

# University Cancer Research Fund

*Annual Report*

*2010–2011*

*Dear Members of the General Assembly,*

On behalf of the Cancer Research Fund Committee, I am pleased to present the 2010–2011 Annual Report of the University Cancer Research Fund (UCRF). Since the completion of the fund's strategic plan last year, UNC Lineberger's cancer researchers have reached a number of milestones in the focus areas of cancer genetics, developing new treatments and optimizing N.C. cancer outcomes.

UNC Lineberger Comprehensive Cancer Center remains one of the best in the nation, and UCRF is key to the center's success. After a rigorous review by peer scientists and clinicians from across the country, the National Cancer Institute (NCI) has rated UNC Lineberger "exceptional," its top rating for cancer centers. This NCI review of UNC Lineberger takes place every five years.

Citing strong institutional and state support for UNC Lineberger, the reviewers stated that the center's combined efforts with UCRF and commitment to North Carolina are significant strengths that contribute to the center's exceptional ranking.

Another measure of success is the \$221 million in outside funding that cancer research brings to our community and state, a number that has increased by 50 percent since 2004, despite flat budgets at the National Institutes of Health and other major funding agencies. This funding means jobs for faculty as well as for several hundred research staff and graduate students, who will be the next generation of professors, bioscientists, research scientists and industry experts for North Carolina's life sciences economy.

UCRF support allows researchers to place bets on promising areas of investigation, generating results that are leveraged into larger grants from outside funders. These bets have resulted in

\$110 million in additional funding for major grant initiatives, \$30 million in funding obtained from new faculty hires and retention of \$44 million in external funding that might have been lost without UCRF support for retaining top faculty. In addition, the \$2.4 million invested in the UCRF's highly-competitive, peer reviewed Innovation Awards Program has resulted in a five-fold return in extramural funding coming to the University, as well as patent filings and startup launches.

Another important measure of UCRF's success is the rate at which discoveries are transferred into reports of inventions and licensing agreements. In the five years before UCRF was established, Cancer Center members reported 46 inventions and made 18 licensing agreements. Since UCRF was established in 2007, members reported 150 inventions and made 38 licensing agreements. More than 20 active startup companies involving UNC Lineberger members are currently in existence, with more in the pipeline.

I invite you to read more about these discoveries and accomplishments and hope that you are as proud as I am of the impact that UCRF is having on our understanding of cancer, ability to fight it, and most importantly the difference these efforts are making for patients and families across North Carolina and beyond.

Sincerely,



Holden Thorp, PhD  
Chancellor, UNC-Chapel Hill  
Chair, Cancer Research Fund Committee

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*The University Cancer Research Fund is governed by a seven-member Cancer Research Fund Committee, established by the NC General Assembly in 2007. The committee is chaired by UNC-Chapel Hill Chancellor, Dr. Holden Thorp. The four other permanent members are Director, UNC Lineberger Comprehensive Cancer Center (Dr. Shelton Earp); Dean, UNC School of Medicine (Dr. William Roper); Dean, UNC Eshelman School of Pharmacy (Dr. Robert Blouin); and Dean, UNC Gillings School of Global Public Health (Dr. Barbara Rimer). Two other members, elected by majority vote, are: Dr. Edward Benz, Jr., president and CEO of Dana-Farber Cancer Institute; and Dr. John Mendelsohn, president of the University of Texas MD Anderson Cancer Center.*



# UNIVERSITY CANCER RESEARCH FUND

## Fast Facts

The University Cancer Research Fund (UCRF) is a nation-leading investment to stimulate cancer research and reduce North Carolina's leading cause of death. The Fund builds upon the exceptional research base at the University of North Carolina at Chapel Hill and its UNC Lineberger Comprehensive Cancer Center, the state's only public, NCI-designated comprehensive cancer center.

Established in August 2007 by the NC General Assembly, UCRF is one of three synergistic investments in cancer research and treatment, including the N.C. Cancer Hospital and the Imaging Research Building at UNC-Chapel Hill.

### UCRF's Goal

To create a nation-leading cancer research effort and to reduce NC's cancer burden. UCRF is accomplishing these goals through:

- *Discovery* to better understand the causes and course of cancer;
- *Innovation* to create new and better ways to prevent, diagnose and treat cancer; and by stimulating
- *Delivery* of improved cancer care, screening and prevention across the state.

### The Strategic Plan

UCRF's governing board, the Cancer Research Fund Committee, has identified three areas in which North Carolina can become a nationally-recognized research leader and have significant potential to decrease NC's cancer burden.

