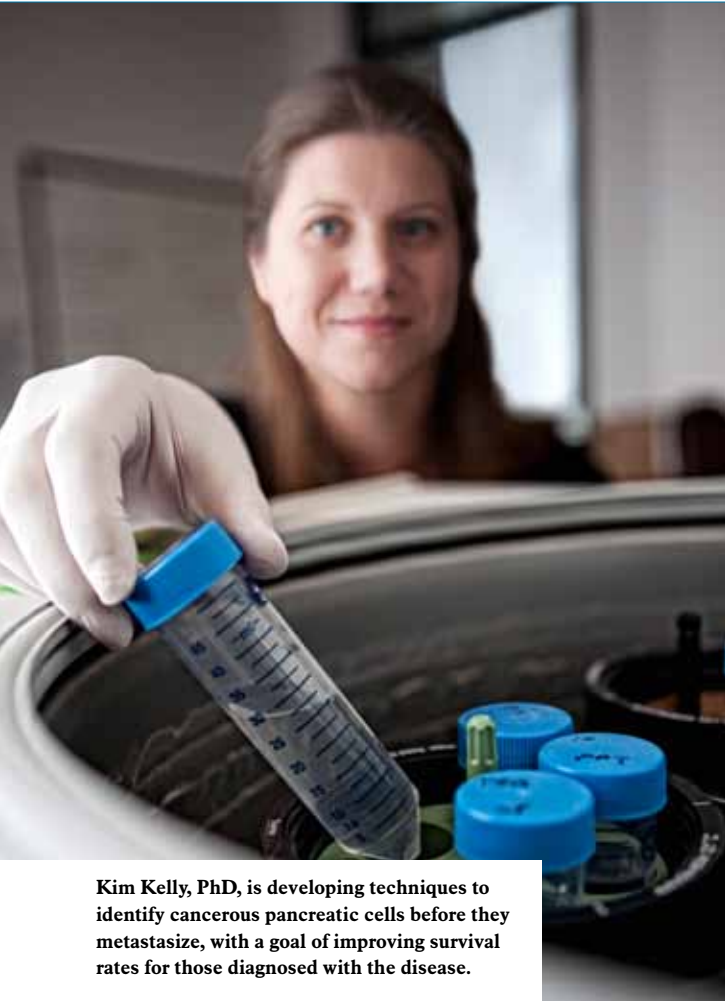


INVESTING IN

hope

Philanthropy in action at the UVA Cancer Center

Fall 2011
Volume Five, Number One



Kim Kelly, PhD, is developing techniques to identify cancerous pancreatic cells before they metastasize, with a goal of improving survival rates for those diagnosed with the disease.

Improving the Odds

UVA Cancer Center Attacks Pancreatic Cancer in New Ways

There's no shortage of determination at the UVA Cancer Center, even in the face of a disease like pancreatic cancer. Despite 30 years of tremendous progress in treating other forms of cancer, the five-year survival rate for pancreatic cancer remains below six percent. Biomedical engineer Kim Kelly, PhD, is devoting her career to improving these odds for patients.

One of the biggest hurdles to overcome is the lack of a reliable test for early detection.

"Pancreatic cancer, by the time it's detected, is almost always metastatic, meaning it has spread to other areas of the body," notes Kelly.

Kelly hopes to develop an imaging technique that could detect cancerous pancreatic cells before they metastasize, greatly improving treatment options and outcomes for patients. She has identified a peptide that effectively binds with pancreatic tumors, but not with noncancerous cells, allowing researchers to illuminate

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The Power of Discovery

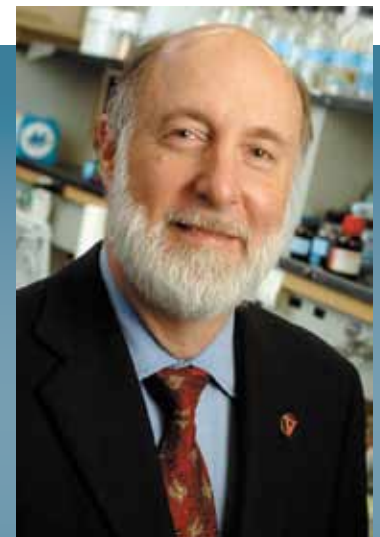
NATIONAL CANCER INSTITUTE (NCI)-designated Cancer Centers are recognized for the excellence and breadth of their scientific enterprise. They are a major source of discovery and development of more effective approaches to cancer prevention, diagnosis, and treatment.

This summer, an NCI panel of international experts visited the UVA Cancer Center as part of our renewal process. They were deeply impressed by our scientific and clinical excellence, as well as the collegial spirit of the University's "Academical Village" and

recommended the renewal of our designation for another five years, with a rating of "outstanding."

"From basic science research at the cellular level to clinical trials for new treatments, all of us who work at the UVA Cancer Center know that the treatments of tomorrow are built upon the research of today," explains Michael J. Weber, PhD, director, UVA Cancer Center.

In this issue of *Investing in Hope*, learn about the doctors, the researchers, and the science that are making people take notice of UVA.



**UVA Cancer Center Director
Michael J. Weber, PhD**

BASIC SCIENCE

A Fresh Perspective; A New Discovery



Support Cancer Care at UVA

HELP US BUILD lasting support for the Emily Couric Clinical Cancer Center. Honor someone special—or acknowledge your own commitment to cancer care—by purchasing a commemorative brick with a personal inscription. The bricks, offered for \$250, are being placed in the center’s tranquility garden patio and will serve as an enduring symbol of your commitment to building a better future for cancer patients.

Visit www.campaign.virginia.edu/cancercenterbrick or call 434.243.GIVE (4483) for more information.

