summary (1024-character limit)

Researchers at the NCI have developed a vaccine technology that stimulates the immune system to selectively destroy metastasizing cells. Stimulation of T cells with the Brachyury peptide promote a robust immune response and lead to targeted lysis of invasive tumor cells. NCI seeks licensing or co-development of this invention.

NIH Reference Number

E-055-2011

Product Type

- Therapeutics
- Vaccines

Keywords

- cancer vaccine, Brachyury, transcription factor, T-cells, immunotherapy

Collaboration Opportunity

This invention is available for licensing and co-development.

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Description of Technology

Tumor invasion and metastasis are the primary drivers of cancer-related mortality. Therapies that have an ability to specifically target invasive and/or metastatic cells are anticipated to have a significant impact in the clinical management of advanced cancers.

Researchers at the NCI have developed a vaccine technology that stimulates the immune system to selectively destroy metastasizing cells. Brachyury, a master transcription factor that governs the epithelial-mesenchymal transition, was shown to be significantly overexpressed in primary and metastasizing tumors relative to normal human tissues. Stimulation of T cells with the Brachyury peptide promoted a robust immune response and the targeted lysis of invasive tumor cells. Brachyury overexpression has been demonstrated in a range of human tumors (breast, lung, colon and prostate, among others) suggesting that a therapeutic vaccine derived from this technology would be broadly

applicable for the treatment of cancer.

Potential Commercial Applications

- Preventative cancer vaccine for patients with precancerous lesions of the breast, colon or prostate.
- Therapeutic cancer vaccine for the treatment of disseminated and late-stage tumors.
- Vaccine component of a multi-modal cancer therapy

Competitive Advantages

- Treatment targets invasive and metastatic tumor cells which are the primary cause of cancer-related mortality.
- Vaccine can eliminate cancer stem cells which are resistant to conventional therapies
- Compatible with the clinically-proven TRICOM cancer vaccine platform
- Available (Optimized) for use with non-pox, non-yeast vectors including: adenovirus, lentivirus, etc., and for use with protein- or peptide-based vaccines

Inventor(s)

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Development Stage

- Pre-clinical (in vivo)

Publications

R.I. Fernando et al. [[PMID: 20071775](#)]

C. Palena et al. [[PMID: 17438107](#)]

Patent Status

- **U.S. Provisional:** U.S. Provisional Patent Application Number 61/701,525, Filed 14 Sep 2012
- **U.S. Patent Filed:** U.S. Patent Application Number 14/428,308, Filed 13 Mar 2015
- **Foreign Filed:** European - Patent Application 13773456.2, Filed 14 Apr 2015

Therapeutic Area

- Cancer/Neoplasm
- Immune System and Inflammation