



TECHNOLOGY

PSA peptides for prostate cancer immunotherapy

OVERVIEW

Prostate Specific Antigen (PSA) is a protein produced solely by prostate tissue, including tumors, and is considered a promising target for development of a prostate cancer vaccine. In fact, other groups are currently developing candidate vaccines focused on Class I-restricted CD8+ T-cell immunity, but the ultimate success of those efforts is uncertain. UMB researchers have identified a set of Class II-restricted, naturally processed, strongly immunogenic peptides derived from PSA that promise an effective vaccine to prevent and treat prostate cancer. The inventors showed that patients with a chronic inflammatory prostate condition called granulomatous prostatitis had in common a particular immune cell glycoprotein known as HLA-DRB1*1501, and provided evidence that this is an autoimmune disease. Based on their hypothesis that successful immunotherapy for cancer will resemble conditions of autoimmunity, the inventors performed studies in mice transgenic for HLA-DRB1*1501 to identify particular PSA peptides that are immunogenic. Two such 20-mer peptides were identified, each causing a robust immune response when mice were challenged with the peptide or the whole protein.

APPLICATIONS

According to the Prostate Cancer Foundation, prostate cancer is the most common non-skin cancer in America. One in six American men will be diagnosed with prostate cancer, and 27,000 deaths resulted from the disease last year. While there are treatments available, each is associated with risks and side effects. There remains a critical need for new treatments for this common disease.

ADVANTAGES

-Stronger and more defined immune responses through use of peptide versus whole protein. -Class II-restricted peptides elicit CD4+ T cell response to augment and maintain CD8+ T cell response, enlisting the full arsenal of the immune system against the tumor. -Availability of useful monitoring options, such as immunofluorescence staining with peptide/HLA complexes. -Potential use as therapy for benign prostatic hypertrophy.

STAGE OF DEVELOPMENT

Further pre-clinical studies will be conducted and clinical studies are required for developing a human vaccine.

R&D REQUIRED

see State of Development

LICENSING POTENTIAL

UMB seeks partners for licensing, clinical development, and/or sponsored research to advance this technology into the healthcare field

CONTACT INFO

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Additional Information

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PATENT STATUS

-U.S. Patent 8,435,507 issued 05/07/2013 -International patent application PCT/US2005/029320 Prostate-Specific Antigen-Derived MHC Class II-Restricted Peptides and Their Use in Vaccines to Treat or Prevent Prostate Cancer, filed August 19, 2005

LICENSE STATUS

Available for licensing

CATEGORIES

- Therapeutics
- Biologics
- Vaccines

INVESTIGATOR(S)

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EXTERNAL RESOURCES

- [Identification of HLA-DRB1*1501-restricted T-cell epitopes from human prostatic acid phosphatase.](#)
- [Identification of HLA-DRB1*1501-restricted T-cell epitopes from prostate-specific antigen.](#)

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