


[Press](#)
[Contact Us](#)



Home
About Prostate Cancer
About Us
Support O

**Where Your Money Goes**

- PCF Supported Research
- PCF Publications
- PCF Partners
- Events
- Athletes for a Cure
- Leadership Team
- Media Center
- Careers
- Contact Us


## Where Your Money Goes

The Prostate Cancer Foundation's (PCF) primary mission is to fund promising research into treatments and a cure for recurrent prostate cancer. The PCF has raised more than \$288 million and provided funding to 1,200 prostate cancer researchers at 100 leading cancer research institutions worldwide. The PCF is now the world's largest source of philanthropic support for prostate cancer research.

Meet some of our researchers and learn about their extraordinary efforts in prostate cancer research:

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### Baylor College of Medicine




**Name:** Ming Zhang, PhD

**Title:** Role of PSE in Prostate Tumorigenesis

**Summary:** Transcription factors play a pivotal role in gene regulation and control of cancer progression. Dr. Zhang is studying the role of the transcription factor PSE in both cell cultures and mice to understand its role in prostate cancer tumor growth and to determine whether it might prove an effective target for cancer therapies.

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### Brigham & Women's Hospital




**Name:** Francesca Demichelis, MSc, PhD

**Title:** Fusion of TMPRSS2 and ETS Family of Transcription Factors in Prostate Cancer: A Bioinformatics Approach to Understand the Molecular Diversity of Prostate Cancer

**Summary:** Earlier studies demonstrated that the fusion and rearrangement of genes is related to the progression of prostate cancer. Dr. Demichelis is investigating the clinical significance of these rearrangements using computerized gene array and bioinformatics analyses.

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**Name:** Jing Ma, MD, PhD

**Title:** Obesity, Adiponectin, Angiogenesis, and Prostate Cancer

**Summary:** Obese men with prostate cancer tend to fare more poorly than non-obese men, but the mechanisms behind this difference are not well understood. Dr. Ma is investigating whether levels of adiponectin, a protein produced by fat cells that is known to help regulate cell growth, can predict survival in men with prostate cancer.

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### Dana-Farber Cancer Institute

**Name:** Ronald A. DePinho, MD

**Title:** Telomere Dynamics in Driving the Genomics and Biology of Prostate Cancer Initiation and Progression

**Summary:** The shortening of telomeres seems to be an early indicator of genetic changes that lead to prostate cancer development.

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progression. Dr. DePinho is using animal models to better understand the role of telomere dysfunction in prostate c



**Name:** Levi A. Garraway, MD, PhD  
**Title:** Pathway-Based Determinants of Rapamycin Sensitivity in Cancer Cells  
**Summary:** Inactivation of tumor-suppressing genes is a known crucial factor in cancer development and progression, but clinical attempts to reverse this process with existing agents are often unsuccessful. Dr. Garraway is studying the sensitivity of prostate cancers to such agents in an attempt to identify tumors more likely to respond to the therapy.

#### Fred C. Hutchinson Cancer Research Center



**Name:** Peter S. Nelson, MD  
**Title:** In vivo Assessment of Maximal Inhibition of Androgen Signaling for Prostate Cancer Therapy  
**Summary:** The benefits of eradicating all circulating testosterone are not clear, and optimal methods to achieve complete androgen blockade with prostate cancer remain undefined. Dr. Nelson is investigating the most effective strategy for androgen blockade, and how achieving this state affects tumor cell growth and death.

#### Georgetown University



**Name:** Edward P. Gelmann, MD  
**Title:** NKX3.1 Polymorphism and Serum IGF-1 Interact to Confer Prostate Cancer Risk  
**Summary:** Research has shown that high levels of IGF-1 in the blood confer an increased risk of prostate cancer. Dr. Gelmann is exploring the effects of a specific mutation on the NKX3.1 gene and its role in enabling IGF-1 to promote prostate cancer growth in prostate cancer patients with the mutation.

#### Hebrew University (Israel)



**Name:** Alexander Levitzki, PhD  
**Title:** Substrate Competitive Inhibitors of PKB for the Treatment of Metastatic Prostate Cancer  
**Summary:** Early studies have shown that blocking a cellular growth factor known as PKB can be an effective method of combating drug-resistant prostate cancer cells. Dr. Levitzki is investigating whether anti-PKB agents can destroy cancer cells and whether their efficacy might improve when combined with existing chemotherapy agents.

