The Quest for a Cure

A BENCH-TO-BEDSIDE ROADMAP FOR OUR NEWLY DISCOVERED PROSTATE CANCER THERAPY

A CASE FOR SUPPORT
Prostate cancer is an epidemic—the most common non-skin cancer among American men, particularly those age 65 and older.

Over the next 15 years, as almost 10 million baby boomers enter the age range at which the disease typically occurs, its incidence is expected to explode.

More than 2.9 million American men who are alive today have been diagnosed with prostate cancer at some point in their lives.

Nearly 192,000 new cases of prostate cancer will be diagnosed in the U.S.

RISK FACTORS

RACE:
African American men are about 70% more likely to develop prostate cancer than European-American Caucasian or Hispanic men.

FAMILY HISTORY:
Men with an immediate blood relative, such as a father or brother, who has had prostate cancer are twice as likely to develop the disease.

GENOME CHANGES:
Certain genes have been known to elevate risks, such as BRCA1 and BRCA2.

AGE:
60% of prostate cancers diagnosed in men are over 65.

Source: American Cancer Society

1 in 7 men will be diagnosed during his lifetime.
Dear Friend,

Time and again in the fight against prostate cancer, research has proven to be the most powerful tool in our arsenal. Statistics show the progress. From 1993 to 2015, as national funding for cancer research increased, prostate cancer deaths decreased by 52%. Between 2007 and 2014, the incidence of prostate cancer declined by an average of 6.5% every year.

As overall death rates continue to decline for all major racial and ethnic groups in the United States, it’s clear that new interventions are having an impact.

Here at Jefferson, we have long believed in the power of research. Our nationally recognized program is driven by a true “dream team” of innovative physicians and scientists who leave no stone unturned in their quest for a cure. Two of those crucial leaders are Mathew Thakur, PhD, and Eric Wickstrom, PhD.

Drs. Thakur and Wickstrom have nearly 80 years of combined field experience. In partnership with KOP Therapeutics, they are pursuing novel areas of research that are poised to transform our understanding and treatment of prostate cancer. Drs Thakur and Wickstrom have validation of their novel approach as an effective prostate cancer therapy. We are confident in the profound impact this newly discovered therapy will make. And today, we are proud to share an extraordinary opportunity that will unlock their full potential, accelerate discovery and innovation, and reveal some of prostate cancer’s most elusive mysteries.

Together, we can empower Drs. Thakur and Wickstrom to translate scientific breakthroughs into novel therapies more rapidly than ever before. This is a revolution in prostate cancer care, and we would be honored if you were part of it.

Sincerely,

Karen E. Knudsen, PhD, MBA
Director, NCI-Designated Sidney Kimmel Cancer Center
Hilary Koprowski Chair of the Department of Cancer Biology
Redefining Tomorrow's Cancer Care

Research is the foundation of our comprehensive prostate cancer program, providing the insights and breakthroughs necessary to deliver truly innovative patient care. Dedicated to unlocking the mysteries of prostate cancer by studying the cellular and molecular biology of the disease, leading Jefferson investigators—like Drs. Thakur and Wickstrom—are able to better understand the basis of cancer development and progression, which can then be used to develop new clinical interventions that reduce cancer incidence and mortality.

KOP-101 Targeted Therapy

The novel KOP-101 Targeted Therapy is a prime example of this bench-to-bedside innovation in action. Developed by Drs. Thakur and Wickstrom, this first-of-its-kind therapy precisely targets cancer cells and stem cells—all while sparing healthy cells. KOP-101 is designed to silence newly identified cancer, stop cancer cell division, and prevent cancer recurrence. Currently being tested to treat prostate cancer, Drs. Thakur and Wickstrom are confident the drug’s mechanism will effectively translate to treat additional cancers, like breast and lung. As such, KOP-101 is truly a breakthrough in modern cancer care.

Mechanism of Action

**Targeted, low toxicity**

**KOP drug therapy**

KOP-101 is designed to:

1. **Step 1: Identify Cancer Cells**
   - Bind to a specific receptor found on most cancer cells, enter only cancer cells and leave healthy cells unaffected.

2. **Step 2: Block Cancerous mRNA**
   - Inside the cell, block mRNA produced by a cancer gene, thereby stopping production of cancer-driving and immune-evasive proteins.

3. **Step 3: Induce Cancer Killing**
   - Cause cancer cell stop growing. Any excess KOP-101 is ejected and taken up by other cancer cells. These cells are then disposed of by the immune system.
KOP-101
Drug Design and Early Results

Drug Design
KOP-101’s novel design is composed of two strategic components: one that binds the cancer-killing drug to characteristic receptors expressed on malignant cell surfaces at the onset of cancer, and a second that targets mutated cancer genes that drive the disease.