- *Understanding Genetics and its Role in Cancer Causation and Treatment:* To discover the genes that predispose families to cancer, and cancer patients to poor treatment outcomes; to investigate the mutant genes in specific cancer subtypes that lead to cancer therapy failure;
- *Developing New Cancer Treatments:* To devise novel therapies targeted to the specific vulnerabilities of treatment resistant cancers; to develop new ways of delivering therapeutic agents to reduce toxic side effects for all patients; and
- *Optimizing NC Cancer Outcomes:* To track the occurrence and treatment of cancer across North Carolina through data systems and large population- and hospital-based studies; to use these data to initiate research aimed at improving community prevention, early detection in the population, and the quality of oncology and survivor care.

### Return on Investment – 2007 to present

- \$110 million in funding for major grant initiatives
- \$30 million in funding obtained by new faculty hires
- Retention of \$44 million in funding held by faculty who were at-risk of leaving North Carolina
- A 5 to 1 return on investment made through the Innovation Awards Program — \$13 million

## Cancer Genetics

UNC is a national leader in cancer genetics, a field that is helping doctors understand how and why cancer develops as well as pinpointing which treatments work best for each patient — avoiding unpleasant and harmful side effects, wasted treatment and wasted time. In 2009, UNC-Chapel Hill was selected as one of 12 centers created by the National Cancer Institute and the National Human Genome Research Institute to systematically catalog the genomic changes that occur in cancer.

UNC's selection for the Cancer Genome Atlas Project, a grant expected to top \$20 million over five years, is the direct result of UCRF investment in equipment and expertise that has placed UNC among an elite group of institutions including Harvard University, University of Texas MD Anderson Cancer Center, Memorial Sloan-Kettering and Johns Hopkins University.

### Brain cancer insights excite medical community

As part of this elite group, UNC physician-scientist D. Neil Hayes, MD, MPH, and his colleagues published the NIH Cancer Genome Atlas' second paper since its inception. The publication demonstrated that the most common form of malignant brain cancer in adults, glioblastoma multiforme, is a set of four diseases, each with a distinct underlying disease process. This discovery sets the stage for progress against this deadly cancer.

Over the last 18 months, the paper reporting this finding, which appeared on the cover of the journal *Cancer Cell*, has become one of the most-cited papers in the worldwide scientific literature. In a recent interview with the web site, ScienceWatch.com, Hayes and his collaborator, Katie Hoadley, PhD, discussed why there has been so much excitement about their research.

"Glioblastoma is a deadly disease. We currently have few treatment options and changes to survival are only in units of months. Here, we identified four



Katie Hoadley, PhD and D. Neil Hayes, MD, MPH worked to uncover four types of brain cancer

different types, each with a unique set of genetic alterations, many of which happen to be in genes that are drug targets. This strongly suggests that we may be able to selectively target each type with a different subset of drugs in line with the idea of personalized medicine,” said Hayes.

### Cancer Genome Atlas Work Confirms Subtypes for Most Common Lung Cancer

Hayes is also the lead researcher on a similar project focused on squamous cell carcinoma. The group is the first in the world to definitively documented at least four molecular subtypes of this most common form of lung cancer. These subtypes provide clues as to the origin of the tumor, differences in patient outcomes, and potential differences in therapies that offer new paths for physicians seeking more targeted approaches.

He explains, “These findings are really exciting for those of us who treat patients. We have seen therapies for breast cancer advance since subtypes were defined by the work of my Cancer Genome Atlas and UNC colleague, Dr. Chuck Perou. Each time we are able to provide this analysis for a type of cancer, it opens the door toward more personalized treatments and potentially better patient outcomes.”

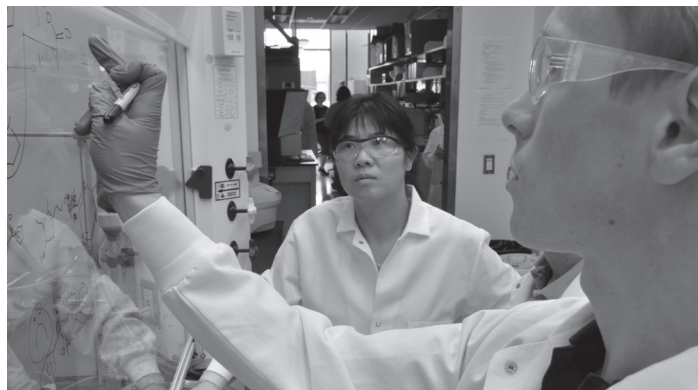
The UNC scientists have found evidence that tumors arise from different cells within the lung, suggesting a different biological origin among patients currently treated as a single group. The investigators also found evidence suggesting that different therapies might be more effective according to the subtype and provided data showing that these subtypes can be detected using analysis of tumor samples or blood.