#### Johns Hopkins University



**Name:** Philip A. Beachy, PhD  
**Title:** FDA-Approved Drugs for Hedgehog Pathway Inhibition in Cancer  
**Summary:** Previous studies have shown that continual stimulation of a signaling pathway, referred to as the Hedgehog pathway, is a key factor in the development of metastatic prostate cancer. Dr. Beachy is testing the ability of current agents to inhibit this pathway in men with prostate cancer.

**Name:** Robert H. Getzenberg, PhD  
**Title:** Utilization of Serum EPCA-2 Levels to Identify Men with Aggressive Prostate Cancer  
**Summary:** Biomarkers that can help distinguish between more and less aggressive disease are essential to helping physicians de



the best therapeutic approach. Dr. Getzenberg is evaluating the utility of one such marker by assessing how well it correlates with clinical features and outcomes of prostate cancer.



**Name:** John T. Isaacs, PhD  
**Title:** New Approach to Neutralize Androgen Receptor Function in Androgen Ablation Failing Prostate Cancer Patients  
**Summary:** Mutation of the androgen receptor disrupts the efficacy of hormone therapy and thereby promotes prostate cancer growth in men with advanced disease. Dr. Isaacs is developing a mechanism to prevent one of the most common forms of mutation, thereby neutralizing the ability of the receptor to promote cancer growth.



**Name:** Dan Stoianovici, PhD  
**Title:** Robotic MRI-Guided Prostate Interventions  
**Summary:** Precise localization of tumors in the prostate gland is crucial for multiple diagnostic and therapeutic strategies. Dr. Stoianovici is studying the use of an MRI-guided robot designed to assist in the placement of imaging instruments, and is testing the ability of the robot to accurately insert brachytherapy seeds in animal cadaveric prostates.

#### M.D. Anderson Cancer Center



**Name:** Renata Pasqualini, PhD  
**Title:** Targeted Imaging of Prostate Cancer Bone Metastasis  
**Summary:** The lack of precise imaging capabilities has contributed to difficulty in following the progression and monitoring treatment effects in prostate cancer. Dr. Pasqualini is studying whether specialized proteins can bind to cell surface receptors and, if they can, in turn, be used to guide molecular imaging of cancer cells.

#### Memorial Sloan-Kettering Cancer Center



**Name:** James P. Allison, PhD  
**Title:** Inhibitory B7 Molecules as Targets for Checkpoint Blockade Immunotherapy of Prostate Cancer  
**Summary:** Agents that stimulate activity of specific cells in the immune system are currently being studied in clinical trials. Dr. Allison is investigating cells from a similar pathway to determine whether they can also induce the immune system into fighting prostate cancer cells.



**Name:** Neal Rosen, MD, PhD  
**Title:** Development of Therapeutic Strategies for the Inhibition of PI3/AKT Kinase-Mediated Signaling Pathways in Advanced Prostate Cancer  
**Summary:** Disruption of cell-signaling pathways known to induce prostate cancer cell proliferation has emerged as a promising therapeutic strategy for prostate cancer. Dr. Rosen is investigating the mechanisms behind novel PI3/AKT inhibitors with an eye toward better understanding the biologic and clinical consequences of inhibiting this growth pathway.



**Name:** Howard I. Scher, MD  
**Title:** Preclinical and Clinical Studies of HDAC Inhibition in Prostate Cancer  
**Summary:** Persistent activity of the androgen receptor despite hormone therapy is a hallmark of hormone-resistant prostate cancer. Dr. Scher is studying whether HDAC inhibitors, which are known to downregulate activity of the androgen receptor, can affect

prostate cancer cell growth alone or in combination with anti-cancer agents.

#### Ohio State University



**Name:** Ching-Shih Chen, MD, PhD  
**Title:** Development of Small-Molecule Inhibitors of Clinically Re Targets for Prostate Cancer Progression  
**Summary:** Multiple cell signaling pathways contribute to the function of the androgen receptor, whose actions play an important role in the progression of prostate cancer. Dr. Chen is studying a set of small molecule agents that can potentially interfere with these pathways and therefore slow the progression of the disease.

