Believe in a Cure is the newsletter for the UF Health Cancer Center, home to cancer care and research for the Southeast’s most comprehensive academic health center. In each issue, we will bring you stories about the progress and patient-centered care occurring at the center, as well as the partners who help make it happen.

Are you a patient?
For more information about care and services offered at the UF Health Cancer Center, call 352-273-8010.

To support the work of the UF Health Cancer Center, call the UF Health Cancer Center Development Office at 352-273-8689, write to P.O. Box 103633, Gainesville, FL 32610, or visit “Make a Gift” at www.cancer.ufl.edu.

To receive or opt out of receiving this newsletter, email Lindy Brounley at brounley@ufl.edu.

ON THE COVER
Researchers Merry-Jennifer Markham, David Ostrov and Walter O’Dell are just a few of the leading scientists who are developing ways to better diagnose and treat cancer at the UF Health Cancer Center.

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Director, UF Health Cancer Center
Paul Okunieff, M.D.
Chief Communications Officer, UF Health
Melanie Fridl Ross, M.S.J., E.L.S.
Communications Director, UF Health Cancer Center
Lindy Brounley

Editor
April Frawley Birdwell
Designer
J&S Design
Every day, we make significant strides toward improving the lives of our patients — those who are in treatment for cancer currently and those who will be diagnosed days, weeks, months or even years in the future. We make the best decisions we can make for our patients today, with an eye on ensuring that fewer patients are diagnosed with the disease and that those who are can eventually be cured.

Some of the strides we have made recently toward achieving these goals include partnering with Orlando Health to establish the UF Health Cancer Center at Orlando Health, which will help expand and improve treatment options available for patients throughout Central Florida. It’s also why one of our goals includes becoming a National Cancer Institute-designated center. Only the most prestigious multidisciplinary cancer centers receive this designation. NCI-designated centers focus considerable resources on developing research programs, faculty and facilities, all with the end goal of coming up with better ways to prevent, diagnose and treat cancer. These are our goals, and becoming NCI-designated will elevate our center and give us access to the tools and resources we need to achieve them.

Because discovery is the key to everything we are trying to accomplish for our patients, we chose to highlight a handful of our innovative researchers in this issue of Believe in a Cure. From new drug discoveries that help develop personalized approaches to treatment to conducting clinical trials of new medicines, our researchers spend countless hours delving into the unknown, hoping to find new clues that could potentially unlock a cure.

Paul Okunieff, M.D.
Director, UF Health Cancer Center
According to recent studies by the National Cancer Institute, Florida now has the second-largest cancer burden in America, and cancer has surpassed heart disease as the leading cause of death in the Sunshine State.

With cancer cases on the rise across the state, UF Health and Orlando Health have joined forces to establish one of the state’s largest, most comprehensive cancer programs. The UF Health Cancer Center at Orlando Health will expand care and treatment options for patients throughout the region.

“A need of this magnitude requires an innovative strategy for meeting this growing demand for cancer treatment and care,” said Orlando Health Board Chair Dianna Morgan. “By connecting some of the nation’s most experienced cancer doctors and leading cancer researchers, we can collaborate to provide the best possible care and the most favorable treatment outcomes for cancer patients.”

Orlando patients will continue to receive their cancer care with the same Orlando Health physicians, oncologists, surgeons and staff they have come to know and trust. In addition, patients also will have more options for leading-edge treatment and expanded access to additional specialists, new drugs, clinical trials and other resources. The program also provides greater flexibility by offering care at community medical facilities closer to patients’ homes, whether in the Orlando or Gainesville areas.

One of the first new initiatives to launch at the UF Health Cancer Center at Orlando Health will be personalized cancer care. With an anticipated introduction in the spring of 2014, Dr. Phillips Charities has committed $1.5 million to the program, which offers the most promising direction in cancer treatment. Personalized cancer care involves genetic exploration of tumors and appropriate chemotherapy treatments based on that analysis.