The first step in beating cancer is to understand it. The UVA Cancer Center is a nationally recognized leader in basic science research, and has contributed substantially to our knowledge of how cancer cells arise, grow, and spread at the most fundamental level. Advances in basic science form the foundation for innovation in preventing cancer, detecting it earlier, and treating it more effectively.

This year, Hui Li, PhD, assistant professor of pathology at the UVA Cancer Center, was one of only 13 scientists in the nation to win an Innovative Research Grant from the film and media industry’s Stand Up 2 Cancer (SU2C) charitable group. These grants support cutting-edge cancer research that might not receive funding through traditional channels, often going to early-career scientists with novel ideas that are high-risk but could also be high-impact.

A molecular biologist, Li will use

“We hope our work will one day translate into better clinical practice, better diagnostic methods, a better therapeutic approach—and maybe a better understanding of how cancer develops.”

— HUI LI, PhD —

the three-year, \$750,000 grant to study how the fusion of separate genes in the cell plays a crucial role in cancer development. The fusion process has long been thought to occur solely at the DNA level, and its products were considered unique to cancer. As a result, fusion products in the cell are used in the diagnosis of cancer and as drug targets.

Li’s recent findings have turned this dogma on its head. His research revealed that these same fusion products can be present in normal cells and can be created at the RNA level, through a process he calls “trans-splicing.” Because fusion products can occur in normal cells, their presence may not always indicate cancer. In fact, Li believes they may play a critical role in normal physiology. His work focuses on understanding when and why genes fuse, at both the DNA and RNA level.

“We hope our work will one day translate into better clinical practice, better diagnostic methods, a better therapeutic approach—and maybe a better understanding of how cancer develops,” explains Li.



CLINICAL TRIALS

An Elegant Solution to a Terrible Disease



"We don't yet have a silver bullet, but what we have developed has brought new hope to a significant number of patients who have had very dramatic and durable regressions of their melanoma."

— CRAIG SLINGLUFF, MD —

The UVA Cancer Center has become a destination for patients with melanoma, in part because we are able to offer patients cutting-edge therapies that are not available anywhere else.

Craig Slingluff, MD, directs the Human Immune Therapy Center (HITC), and is the lead investigator on melanoma vaccine clinical trials at UVA. The goal of immune therapy in general, and of cancer vaccines in particular, is to increase and to redirect the patient's immune response against the cancer—in short, to use the body's own defenses to fight off cancer. It's an elegant solution to a terrible disease, and one that could potentially allow patients to avoid the side effects of more traditional treatments like chemotherapy and radiation.

Almost a decade ago, Slingluff and a team of interdisciplinary specialists identified a biomarker specific to most melanomas and began developing vaccines that targeted this unique molecule. A number of these vaccines have recently finished initial clinical trials with promising results.

"We don't yet have a silver bullet," says Slingluff, "but what we have developed has brought new hope to a significant number of patients who have had very dramatic and durable regressions of their melanoma, and remain alive and well for years," Slingluff says.

Already, seven additional clinical trials are slated to begin in the next six months. Slingluff's work has shown promise in treating other types of cancer as well, including ovarian, breast, and colon cancer.

"Private support has played a crucial role in our advances to this point," Slingluff believes. "UVA is poised to remain a leader in immune therapy research, due in large part to the vision and generosity of our donors."

A Look Behind the Scenes

Recently, a group of donors, volunteers, and friends of the UVA Cancer Center were able to tour the Carter-Harrison Research Building, the UVA Health System's newest state-of-the-art research facility. The event, hosted by the Patients & Friends Steering Committee, allowed guests to take a peek behind-the-scenes and meet some of UVA's research stars in breast and gynecological cancers, human immune therapy, and bone marrow transplantation.

For more information on the Patients & Friends Research Fund visit www.uvapatientandfriends.org.



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UVA Health System Development Cancer Programs Team

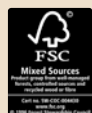
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INVESTING IN HOPE
is published twice a year. No public funds are used for its production.

Editors: Lee Fleisher, Anna Emery
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Improving the Odds

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and view dangerous pre-cancerous lesions the size of sesame seeds with commonly used medical imaging techniques. These lesions could then be surgically removed before the patient even gets cancer.

Kelly is also collaborating with microbiologist Tom Parsons, PhD, and surgeon-scientist Todd Bauer, MD, on a different, but equally promising, method of early detection for pancreatic cancer. By the end of this year, clinical trials will be underway at UVA to test the team's breakthrough discovery—a biomarker that can be measured in the blood, indicating the presence of specific cancer cells implicated in more than 90 percent of pancreatic tumors.

Changing the paradigm of diagnosis, treatment, and care

Early detection is just one step toward radically improving outcomes for pancreatic cancer patients and people who are genetically predisposed to the disease.

In addition to their collaboration with Kelly, Bauer and Parsons are taking innovative approaches to treating the disease.

"One of the biggest challenges scientists have faced is the lack of good research systems to model pancreatic cancer progression," says Bauer.

Bauer has developed a more effective way of testing potential treatments. His mouse model involves



Todd Bauer, MD, is working to develop personalized therapies for patients with pancreatic cancer.

implanting fresh pieces of human pancreatic cancer directly into the pancreases of mice—instead of injecting decades-old pancreatic cancer cells under the animals' skin. The benefit: Doctors get a clearer understanding of how different pancreatic tumors behave and respond to various drugs in the pancreatic environment. Eventually, this will enable doctors to develop highly selective drug therapies customized for each patient, based on the molecular profile of their particular tumor.

UVA's team of surgeons, oncologists, imaging specialists, and researchers from across the institution form the nucleus of a new program in pancreatic cancer—one that harnesses the power of creativity, innovation, and collaboration to shift the odds in favor of patients and their families.