IMMUNOGENIC PEPTIDES (VACCINES) FOR THE TREATMENT OF PROSTATE AND BREAST CANCER

SUMMARY
Researchers at the NCI have developed a novel treatment for prostate and breast cancer using synthetic peptides derived from TARP, the T cell receptor gamma alternate reading frame protein. These immunogenic peptides from TARP elicit an immune response, triggering T cells to kill only the cancer cells within a patient.

REFERENCE NUMBER
E-116-2003

PRODUCT TYPE
- Therapeutics
- Vaccines

KEYWORDS
- vaccine, immunotherapy, TARP, prostate cancer, breast cancer

COLLABORATION OPPORTUNITY
This invention is available for licensing and co-development.

CONTACT
- John D. Hewes
  NCI - National Cancer Institute

  240-276-5515

  John.Hewes@nih.gov

DESCRIPTION OF TECHNOLOGY
Collectively, cancer is the second leading cause of death in the United States. Current treatments of cancer often involve non-specific strategies (such as chemotherapy) which attack healthy cells as well as diseased cells, leading to harmful side-effects. As a result, the development of more targeted means of treating cancer are highly sought after. One option for a targeted treatment is the creation of a vaccine that induces an immune response only against cancer cells. In this sense, vaccination involves the introduction of a peptide into a patient that causes the formation of T cells that recognize the peptide. If the recognized peptide found is found selectively on cancer cells, T cells can trigger the death of those cancer cells without harming non-cancer cells. This can result in fewer side effects for the patient.

TARP (T cell receptor gamma alternate reading frame protein) is a protein that is selectively expressed...
on the cells of certain types of prostate and breast cancer. This invention concerns the identification of two synthetic 9-mer TARP peptides, and their use to create an anti-cancer immune response in patients. By introducing these peptides as a vaccine into a patient, an immune response against these cancer cells can be initiated by the peptides, resulting in treatment of the cancer.

**POTENTIAL COMMERCIAL APPLICATIONS**
- Peptides can be used as cancer vaccines
- Treatment of any cancer associated with increased or preferential expression of TARP
- Specific diseases include breast cancer and prostate cancer

**COMPETITIVE ADVANTAGES**
- Targeted therapy decreases non-specific killing of healthy, essential cells, resulting in fewer non-specific side-effects and healthier patients.

**INVENTOR(S)**
Jay Berzofsky (NCI), Ira Pastan (NCI), Sang-kon Oh (NCI)

**DEVELOPMENT STAGE**
- Clinical

**PUBLICATIONS**
Wood L, et al. TARP vaccination is associated with slowing in PSA velocity and decreasing tumor growth rates in patients with Stage D0 prostate cancer [PMID: 27622067]

Epel M, et al. Targeting TARP, a novel breast and prostate tumor-associated antigen, with T cell receptor-like human recombinant antibodies. [PMID: 18446790]

Oh S, et al. Human CTLs to wild-type and enhanced epitopes of a novel prostate and breast tumor-associated protein [PMID: 15059918]

**PATENT STATUS**
- U.S. Provisional: Application No. 60/476,467 filed June 5, 2003
- U.S. Provisional: Application No. PCT/US2004/17574 filed on June 2, 2004
- U.S. Filed: US Patent No. 8,043,623 issued October 25, 2011

**RELATED TECHNOLOGIES**
- E-047-2014 - Multivalent Immunogenic Vaccines for Treating Prostate and Breast Cancer

**THERAPEUTIC AREA**
- Cancer/Neoplasm