“Everything we do at UF Health is centered on our patients and our mission to improve quality of life. We are unwavering in our commitment to address the health needs of Floridians with the most compassionate, highest-quality care,” said David S. Guzick, M.D., Ph.D., UF senior vice president for health affairs and president of UF Health. “This new relationship will create Florida’s leading program to respond to the state’s increasing demands for oncology clinical care and research.” — Melissa Lutz Blouin

A proposed bill to create the Florida Consortium of National Cancer Institute Centers announced by Florida Gov. Rick Scott Jan. 28 could potentially help the UF Health Cancer Center and the UF Health Cancer Center at Orlando Health bring even more extensive research and patient care to Floridians with cancer. The proposed legislation, which would be funded through the William G. “Bill” Bankhead Jr., and David Coley Cancer Research Program, would help enhance the quality of cancer care in Florida through research, patient care and education. The goal is to create more National Cancer Institute-designated centers in Florida to address the increasing cancer rates in the state. — Melissa Lutz Blouin
Caring for the whole body

New integrative medicine program helps cancer patients heal

After several misdiagnoses, Matthew Freeman came to UF Health seeking answers and hopefully a treatment that would help. Within hours of coming to Gainesville and working with UF Health physicians he was diagnosed with throat cancer and his new treatment began a week later.

In addition to treating his cancer with standard forms of therapy, such as radiation, Freeman also received another complement of care to help him heal. Freeman has been through acupuncture sessions to aid in his production of saliva and to help with his dry mouth, a common side effect of radiation therapy. He’s also had Tai Chi lessons to help regain strength he lost because of the disease.

It’s all part of UF Health’s new integrative medicine program. In integrative medicine, patients and practitioners work as a team and develop the most comprehensive treatment for a patient’s individual needs. Integrative medicine techniques range from Tai Chi to massage therapy to acupuncture.

Cancer patients are just one of the patient populations that is benefitting from the new program, which is housed in the UF College of Medicine and led by Irene Estores, M.D., the medical director for integrative medicine and an assistant professor of medicine. Freeman is one of her patients.

“The UF Health hematology-oncology clinic is set up in a way that promotes this line of communication and I am very grateful for the opportunity to be part of the excellent care this group provides to our patients with cancer. I hope the patients find in me a companion, someone who will support them in finding inner resources for their healing, in whatever form it may be found,” Estores said.

Freeman said the biggest benefit of integrative medicine is having more options “or another tool to speed the recovery process.” Freeman wasn’t a smoker or a drinker, so his throat cancer diagnosis came as a shock. Now he is in a recovery phase focused on “light exercise and proper oral care.”

“There is no comparison between UF Health and other hospitals, from the quick and correct diagnosis to the full range of care choices to the kindness of the nursing staff,” he said. “I feel had I not gone to UF Health I would not have been diagnosed in time to survive this illness.” — Kelsey Meany
The cancer fighters
A look at research inside the UF Health Cancer Center
A CRYSTAL CLEAR APPROACH TO DRUG DISCOVERY

When one sees the enlarged images of protein molecules gliding across a computer screen, it is hard to believe that the structural information came from a small, beautiful crystal — a crystal that could be the key to improving an individual's quality of life.

The UF Health Cancer Center Drug Discovery Program is using X-ray crystallography to develop a new, personalized method to boost immune responses in cancer patients.

“There are many researchers considering personalized approaches, but ours is absolutely unique,” said David Ostrov, Ph.D., who leads the program. “Our strategy is more personalized than any other current approach because the targets of our drugs are the proteins that are most different between us. We are purposely selecting safe drugs based on the structures of immune response proteins that define our individuality.”

X-ray crystallography is a technique in which researchers grow crystals of proteins and expose them to an X-ray beam. When the X-rays pass through the crystal, some will diffract and form a pattern of spots. From that pattern of spots, researchers can use the computer to deduce the 3-D structure and literally see the location of the atoms that make up the protein.

“We take the structural information of the proteins that we obtain through X-ray crystallography, and then use the computer to help us select drug candidates that will interact with any protein we are interested in targeting,” Ostrov said.