### UNC's Pioneering Breast Cancer Findings Expanded

In 2006, a team from the UNC-Chapel Hill schools of Public Health and Medicine and UNC Lineberger found that breast cancer in younger African American women is more likely to be the more aggressive basal-like (or triple-negative) subtype – one factor thought to be behind known racial disparity differences in breast cancer patient outcomes.

In their ongoing quest to better understand disparities in breast cancer prognosis, a team led by Robert Millikan, DVM, MPH, PhD, analyzed tissue from 1149 invasive breast cancer patients (518 African American and 631 White) who are participants in the Carolina Breast Cancer Study (CBCS). The CBCS is a long-standing population-based study of breast cancer risk and behavior that focuses on young and African American women. The current expanded phase of the study, funded by UCRF across North Carolina, is named for longtime legislator Jeanne Hopkins Lucas, who was a great supporter of the act funding the new N.C. Cancer Hospital. Senator Lucas dies of this type of breast cancer.

Recent findings were published in the journal *Clinical Cancer Research*. “Our data show that basal-like breast cancer is an equally aggressive disease in African American women and white women. In addition, African American women had worse outcomes no matter what kind of breast cancer they developed, suggesting that other factors such as disparities in access to care and treatment, for example for the more common subtypes of breast cancer like luminal A breast cancer, also contribute to



UNC has been named part of the NCI's Chemical Biology Consortium

the higher breast cancer mortality observed in African American women,” said study co-author Charles M. Perou, PhD, professor of Genetics and Pathology.

## Developing New Cancer Treatments

Developing new drugs is a long, highly-regulated, and risky process. Approximately five percent of investigative drugs make it to market. Targeted cancer drugs, needed to exploit the weaknesses of different types of cancer and minimize harmful side effects of treatment, can be even more difficult to identify and formulate.

Recently, policy-makers including Congress, the Institute of Medicine and the National Cancer Institute have recognized that changes need to be made in order to develop a more robust pipeline of potential cancer drugs and to speed their progress from the laboratory to the patient.

### Building the Cancer Drug Pipeline

UCRF is making North Carolina a focus of this effort through the recruitment of Stephen Frye, PhD, professor of medicinal chemistry and director of the UNC Center for Integrative Chemical Biology and Drug Discovery in the UNC Eshelman School of Pharmacy. Frye, also a member of UNC Lineberger, was at the forefront of UNC's being named part of the National Cancer Institute's Chemical Biology Consortium. The University's selection as one of four such centers has resulted in two initial contracts totaling \$2.4 million, to initiate the discovery of drugs for the treatment of childhood leukemia and brain tumors. More contracts should come to UNC as the government expands this crucial effort.

In the childhood cancer, acute lymphoblastic leukemia (ALL), a protein called Mer is abnormally expressed, making the cancer resistant to current therapies. Mer was discovered in the lab of Shelley Earp, MD, UNC Lineberger's director. This team of UNC scientists is developing small molecule inhibitors of Mer kinase as drug candidates to treat this disease and other types of tumors that express Mer. The team collaborates with Doug Graham, MD, PhD, a pediatric oncologist at the University of Colorado who was a UNC School of Medicine student of Earp's at the time of the discovery and a co-investigator in this project.

Another project targets a specific gene involved in gliomas, the most common type of brain cancer. Glioblastoma multiforme-GBM- is the most aggressive tumor subtype. Less than ten



percent of patients survive beyond one year. This research will target the protein product of a gene called IDH1 that is frequently mutated in gliomas. The role of IDH1 in this cancer has been defined in the lab of Yue Xiong, PhD, Kenan Professor of Biochemistry and Biophysics and a UNC Lineberger member. The mutation offers a highly specific target for the discovery and development of anti-GMB drugs and in a demonstration of the integrated approach to cancer research at UNC Lineberger, this mutation characterizes one of the genetic brain tumor types defined by Dr. Hayes' group (discussed above).

## Realizing the Promise of Nanomedicine

Joseph DeSimone, PhD, is a catalyst. The Chancellor's Eminent Professor of Chemistry in the College of Arts & Sciences has stayed at UNC despite multiple offers from other universities, thanks to UCRF support. A nanotechnology and nanomedicine pioneer, DeSimone recently partnered with Joel Pepper, MD, the Hector MacLean Distinguished Professor of Cancer Research, to successfully compete for a \$13.6 million grant from the National Institutes of Health to UNC's Carolina Center of Nanotechnology Excellence, based at UNC Lineberger.

The depth of expertise present at UNC is essential to progress in this emerging field. DeSimone explains, "Collaboration is fundamental to our success. Our team of chemists, physicists, biologists, engineers, and clinicians drive our innovations in science."

