

Scientific Abstract

Phase II study of Adenovirus/PSA vaccine in men with hormone - refractory prostate cancer

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Prostate cancer is the second leading cause of cancer death among males in the United States. There will be an estimated 180,000 new diagnoses of prostate cancer made in the United States. Treatments for organ-confined prostate cancer include radical prostatectomy and radiation. Once the cancer extends outside the prostate, the only systemic treatment is the manipulation of androgens, a treatment that will result in growth inhibition of cells that are androgen-dependent, but has no effect on the population of malignant cells that are androgen-independent. These androgen-independent prostate tumor cells continue to grow and metastasize. Anti-tumor therapies for cancer, including prostate cancer, have been limited, prompting many scientists to investigate the use of immunotherapies and gene therapies. Most of the immunotherapy studies for prostate cancer have concentrated on active non-specific therapy and adoptive or passive therapy, with only recent attention paid to the induction of antigen-specific immune responses. It is our contention that active immunization against antigens associated with prostate cancer will be more effective than active non-specific or adoptive/passive immunotherapy. Therefore, we have been pursuing a vaccination strategy based on an adenovirus that carries the gene for prostate specific antigen (PSA). Viral vectors have been used successfully in both gene transfer and vaccine therapy studies. Replication competent and replication deficient adenoviruses expressing foreign proteins have been used to elicit immune responses to a variety of tumor antigens. We have been able to demonstrate that immunizations with adenovirus, carrying the human PSA gene, can induce vigorous anti-PSA T-cell responses and cause the destruction of PSA-secreting tumors in a pre-clinical mouse model of prostate cancer. We have completed a Phase I clinical trial of the adenovirus/PSA (Ad/PSA) vaccine (IND 9706) where we demonstrated the safety of the product with no vaccine-associated side effects. We propose in this protocol to conduct a Phase II clinical trial of adenovirus/PSA (Ad/PSA) vaccine in men with metastatic disease follow hormone treatment. The vaccine will be administered subcutaneously (sc) in a collagen matrix (Gelfoam[®]) in three injections, 30 days apart. We will monitor the effect of the vaccination by changes in serum PSA and bone and CT scans.