Once bound to the cell surface, the drug rapidly enters into cancerous cells where the second component blocks the numerous mRNA copies produced by mutated cancer genes. KOP-101 then selectively prevents malignant cell division, leading to cell death and eliminating cancer cells from the body.

This unique form of therapy might effectively treat prostate, breast, lung, and other cancer types that share the same genomic mutations. KOP-101’s distinct composition minimizes adverse drug-related effects on patients and helps preserve quality of life by only attacking cancerous cells. Formulated to kill specific cancer cells that have been historically resistant to chemotherapy and radiation therapies, KOP-101 plays a pivotal role in stopping cancer from returning.

Early Results
Our team has been highly encouraged by KOP-101 lab results thus far. Our research reveals that Petri dish-grown human cancer and healthy cells being treated with the drug are reacting as anticipated. The drug is binding to the cell surface of malignant cells, entering into cancer cells, and killing the malignancy. Meanwhile, as designed, healthy cells are not experiencing adverse effects.

Work is in progress to optimize the treatment dose and related parameters to perform preclinical studies in experimental animal models. In vivo studies are currently scheduled to commence later this year.
Dr. Mathew Thakur is a Professor of Radiology, Radiation Oncology, and Urology at Thomas Jefferson University, and Director of the Laboratories of Radiopharmaceutical Research and Molecular Imaging at Jefferson's Sidney Kimmel Cancer Center (SKCC). He obtained his master's and PhD degrees from the University London, England.

Dr. Thakur's research objectives focus strongly on the development of radiopharmaceuticals for diagnostic and therapeutic applications of life-threatening diseases. As a principal investigator and co-principal investigator, his research has been funded by federal, foundational, and industrial grants. Dr. Thakur currently holds 30 active and pending patents, along with three emergency Investigational New Drug Applications (eINDs) from the U.S. FDA to perform translational clinical research. An active public presenter, Dr. Thakur has also published more than 500 original articles, review papers, book chapters, abstracts, and editorials. His extensive contributions to the field of nuclear medicine and molecular imaging are well-recognized by his peers. Dr. Thakur has received 13 national and international awards, including the Benedict Cassen Award, which is the Society of Nuclear Medicine's highest honor in recognition of outstanding achievement and work leading to a major advance in nuclear medicine.

Dr. Eric Wickstrom is a Professor of Biochemistry and Molecular Biology at Thomas Jefferson University. He is an active member of Jefferson's Sidney Kimmel Cancer Center and Director of SKCC's Laboratory of Molecular Design. Dr. Wickstrom earned his PhD from the University of California, Berkeley. Prior to joining Jefferson, he was a Research Associate at the University of Colorado and a Senior Research Scientist in the Recombinant DNA Division of Southern Biotech, Inc., Florida, along with holding several prestigious positions at other research institutions throughout the country.

Dr. Wickstrom's research portfolio concentrates on the translation of messenger RNA in cells. Particularly, he designs RNA-peptide chimeras targeted against pathogenic messenger RNAs to diagnose and treat cancer and other debilitating diseases. A publisher of more than 400 original articles, patents, review papers, book chapters, and conference abstracts, Dr. Wickstrom has also given more than 200 presentations at domestic and international institutions and conferences. As a principal investigator and co-principal investigator, his research has been sustained by federal, foundational, and industrial grants.
At Jefferson, we are steadfast in our mission to make a better world for patients and families affected by prostate cancer. But without philanthropic support to drive innovative and forward-thinking research projects, they are likely to remain simply big ideas—tantalizingly out of reach for scientists, physicians, and patients alike.

We have the talent. We have the leadership. And we have the vision. With your support, we can fundamentally transform the future of prostate cancer care and improve lives at Jefferson and beyond.

In this spirit, we respectfully request a philanthropic gift in support of Drs. Thakur and Wickstrom’s pioneering research. Your generosity will ensure they have the funding needed to advance their promising work and initiate preclinical studies that lead to FDA-approved clinical trials.

With your support and our expertise, we are poised to improve countless lives, creating a ripple effect of hope and healing that will extend far beyond the walls of Jefferson.

Let's reimagine the future of cancer care, together. Thank you for your thoughtful consideration of this transformational gift.
FOR MORE INFORMATION, PLEASE CONTACT:

Emma Laverty  
Assistant Vice President of Development, Sidney Kimmel Cancer Center  
215-503-8679  
Emma.Laverty@jefferson.edu

Emily Nist  
Assistant Director of Development, Sidney Kimmel Cancer Center  
215-503-7604  
Emily.Nist@jefferson.edu

Office of Institutional Advancement  
125 S. 9th St., Suite 600  
Philadelphia, PA 19107  
Giving.Jefferson.edu