

Advancements in prostate cancer research provide hope for finding a cure and lead to the discovery of new treatments to minimize the impact of a man's prostate cancer and maximize his quality of life. Us TOO is excited to introduce this new, regular *Hot SHEET* supplement which includes some of the latest research from the Prostate Cancer Foundation (www.pcf.org).

The PCF is the world's leading philanthropic organization funding and accelerating prostate cancer research. Founded in 1993, the PCF has raised more than \$745 million and provided funding to more than 2,000 research programs at nearly 200 cancer centers and universities.

For the past 25 years, PCF has hosted an annual scientific retreat, which has become the foremost scientific conference in the world on the biology and treatment of prostate cancer. The top five most important prostate cancer research topics or discoveries that were recently presented at the 2018 PCF Scientific Retreat are as follows:

1. Delivering Radiation Directly to Prostate Cancer Cells (and Prostate Cancer Cells Only!)

Traditional radiation therapy can damage surrounding tissue in addition to cancerous tissue. However, a new kind of targeted radiation therapy uses PSMA (Prostate Specific Membrane Antigen), a protein that is found in large concentrations on the surface of prostate cancer cells, to deliver radiation directly to prostate cancer cells in the prostate and those that have metastasized in the body. In PCF-funded studies, Dr. Jeremie Calais (UCLA) and team are testing this treatment in clinical trials and are developing biomarkers to identify which patients are good candidates for this treatment, and why some patients may or may not respond to it. (Teachable moment: A biomarker is a biological indicator of a disease characteristic, such as treatment responsiveness. For example, the PSA test is a biomarker of potential prostate cancer growth.)

2. New Drug Rucaparib for Some Men with Metastatic Disease

First, a little background: BRCA1/2 gene mutations are found in some men and women with advanced cancer. You might recall it was made most infamous by actress Angelina Jolie who used her breast cancer diagnosis to help raise awareness. We now know that if you are a man with metastatic castrate resistant prostate cancer (mCRPC) and you have a BRCA mutation (~25% of men with mCRPC), a new drug, rucaparib, could be for you. In an ongoing clinical trial led by PCF-funded investigators, rucaparib had encouraging antitumor activity in about 50% of mCRPC patients with BRCA1/2 mutations, and has been granted FDA Breakthrough Therapy status (a process to fast-track FDA review of highly promising drugs).

3. Drugs That Can Treat Prostate and Breast Cancer?

In a search for treatments for triple-negative breast cancer (TNBC), which is highly aggressive and cannot be treated with the hormone therapies used for other types of breast cancer, PCF-funded researcher Dr. Suzanne Conzen (University of Chicago) and team identified a hormone receptor relative, the glucocorticoid receptor (GR), as a promising treatment target. Studies by Conzen and other PCF-funded researchers found that GR may also drive resistance to AR-targeted therapy in some men with prostate cancer. Dr. Conzen and team have developed new GR-targeting drugs, and are testing these in clinical trials for prostate, breast, and other cancers.

4. Reversing Neuroendocrine Prostate Cancer (NEPC)

Neuroendocrine prostate cancer (NEPC) is a highly aggressive and lethal form of prostate cancer that affects ~17% of patients with advanced CRPC. Because this form of prostate cancer is so aggressive, there is an urgent need to develop new and effective treatments for patients with NEPC. PCF-funded researcher Dr. Amina Zoubeidi (Vancouver Prostate Centre) has discovered a "regulator" gene (EZH2) that controls NEPC. When enzalutamide-resistant prostate cancer cells are given EZH2-inhibitors, they revert and become treatable again with enzalutamide. EZH2 inhibitors are now in clinical trials for advanced prostate cancer.

5. Testing a Beta Blocker for Prostate Cancer

In case you don't know, Beta Blockers are part of a class of drugs that reduce your blood pressure by blocking the effects of adrenaline in your system. So, what do Beta Blockers have to do with prostate cancer? Studies suggest that adrenergic nerves, that is, the ones that require adrenaline to function, may regulate the growth and progression of prostate cancer. Drs. Benjamin Gartrell (Albert Einstein College of Medicine), Paul Frenette (Montefiore Medical Center), and team are investigating the mechanisms of this activity and are testing beta-blockers in prostate cancer clinical trials.

For more information visit www.pcf.org, email info@pcf.org, or call 1-800-757-2873.