One example is the team of UNC scientists and physicians who received a \$2.3 million grant from the National Cancer Institute to address the critical need for early diagnosis of pancreatic cancer and the need for more effective treatments. Led by Wenbin Lin, PhD, professor of chemistry and pharmacy, and Jen Jen Yeh, MD, assistant professor of surgery and pharmacology, the team is collaborating with Leaf Huang, PhD, Fred N. Eshelman Distinguished Professor and chair of molecular pharmaceutics in the UNC Eshelman School of Pharmacy.

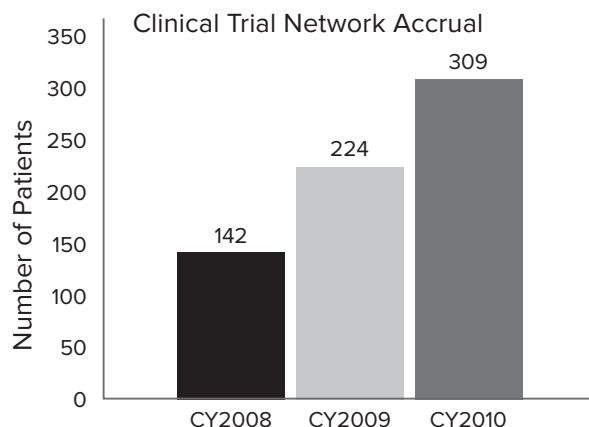
Using targeted nanoparticle technology based on discoveries in Lin's lab, the team is developing a two-pronged approach where particles can be used to enhance the imaging of pancreatic tumors to speed detection. The same particles, developed with a dual purpose, can then be used to deliver drugs directly to the tumor, lessening side effects for patients. In laboratory trials, the pancreatic tumor targeting technology is demonstrating a promising ability to 'recognize' pancreatic cancer cells.

## Optimizing NC Cancer Outcomes

### Clinical Trials Available Across North Carolina

With support from UCRF, hospitals, clinics and oncology practices across North Carolina are now part of the UNC Lineberger Cancer Network's clinical trials effort, offering leading-edge cancer treatments to patients across the state.

The sites access UNC's clinical trials administration site through a secure web interface and meet all regulatory requirements. Because UNC Lineberger is a member of the NCI-sponsored Cancer and Leukemia Group B, several sites across the state can provide patients with access to new treatments through this national network. In addition, almost 20 trials



initiated at UNC Lineberger are now offered or will soon be available through these partnerships.

The success of the network can be measured by its growth. While clinical trials are not right for every cancer patient, for those who need them they can be life-saving or life-extending. Between 2008 and 2010, the number of patients enrolled in clinical trials through the network has risen from 142 to 309 and continues to grow. The network is also providing ongoing educational opportunities for staff at clinical trials network sites to continually improve their knowledge base.

Offering UNC and cooperative group clinical trials locally has been a "win-win" for Marion L. Shepherd Cancer Center in Little Washington, NC. Clinical research coordinator Kristy Alligood, RN, OCN, says, "The affiliation gives us the opportunity to have many different trials open and our medical director, Jennie Crews, MD, knows our population well and tailors the trials we offer to our patients."

She adds, "We just surveyed patients who participated in a clinical trial in the last year, and overall they rated their satisfaction very high. They indicated their top reason for participating — in addition to access to the latest treatments — was to give back to others by helping future patients and helping further scientific knowledge."

### Telemedicine Technology Expands UCRF Access

2010–2011 has seen the UCRF-funded telemedicine system expand across the state, both adding additional locations and in increased utilization.

Community physicians from across the state are able to access specialized expertise and consult with their colleagues at UNC through this interactive network, which allows high-definition images to be shared in real time. Each week, doctors from across N.C. can join five multidisciplinary oncology conferences via the telemedicine network to review cases and learn more about gastrointestinal oncology, breast cancer, gynecologic oncology, malignant hematology and head and neck cancer — accounting for almost 400 hours a year. Through an arrangement with the UNC Continuing Medical Education office, teleconferencing physicians can receive credit for their participation. The system also records educational presentations so that they can be securely accessed at a later time. For example, more than 15 "lunch and learn" presentations, originally presented in Dare County, NC, are now



*Telemedicine allows physicians to consult, learn, see patients confidentially*

available statewide on the UCRF web site.

These conferences and the rest of the telemedicine network reach 14 communities across North Carolina from Nags Head to Asheville with 28 large conference room systems and 18 mobile units (based on personal computer technology).

An additional 400 hours annually are being provided via telemedicine for other applications where a lack of specialized providers in rural areas means patients forego services or travel long distances to access them. These include providing access to physicians and counselors from the UNC Comprehensive Cancer Support Program and Clinical Cancer Genetics. Patients can now see these providers confidentially and securely via telemedicine. A nurse is available in the patient's location to ensure that they are comfortable with the technology and that important questions are answered.