Identifying drugs that will bind with the key proteins involved in immune responses may be “a safe and effective personalized approach” for enhancing immune response against cancer, he said. The immune response protein that his group is targeting is called HLA-B (Human Leukocyte Antigen-B). This protein is distinctive in different individuals because it is encoded by the most diverse gene in the entire human genome.

“Cancer patients frequently have suppressed immune systems that are not able to effectively combat growing cancer cells,” Ostrov said. “By identifying which HLA-B molecules of these you are expressing, we can then pick out drugs that bind specifically to your molecules and boost your immune system.”

Researchers investigated a large set of drug candidates for their abilities to interact with more than 2,800 HLA-B molecules, representing all
known forms found in humans. With the assistance of the UF HiPerGator (the state’s most powerful supercomputer), the list of candidate compounds was narrowed down from approximately 140,000 to a list of 40 that are being tested in the lab. Selected drugs known to be safe are ready for accelerated clinical trials because information on dosage and toxicities are already available.

“We are trying to accelerate the efforts of researchers at UF in bringing their discoveries from the laboratory into the clinic,” Ostrov said.

SCANNING FOR A CURE

UF researchers have developed a new, more consistent way to detect very small tumors using computer technology.

“We can go through and find very, very small tumors that sometimes the radiologist might miss, and we can actually calculate pretty accurately how fast they’re growing,” said Walter O’Dell, Ph.D., a biomedical engineer and an assistant professor in the College of Medicine department of radiation oncology.

O’Dell said when tumors are small, a smaller radiation field is used, less damage is caused to healthy tissue and the chances of killing the tumor are better.

As part of a trial, breast cancer patients who are at high risk of metastasis — the cancer spreading beyond the original tumor — undergo CT scans every six months with the purpose of trying to find tumors as soon as they show up.

“The current clinical guidelines, no matter what risk you have, are to wait and see,” O’Dell said.

“Hospitals don’t do a lot of expensive things like preemptive CT scans of the chest. They will wait until you develop some type of secondary clinical symptoms, and then they’ll do a scan to see if cancer spread is really the cause. Usually by that time it has spread and becomes untreatable.”

Preliminary data suggest that patients will live longer if they are treated earlier, O’Dell said. As far as he knows, this is the only trial looking at this early detection approach. The funding for this novel research comes from private donors, including the nonprofit organization The Ocala Royal Dames for Cancer Research.

“Currently once you get a metastasis, your prognosis is very poor, but if we can find them and treat them early, then we believe that your prognosis is very much improved,” O’Dell said.

WATERMELONS AND GRAPES

With roughly 60 different types of lymphoma in existence, Nam H. Dang, M.D., Ph.D., said the subtypes of this cancer are no more similar than watermelons and grapes. However, Dang wants to rid patients of them all.

A professor and deputy chief of the division of hematology and oncology, Dang is conducting
several clinical trials looking at novel medications for different subtypes of lymphoma.

“Many of these drugs will actually become approved in the future, so by getting on the clinical trial now, many of our patients have early access to drugs that will help them,” said Dang, director of the UF Health Cancer Center clinical trials office. “I have multiple examples of patients whose lives have been prolonged because they were able to get on these trials before the drugs were approved.”

Dang said what makes this research unique is the use of various drugs that target different aspects of the disease and the knowledge to choose appropriate combinations of drugs to treat the disease.

“Up until now, we did not understand the molecular profile of the disease,” he said. “We can now develop medications that break up what drives the cancer.”

HELPING WOMEN SURVIVE BELOW THE BELT

As program leader for the UF Health Gynecologic Oncology Program, Merry-Jennifer Markham, M.D., focuses on bringing clinical trials to UF for women with gynecologic cancers.

“Traditionally, gynecologic cancers have been understudied, especially compared to other cancers with historically more funding, such as breast cancer,” said Markham, who is also an assistant professor of medicine. “I feel that part of my job is to help raise awareness for women’s cancers — those below the belt — and to develop research studies that will allow those patients to have more treatment options.”

