



## Medical Education and Research Grant Outcome Report

**Name:** Androgen Receptor as an Immunological Target for the Treatment of Prostate Cancer

**Principal Investigator:** Douglas McNeel, MD, PhD, Associate Professor

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**Department:** Medicine – Hematology/Oncology

**Program:** New Investigator Program

**Grant Duration:** 04-01-06 to 03-31-08 (24 months)

**Expenditures:** \$99,906 (100% expended)

**Use of Funds (Taxonomy):** Type 1 translational research

**Research Keywords:** Prostate cancer, androgen receptor, tumor vaccine, immunology

► **Description:** Prostate cancer is the most commonly diagnosed cancer in the United States. The purpose of this study was to determine whether a protein important to the progression of prostate cancer, the androgen receptor (AR), could be a possible target for anti-prostate tumor vaccines. The investigators used two approaches to test this: (1) to determine whether they could culture CD8+ T cells specific for the AR from the peripheral blood of patients with prostate cancer, and whether these could attack human prostate cancer cells; and (2) to determine whether a vaccine with a portion of the AR can produce androgen receptor-specific CD8+ T cells in mice and anti-prostate tumor responses in a rat model.

► **Results:** This was the first exploration of the AR as an immunological target antigen. The research successfully showed that the AR is a potential immuno-therapeutic target antigen for prostate cancer.

Aim 1: The results revealed that CD8+ T cells specific for the AR already exist in patients with prostate cancer, and some have the ability to attack prostate cancer cells.

Aim 2: Analysis is nearing completion, demonstrating that it is possible to immunize mice with a DNA vaccine encoding a portion of the AR, and to generate the same immune responses that were seen in human blood samples—specifically, the ability to attack prostate cancer cells.

This research proved highly successful in revealing that the AR could be further pursued as a target antigen.

► **Met Objectives:** Project completed

► **Timeline for Application of Results:** 3-5 years

► **New Partnerships or Collaborations:** Collaborations with UW School of Medicine and Public Health investigators and other academic investigators around the world whose focus is evaluating anti-tumor vaccines.

► **Matched Dollars (cash or in-kind):** \$0

► **Dissemination:**

- Published article: *Prostate Journal*
- Two published abstracts: 99<sup>th</sup> meeting of the American Association for Cancer Research
- Oral presentation (national): Tumor Vaccine and Cell Therapy Working Group: Immunotherapy of Cancer XIV
- Articles submitted for publication
- Work with Wisconsin Alumni Research Foundation continues on patent

► **Additional Funding:** \$976,673 (3-year funding) from Department of Defense Prostate Cancer Research Program. A National Institutes of Health R01 application is under review. The investigator is also preparing a SPORE application for submission in 2009.