The system also facilitates collaboration without expensive travel for the clinical trials network, radiation oncology education, and bioethics consultations with outside physicians.

## Navigating the Cancer Maze

Multiple studies have shown that patients who work with nurse navigators have better long term outcomes than those who don't, but the reasons why are unclear. With UCRF support, the UNC Cancer Network is working with the Leo Jenkins Cancer Center at East Carolina University, with physicians and nurses in Dare County and with Mission Healthcare in Asheville to try to better understand why.

Navigators, oncology certified nurses with advanced training, help cancer patients, their families and their caregivers with both medical and nonmedical concerns. The navigator's goal

is to address barriers to care, helping patients and their loved ones with the challenges they face after receiving a diagnosis of cancer. In the long term, this research will help pinpoint best practices in cancer care, but to the people currently being helped, UCRF is making a difference today.

Thurman "Tim" Nelson spent more than 25 years in law enforcement and another ten years in risk management at Pitt County Memorial Hospital. Nelson has seen the effort that the hospital puts into caring for patients and knows how complex a process like cancer treatment can be.

That's why he feels justified in saying that UNC Cancer Outreach nurse navigator Judy Koutlas, "is one of the finest nurses I've ever had the occasion to work with and I'm thankful to have her on the team."

He met Koutlas after surgery for cholangiocarcinoma in 2009.

Nelson describes Koutlas as, "professional, positive, supportive, genuine, and caring." He says, "She's made a difference in the quality of my care and treatment. I appreciate it and so does my family. I wasn't sure what her role was going to be early on, but it became apparent to us pretty quickly that she is definitely a liaison between the doctor and our family and she does a terrific job of that."

He notes, "My wife has been a wonderful caretaker and has developed a strong relationship with Judy and it's comforting to me that they can talk and discuss plans and treatment. My recommendation would be that anyone who could use the skills of a navigator should strongly consider finding a program that offers one. That little bit extra means so much to the patient and family and that's truly good patient care."

## CLINICAL TRIALS *Network Sites*

Cancer Care of Western NC (Asheville)

Mission Hospital (Asheville)

Seby B. Jones Cancer Center (Boone)

Alamance Cancer Center (Burlington)

Cape Fear Valley Cancer Center (Fayetteville)

Marion L. Shepard Cancer Center (Little Washington)

Southwest Medical Oncology Center (Wilson, Goldsboro)

Moses Cone Regional Cancer Center (Greensboro)

Leo W. Jenkins Cancer Center (Greenville)

New Bern Cancer Care

Rex Cancer Center (Raleigh)

Nash Cancer Treatment Center (Rocky Mount)

## Statewide Projects:

**Cervical Cancer-Free North Carolina (CCFNC)** aims to eliminate cervical cancer in North Carolina. Led by researchers at the UNC Gillings School of Global Public Health, this collaborative effort unites public, private, academic and community partners in promoting HPV vaccination, cervical cancer screening, and improved testing and treatment.

**Colorectal Cancer Screening Toolkit** partnered with the Tri-County Community Health Center in Harnett County to tailor a toolkit based on a national American Cancer Society model for all health centers in the state, in partnership with the Carolinas Center for Medical Excellence. The toolkit is being provided to 118 Federally Qualified Health Centers and their affiliated clinics across the state in partnership with the North Carolina Community Health Center Association.

## Regional Evidence Academies

Two regional evidence academies have been held in Western North Carolina (colorectal cancer) and Eastern North Carolina (breast cancer) to disseminate evidence-based guidelines and findings from new research. The evidence academies will stimulate new research partnerships between academic and community settings. Additional evidence academies on tobacco and lung cancer are planned for 2012.

## Expecting Excellence: Perinatal Smoking Cessation and Smoking Cessation During Pregnancy

High smoking rates among pregnant women and women with small children not only increase their cancer rates, but also threaten their children's physical and cognitive development and long-term health outcomes. To complement the You Quit Two Quit initiative in public prenatal settings, the Expecting Excellence project is being piloted in Buncombe County to improve the use of evidence-based smoking cessation treatment strategies. UNC experts have also produced an educational program with the American Congress of Obstetricians and Gynecologists called "Smoking Cessation During Pregnancy: A Clinician's Guide to Helping Pregnant Women Quit Smoking," and are working with You Quit Two Quit to disseminate the product statewide along with a North Carolina-specific module.