#### Roger Williams Medical Center



**Name:** Richard P. Junghans, MD, PhD  
**Title:** Advanced Generation Therapies of Anti-PSMA Designer T Cells for Prostate Cancer  
**Summary:** Research has shown that T cells in the immune system can be engineered to identify and destroy specific proteins found on the surface of cancer cells. Dr. Junghans is refining the mechanism by which this process occurs in prostate cancer cells, transferring earlier laboratory and animal work into a clinically useful therapeutic product.



**Name:** Qiangzhong Ma, PhD  
**Title:** PSMA-Fc Fusion Protein for Activation of Anti-PSMA Designer T Cells for Improved Therapy of Prostate Cancer  
**Summary:** The re-engineering of T cells to recognize and destroy prostate cancer cells is a promising immune-based strategy, but translating this laboratory research into a clinically effective therapy is challenging. Dr. Ma is developing a protein that will directly activate infused T cells, extending and enhancing the potency of the T cells in men with prostate cancer.

#### Stanford University



**Name:** Calvin J. Kuo, MD, PhD  
**Title:** Novel Hedgehog Antagonists for the Treatment of Prostate Cancer  
**Summary:** Interference with the Hedgehog cell-signaling pathway has been shown to inhibit the growth of prostate cancer cells. Dr. Kuo has engineered a novel anti-Hedgehog protein and is investigating whether this protein can effectively be used in both prostate cancer cell lines and mouse models.

#### University of Alabama, Birmingham



**Name:** Richard D. Lopez, MD  
**Title:** Clinical-Scale Expansion and Purification of Human  $\gamma\delta$ -T Cells for the Adoptive Cellular Therapy of Advanced or Recurrent Prostate Cancer  
**Summary:** Certain cells in the immune system have an innate ability to recognize cancer cells, but these cells are few in number and have short lifespans. Dr. Lopez is studying methods to expand these cells, to grow them in the laboratory, to inject them into prostate tumors, and to monitor their effectiveness at destroying cancer cells.

#### University of California, Davis



**Name:** Ralph W. de Vere White, MD  
**Title:** Functional Validation of H2 Relaxin as a Facilitator of Androgen-Independent Prostate Cancer  
**Summary:** Research with prostate cancer cell lines has shown that tumor progression to hormone-resistant disease can be slowed by inhibiting expression of a protein known as H2 relaxin. Dr. White is exploring whether similar results can be seen in

models of prostate cancer and whether these results will into clinical significance in men with prostate cancer.

#### University of California, Los Angeles



**Name:** Owen N. Witte, MD  
**Title:** Identification of Genes Regulating Prostate Cancer Metastasis  
**Summary:** Genetic changes in prostate cancer cells enable them to metastasize from the prostate and migrate to other tissues, resulting in prostate cancer metastases. Dr. Witte is using an RNA-based gene screening tool to identify genes that might be implicated in the progression from normal prostate tissue to prostate cancer metastases.



**Name:** Lily Wu, MD, PhD  
**Title:** Deciphering the Role of Tumor-associated Macrophages in Prostate Cancer Metastasis  
**Summary:** The spread of prostate cancer cells to the lymph nodes is characteristic of advanced disease. Dr. Wu is investigating whether cancer cells are recruited to the lymph nodes, and whether a better understanding of the interactions between the immune system and the tumor could lead to the development of new therapies for metastatic disease.

#### University of California, Riverside



**Name:** Ameae M. Walker, PhD  
**Title:** S179D Prolactin Sensitizes Late-Stage Human Prostate Cancer Cells to Physiological Levels of 1,25 Dihydroxy Vitamin D<sub>3</sub>  
**Summary:** 1,25 dihydroxy vitamin D<sub>3</sub> (1,25D) affects prostate cancer growth in laboratory tests, but the high levels required to achieve similar results in humans cause unacceptable toxicities. Dr. Walker is studying whether S179D prolactin can be used to sensitize prostate cancer cells to 1,25D so that lower and less toxic levels of 1,25D could induce cancer cell death.

#### University of California, San Francisco



**Name:** Robert A. Bok, MD, PhD  
**Title:** Carbon-13 and Nanoparticle Enhanced MRSI of Prostate Cancer  
**Summary:** The ability to image prostate cancers is an important step in the management of the disease. Dr. Bok is combining some of the newest imaging strategies to identify improved methods to detect and monitor growing tumors.



**Name:** Marc I. Diamond, MD  
**Title:** Identification of Novel Anti-Androgens via Conformational Change  
**Summary:** Development of new compounds to target the androgen receptor and slow the progression of prostate cancer is a high priority. Dr. Diamond is screening currently available agents to determine whether they can inhibit androgen-receptor activity and therefore be used in men with prostate cancer.



