

Methods and Compositions for Treating Prostate Cancer with DNA Vaccines

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Technology description

Prostate cancer is the second most common form of cancer among North American men. Current therapies for prostate cancer involve either removing the entire gland or treating it with radiation; however, microscopic metastatic disease often remains. A UW-Madison researcher has developed a DNA vaccine for treating prostate cancer. The vaccine consists of a plasmid vector that contains a DNA sequence encoding the enzyme prostatic acid phosphatase (PAP) and a transcription regulatory element. PAP is expressed almost exclusively in prostate tissue. Serum levels of PAP are low in healthy individuals, but elevated in individuals with prostate cancer. When the vaccine is administered to a patient, it induces a cytotoxic immune reaction against cells expressing PAP. This leads to destructive prostatitis (inflammation of the prostate gland), killing the prostate cells.

The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a DNA vaccine for treating prostate cancer.

Application area

Treating prostate cancer, including microscopic metastatic disease

Advantages

Induces both cellular and humoral immune reactions against PAP

Selectively kills any PAP-expressing cells

May eradicate microscopic metastatic disease following removal of the prostate's primary malignant portion

May be useful as an auxiliary treatment to prostate removal or radiation therapy

Relatively easy and inexpensive to manufacture

Does not need to be individualized for patients

Patients can be repeatedly immunized

Less likely than viral vaccines to induce unwanted immune responses

Can be administered intramuscularly, intravascularly, or intradermally

Institution

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