**Health E-NC** is aimed at finding out what really works in the areas of cancer prevention, detection, diagnosis, treatment and survivorship. Health-E-NC provides pilot funding to support leading-edge research that focuses on the development, implementation, evaluation, or dissemination of interventions that will reduce the cancer burden in North Carolina. A web portal will serve as a venue for testing interventions as well as for sharing evidence-based tools, materials, and information.

## UNC Health Registry/Cancer Survivorship Cohort

A recent report by the Institute of Medicine, part of the National Academies, notes that many cancer patients are "lost in transition" from treatment to survivorship. Primary care physicians and other health care providers are seeking more information about the consequences of cancer and want more explicit guidance from

oncologists. The UNC Health Registry/Cancer Survivorship Cohort enrolls, monitors and collects biologic and clinical treatment information on consenting patients at UNC Health Care clinics. UCRF initiated the enrollment of 10,000 patients into the UNC Health Registry/Cancer Survivorship Cohort in 2010. The data collected will help researchers determine methods for improving cancer outcomes and quality and length of life after treatment.

## Regionally-focused Projects:

**A – Barbershop Physical Activity Pilot** meets African American men in barbershops — community-based locations that can be centers for social and peer interaction. One of the key contributing factors to high cancer rates among African American men is lack of physical activity. This project uses accelerometers — instruments that help people assess how fast they are moving — to measure physical activity among African American men in selected counties and test strategies to increase activity.

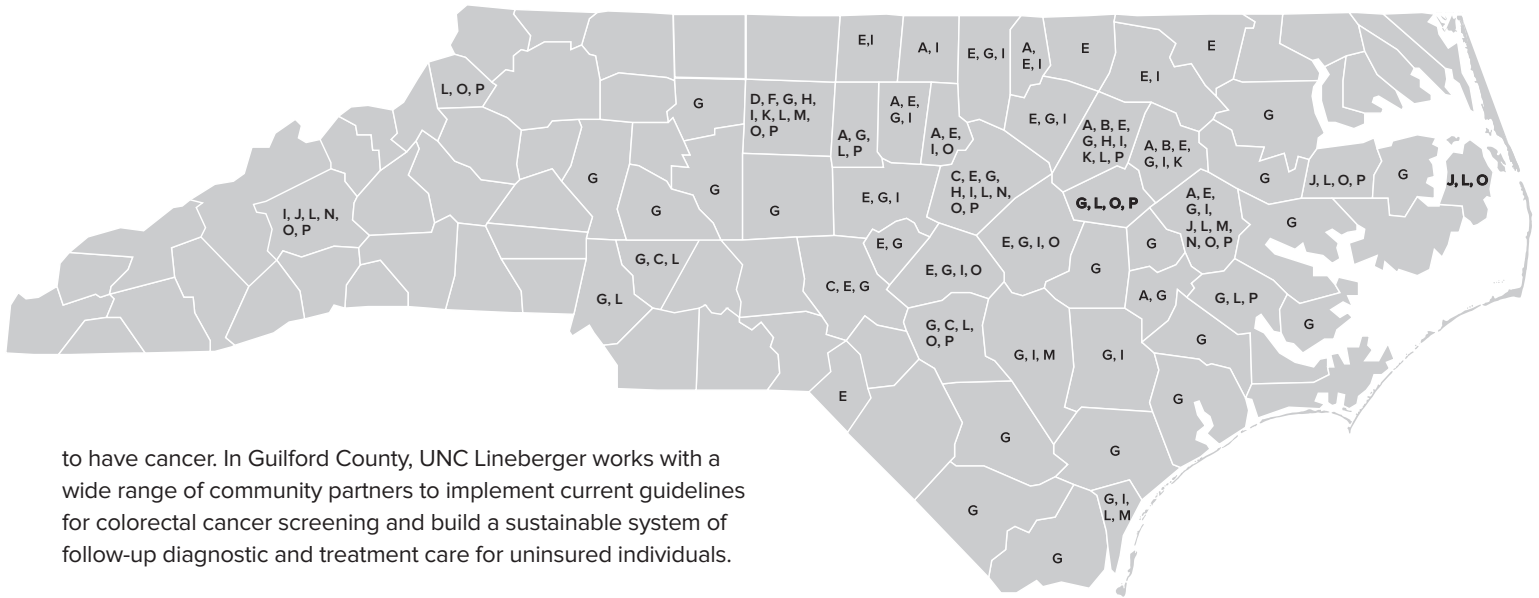
**B – Breast Cancer Lay Health Advisor Training Program** partners with Crossworks, Inc. to increase understanding of skills and activities that are necessary for increasing adoption of evidence-based approaches to promoting breast cancer screenings in rural settings — focused on Edgecombe and Nash Counties.