**Name:** Robert J. Fletterick, PhD  
**Title:** Discovery Strategy for Stable AF-1 Androgen Receptor-Coregulator Complexes  
**Summary:** The ways in which prostate cancer cellular proteins interact with the androgen receptor is not well understood. Dr. Fletterick is using computerized systems to isolate and determine the 3-D structures of protein-receptor complexes in an attempt to identify agents that block their association and therefore potentially slow prostate cancer progression.

**Name:** Timothy P. Quinn, MD



**Title:** A New Approach to Target Overexpressed VEGF: Converts VEGF into a Cell Death Factor

**Summary:** Vascular endothelial growth factor (VEGF) is a protein that promotes the growth of new blood vessels thereby enabling tumors to grow. Dr. Quinn is studying the role of a recombinant protein that, when bound to VEGF, is able to target and kill prostate cancer cells. [More information](#)

#### University of Iowa



**Name:** Michael D. Henry, PhD

**Title:** AR Targeted siRNA Therapy for Advanced Prostate Cancer

**Summary:** The use of small interfering RNA (siRNA) directed to the androgen receptor has been shown to modify expression of the receptor and induce the death of prostate cancer cells. Dr. Henry is exploring whether coupling the siRNA to cholesterol might be an effective mechanism for uptake of the siRNA and whether this could affect prostate cancer progression in animal models.

#### University of Maryland



**Name:** Yun Qiu, PhD

**Title:** The Role of a Novel Pim-1 Kinase Isoform in Chemoresistant Prostate Cancer

**Summary:** Late-stage prostate cancers are often resistant to chemotherapy. Dr. Qiu is studying the mechanisms behind the chemoresistance conferred on prostate cancer cells by a protein known as Pim-1 and whether inhibiting its actions can sensitize cells to chemotherapy.

#### University of Massachusetts



**Name:** Robert E. Carraway, PhD

**Title:** Blood Fatty Acids Regulate Prostate Tumor Growth: Animal and Human Studies

**Summary:** Earlier studies have demonstrated that the presence of fat stimulates the release of a hormone, which, in turn, promotes the growth of blood vessels that nourish prostate tumors. Dr. Carraway is studying the interactions between fat intake, hormone release, and blood vessel growth to determine whether an interruption of one of these steps can decrease prostate cancer growth. [More information](#)

#### University of Michigan



**Name:** Arul M. Chinnaiyan, MD, PhD

**Title:** The Role of Gene Fusions in Prostate Cancer

**Summary:** Genetic alterations can result in the production of fusion proteins that help spur the development of cancer cells. Dr. Chinnaiyan identified a protein that results from a fusion of two genes to be overexpressed in prostate cancer cells and is investigating whether the protein might play a role in the development of prostate cancer.



**Name:** Russell S. Taichman, DMD, DMSc

**Title:** Regulation of Metastatic Prostate Cancer by Annexin II (ANXII)/AXL/GAS6

**Summary:** Prostate cancers are known to metastasize to the bone, but the interaction between the tumor and bone environments remains poorly understood. Dr. Taichman is evaluating the role of proteins produced by bone tissue and/or prostate cancer in regulating tumor cell growth and metastatic spread to the bone.

**Name:** Shaomeng Wang, PhD

**Title:** Design and Evaluation of High-Affinity, Non-Peptide, Bivalent Small-Molecule Smac Mimetics as a Novel Therapy for Triple Negative Androgen-Independent, Advanced Prostate Cancer



**Summary:** Specialized proteins contained within prostate cancer cell them impervious to agents that promote cell death. Dr. V investigating the use of novel agents that inhibit the acti these proteins and is examining whether these agents ca alone or in combination with other anti-cancer agents to prostate cancer cell death.

#### University of Minnesota



**Name:** Junxuan Lu, PhD  
**Title:** Novel Herbal Drug Candidates for Prostate Cancer Therap  
**Summary:** Preliminary studies with the Korean herb *Angelica gigas* I have shown it to have antiandrogenic properties. Dr. Lu i analyzing molecular components of the herbal extract to determine whether it can be used effectively and reliably the growth of prostate cancer in mouse models.

