Differential Gene Splicing Enables Prostate Cancer Prognosis and Therapy via siRNA

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Prostate cancer is the most common cancer in men and accounts for over 27,000 deaths per year. The use of a screening test such as PSA is controversial in its efficacy, and treatment options are invasive and can lead to serious complications. Moreover, prostate cancers vary in severity based on genetic profile, which may contribute to health disparities among populations.

GW researchers identified gene splicing differences that could lead to population-specific prostate cancer prognosis and precision siRNA therapeutics. Researchers found that certain splice variants of oncogene PIK3CD are found in highly aggressive prostate cancer samples. Identification of these splice variants can enable early detection of prostate cancer, genetic risk determination, and are novel targets for intervention.

Currently the splice variants and siRNAs are validated by quantitative PCR and in cell culture. We have a composition of matter patent granted on siRNA targeting one of the PIK3CD splice variants. Differential gene splicing has tremendous potential in personalized medicine and could avoid unnecessary surgeries with serious complications.

Applications

- siRNA therapeutics for prostate cancer
- Diagnostics for prostate cancer and genetic risk determination
- Assays for determining aggressiveness of prostate cancer and overall prognosis

Advantages

- Enables better decision-making for treatment planning
- Targeted therapeutics that attack only the aggressive splice variant of a gene
- Novel markers for prostate cancer aggressiveness
Inventors

Norman Lee
Professor of Pharmacology & Physiology

Steven Patierno
Professor of Pharmacology & Physiology

Bi-Dar Wang
Assistant Research Professor of Pharmacology & Physiology