**C – Community Wellness & Cancer Prevention (CWCP)** North Carolina's high rates of obesity and smoking are important, and potentially reversible, factors contributing to high cancer rates. Both problems are associated with low socioeconomic status and more prevalent among ethnic minorities. CWCP works with four Kate B. Reynolds Charitable Trust grantees to develop and implement evidence-based approaches designed to increase physical activity and reduce obesity and smoking rates. The four partner agencies are the Cabarrus Health Alliance (Cabarrus county), the Cape Fear Valley Health System (Cumberland county), First Health of the Carolinas (Moore county) and the YWCA of the Greater Triangle (Wake county).

**D – Evaluation of the Guilford County HPV Campaign** The Guilford County HPV Campaign sought to create a model for school-located HPV vaccination programs through collaborative partnerships between the school system and health department. The program was empirically evaluated by researchers in the UNC Gillings School of Global Public Health.

**E – Improving Breast Cancer Screening Using Evidence-Based Strategies** In collaboration with Komen for the Cure NC Triangle Affiliate, UNC is evaluating the effects of a policy change requiring community grantees to use evidence-based approaches. Data from a content analysis of 46 grant applications and focus groups with representatives of funded applicants in 19 counties. These studies will be used to determine the impact of the policy on practice improvements and formative research for developing and testing dissemination interventions.

**F – Improving Colorectal Cancer Screenings** Research shows that many individuals avoid cancer screening tests because of concerns about cost and the potential medical bills if they are found



to have cancer. In Guilford County, UNC Lineberger works with a wide range of community partners to implement current guidelines for colorectal cancer screening and build a sustainable system of follow-up diagnostic and treatment care for uninsured individuals.

## **G – Jeanne Hopkins Lucas Carolina Breast Cancer Study**

African American women in North Carolina die more often from breast cancer — and there is no simple answer as to why. Building on ground-breaking work done at UNC, the Jeanne Hopkins Lucas Study is conducting a comprehensive, population-based study that includes epidemiologic, biologic and clinical data to help understand the factors that contribute to this disparity. The study is ongoing in 44 counties across the state and is named for General Assembly member Jeanne Hopkins Lucas, the first African American woman to serve in the state senate, who died of breast cancer in 2007.

## **H – NC TraCS & Carolina Community Network Workshop Series**

UNC partners with the NC TraCS Community Engagement Core and the Carolina Community Network to provide training for leaders in public health research and practice.

## **I – NC SPEED Outreach Network**

How can we better prevent cancer across North Carolina? How do we work with our communities to increase screening rates and early diagnosis? Will a program that works in Wilmington work in Asheville? To find out the answers to these questions, we have established a statewide network to facilitate and improve the quality of cancer prevention and control research across the state of North Carolina. Research associates in Asheville and Wilmington work with UNC Lineberger faculty as they establish linkages and serve as facilitators for research undertaken by UNC and other researchers in North Carolina communities and health systems.

## **J – Patient Navigator Education**

The health care system can be confusing and intimidating — even more so when you're facing a cancer diagnosis for yourself or a loved one. Ensuring that records are transferred, specialist appointments are made in the right order and a coherent, individualized treatment plan is the goal of all cancer care at UNC. To help make this a reality for patients across the state, we are working with hospital systems in Buncombe, Dare and Pitt counties to evaluate the impact of patient navigators on the receipt of timely, appropriate care for cancer patients.

## **K – Reducing Disparities in Breast Cancer Screening**

Why do some racial, ethnic and socioeconomic groups face disparities in the incidence of cancer and cancer outcomes? Why are some groups less likely to be screened than others? As partners in the Southeastern U.S. Collaborative Center of Excellence for the Elimination of Disparities, UCRF is helping UNC researchers and public health professionals to assist with to eliminate racial disparities in breast cancer screening rates.

## **L – UNC Cancer Network — Clinical Outreach**

The UNC Lineberger and the NC Cancer Hospital are bringing the expertise of UNC's academic medical center to doctors and patients across the state through a clinical outreach network across that includes telemedicine, physician collaboration and clinical trials access. Partnering with local doctors can help patients receive the best care possible in their home communities — where they have social support and established relationships with their health care providers.

## **M – UNC Lineberger Lance Armstrong Cancer Survivorship Center of Excellence**

As cancer survivorship rates increase across the United States, survivors face new challenges. How do they put the experience of cancer and cancer treatment behind them and move on with their lives? Do they work with their health care providers to ensure that they are getting the best ongoing treatment and screenings? UNC Lineberger is one of eight Lance Armstrong Cancer Survivorship Centers of Excellence nationwide working to answer these questions.

## **N – Research Partnerships**

UNC partners with NC State University, NC Central University, UNC-Asheville and East Carolina University. Projects include the study of mechanisms behind and treatment for human and canine lymphoma and pancreatic cancer.