#### University of Pittsburgh



**Name:** Beth R. Pflug, PhD  
**Title:** Fatty Acid Synthase as a Therapeutic Target for Prostate  
**Summary:** Fatty acid synthase (FAS) is an enzyme known to be elev cancerous prostate tissue compared with normal prostate but the precise relationship between FAS and prostate ca remains unclear. Dr. Pflug is investigating the potential b an FDA-approved FAS inhibitor in men with prostate canc measuring tumor responses to the agent.



**Name:** Uzma S. Shah, PhD  
**Title:** Genetic Implications of Targeting Fatty Acid Synthase as Potential Therapeutic Agent in Prostate Cancer  
**Summary:** The interaction between fatty acid synthase (FAS) and pr cancer growth is mediated by a number of genetic altera prostate cancer cells. Dr. Shah is studying the genetic ch seen when FAS activity is inhibited to better understand I FAS in regulating the growth of prostate cancer cells.

#### University of Rochester



**Name:** Ganesh S. Palapattu, MD  
**Title:** Bone Marrow Derived Cells (BMDCs) and Prostate Carcin  
**Summary:** Laboratory studies have demonstrated a potential role fo inflammation and/or infection in the development of pros cancer. Dr. Palapattu is exploring whether bone marrow c cells, which are normally recruited by the body to help re tissue, might contribute to the development of cancer in chronically inflamed prostate tissue.

#### University of Southern California



**Name:** Gerhard A. Coetzee, PhD  
**Title:** Understanding Castrate-Resistant Prostate Cancer  
**Summary:** Hormone resistance is a hallmark of advanced prostate c is typically seen as a major turning point in disease progr Dr. Coetzee is investigating the mechanisms by which a r discovered protein aids in progression and whether the p or absence of this protein can predict progression to horr resistant disease.

#### University of Virginia

**Name:** John M. Chirgwin, PhD  
**Title:** PSA Regulates Bone Metastases through PTHrP Proteolys Preclinical Assay Development  
**Summary:** The development of bone metastases is a painful and oft debilitating effect of progressive prostate cancer. Dr. Chir



studying the interactions among different proteins produced by prostate cancer cells in an attempt to determine whether metastases can be treated and/or prevented.



**Name:** Michael J. Weber, PhD  
**Title:** Preclinical Studies on MEK Inhibition in Advanced and Metastatic Prostate Cancer

**Summary:** Activation of the MEK cell-signaling pathway has been shown to induce growth of hormone-resistant prostate cancer cells. Dr. Weber is studying the mechanisms of an MEK inhibitor to determine markers that might predict response to the agent and to the need for complementary agents to optimize inhibition of hormone-resistant cell growth.

#### University of Wisconsin



**Name:** Wade Bushman, MD, PhD

**Title:** Characterization of Prostate Stem Cells Cultured as Prostate Cancer

**Summary:** Previous research has shown that hormone-resistant prostate cancer cells grow from stem cells that can self-renew and grow indefinitely. Dr. Bushman is studying the biology and growth behaviors of these cells to identify targets for therapeutic intervention.



**Name:** George Wilding, MD

**Title:** Pentamethylchromanol as an Antiandrogenic Antioxidant for Prostate Cancer

**Summary:** Prior studies have demonstrated that the antioxidant pentamethylchromanol has activity against both hormone-sensitive and hormone-resistant prostate cancer cell lines. Dr. Wilding is examining whether the antioxidant can reduce tumor volume in animal models as determined by a high-resolution microCT-microPET hybrid scanner.

#### Vanderbilt University



**Name:** Jay H. Fowke, PhD, MPH

**Title:** Glitazones and Prostate Cancer Risk in a Large Cohort of Type II Diabetes

**Summary:** Studies of men with diabetes have shown that those on drugs known as glitazones have a significantly lower risk of developing prostate cancer. Dr. Fowke is exploring this phenomenon closely to determine whether these agents can safely be used for prostate cancer prevention. [More information](#)

#### Wake Forest University



**Name:** Purnima Dubey, PhD

**Title:** In Vivo Evaluation of PSCA as a T Cell Target for Immunotherapy of Prostate Cancer

**Summary:** One of the challenges inherent in an immune-based therapy is teaching the body to distinguish between normal and cancerous tissue. Dr. Dubey is studying whether the immune system can be taught to target a protein found on the surface of prostate cancer cells, while ignoring the same protein when it is found in normal tissues.