## **O – Telemedicine Sites (see pages 4 and 5)**

## **P – Clinical Trials Sites (see page 4)**



## FACULTY RECRUITMENT

More than 80 top experts have been recruited to or retained at UNC with the help of UCRF. During the last year, the following have joined the UNC-Chapel Hill and UNC Lineberger faculty:

### CANCER GENETICS

**Terry Furey, PhD**  
Department of Biology  
Previously at Duke University  
Bioinformatics, chromatin,  
prostate cancer

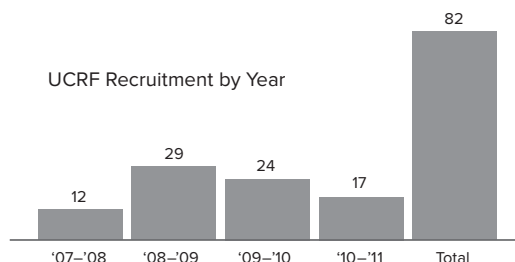
**Federico Innocenti, MD, PhD**  
School of Pharmacy  
Previously at the  
University of Chicago  
Cancer pharmacogenomics,  
angiogenesis

**Alain Laederach, PhD**  
Department of Biology  
Previously at Stanford  
Bioinformatics, quantitative  
biology, RNA Structure

### DEVELOPING NEW TREATMENTS

**David Eberhard, MD, PhD**  
Department of Pathology  
Previously at Genentech and  
LabCorp  
Translational pathology,  
biomarkers

**Sam Lai, PhD**  
School of Pharmacy  
Previously at Johns  
Hopkins University  
Nanotechnology and Cancer



### OPTIMIZING N.C. CANCER OUTCOMES

**John Baron, MD**  
Department of Medicine  
Previously at Dartmouth  
University  
Gastrointestinal cancer  
prevention, evidence  
based trials

**Alan Brookhart, PhD**  
Department of Epidemiology  
Previously at Harvard University  
Pharmacoevidence

**Larry Engle, PhD**  
Department of Epidemiology  
Previously at Memorial Sloan  
Kettering Cancer Center  
Environment and Cancer

**Michelle Mendez, PhD**  
Department of Nutrition  
Previously at Center for Research  
in Environmental Epidemiology  
(Barcelona, Spain)  
Nutritional epidemiology, obesity

**Seth Noar, PhD**  
School of Journalism and  
Mass Communication  
Previously at University of  
Kentucky Cancer Health  
Communication

**Lixin Song, PhD**  
School of Nursing  
Cancer quality of life,  
survivorship, decision making

### OPPORTUNITY FUND

**Andrew Dudley, PhD**  
Department of Physiology  
Previously at Harvard University  
Angiogenesis and  
endothelial biology

**Stephanie Gup-ton, PhD**  
Department of Cell Biology  
Previously at the Massachusetts  
Institute of Technology  
Cell Motility

### CRITICAL INFRASTRUCTURE

**John Hipp, MD**  
Department of Pediatrics  
Previously at St. Jude's  
Children's Hospital  
Pediatric Hematology/Oncology

**Bradley Merritt, MD**  
Department of Dermatology  
Previously at University of  
Pittsburgh  
Skin cancer Mohs surgery

**Elizabeth Park, MD**  
Department of Psychiatry  
Previously at Harvard University  
Psycho-oncology

**Justin Yopp, PhD**  
Department of Psychiatry  
Previously at St. Jude's  
Children's Hospital  
Cancer Support

## Whitehurst Receives Innovative Research Grant from Stand Up to Cancer

Angelique Whitehurst, PhD, assistant professor of pharmacology and a member of UNC Lineberger Comprehensive Cancer Center, was awarded one of 13 Innovative Research Grants from Stand Up to Cancer, the scientific partner of the American Association of Cancer Research. Whitehurst was recruited to UNC in 2008–2009 with the help of the University Cancer Research Fund.

SU2C's Innovative Research Grants Program is designed specifically to support work that incorporates new ideas and new approaches to solve critical problems in cancer research. These projects are characterized as "high-risk" because they challenge existing paradigms, and because in order to receive

a grant, the applicants were not required—as they would be by most conventional funding mechanisms—to have already conducted a portion of the research resulting in an established base of evidence. If successful, the projects have the potential for "high-reward" in terms of saving lives.

Whitehurst will use the grant to study how genes, otherwise required only for human reproduction, contribute to tumor cell survival. She will evaluate these genes to determine which are most critical for tumor survival and how they support growth of tumor cells. Ultimately her work will present new therapeutic targets that will selectively destroy tumor cells and leave normal tissue unharmed.



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