One current clinical trial available at UF with promising preliminary data offers an investigational drug for women with platinum-resistant, recurrent ovarian cancer, or those whose cancer returned within six months of finishing chemotherapy with a platinum chemotherapy agent. The survival rate for platinum-resistant patients is cut nearly in half compared with platinum-sensitive patients.

“If we can find novel agents that can make a woman’s cancer sensitive to a platinum agent again, this would not only provide additional treatment options but would hopefully improve survival,” she said. “We know that once a woman has recurrent ovarian cancer, the cancer is no longer curable. Our treatment goals then focus on controlling disease, extending life expectancy, and improving quality of life. If we can get ovarian cancer to be more of a chronic disease when it reoccurs, and not an immediate death sentence, I think that will make a huge impact in many women’s lives.”
Battling brain tumors

With a team of 10 researchers, Duane Mitchell M.D., Ph.D., is using new approaches to treat tumors that use a patient’s immune system to combat cancer alongside conventional treatments, such as surgery, radiation and chemotherapy.

To aid these efforts and accelerate research in pediatric brain tumor immunotherapy, the Florida Brain Tumor Association and Accelerate Brain Cancer Cure have awarded Mitchell $500,000.

Mitchell, who joined UF in July 2013, is the Phyllis Kottler Friedman professor in the department of neurosurgery and serves as director of the UF Brain Tumor Immunotherapy Program and co-director of the Preston A. Wells, Jr. Center for Brain Tumor Therapy at UF. His research currently focuses on immunologic treatment for both pediatric and adult brain cancer. He is the principal investigator of the first pediatric brain tumor immunotherapy trial at UF that is on schedule to open for enrollment this year.

“I’m most excited about what I believe will be significant improvements in treatments of patients with brain cancer in five to 10 years using immune-based treatments,” Mitchell said. “I think we’re going to see immunotherapy take its place among standard treatment for patients with malignant brain tumors. I feel very fortunate to have the opportunity to make a scientific contribution.” — Christine Boatwright

April 5: Run for cancer

On April 5, the Climb for Cancer Foundation is hosting the second annual Hogtown 5K Run at Kanapaha Botanical Gardens. Last year, more than 450 runners participated and about $27,000 was raised to support cancer research and patient services at UF Health. To register or for more information, visit www.cfc-foundation.org.

Pedaling pink

On Oct. 12, 200 cyclists put the rubber on the road to raise money for breast cancer research at UF during the annual Pink Pumpkin Pedal-Off. It’s a charity bike ride designed to raise awareness and funds for breast cancer research at UF. All donations go toward treatment-resistant breast cancer research at UF Health. Treatment-resistant breast cancers are rare and can be very deadly since they have a high rate of recurrence. The event raised more than $32,000, with most donations coming from individual donors who have been affected by breast cancer.
**Faculty Spotlight**

Thomas George, M.D.

**The GI Gator**

Gator grad Thomas George, M.D., is dedicated to finding new treatments for GI cancer patients.

By the time most gastrointestinal cancers are diagnosed, the clock is already ticking. There are few telltale signs of gastrointestinal cancer; the symptoms, when present, tend to feel like everyday problems such as a stomachache or diarrhea. Because of this, the disease is often diagnosed after the cancer has advanced.

“One of our biggest challenges is being able to come up with strategies to reverse the clock and get our arms around the cancer, recognizing sometimes that it has already spread and is more advanced,” said Thomas George, M.D., the medical director of the gastroenterology oncology program within the UF Health Cancer Center and an associate professor of medicine in the UF College of Medicine.

This challenge, to find new and better ways to treat a dangerous, advanced disease, is just one of the reasons George decided to focus his clinical and scientific energies on gastrointestinal cancers.

Since entering medical school at the University of Florida, George has been committed to using his scientific skills and training to make people’s lives better. “Oncology was the natural next step,” he said.

“There is tremendous opportunity for scientific discovery to blend with being able to help patients. I also experienced cancer in my own family, and seeing the impact of it made it important to me to make sure there was always something that could be done.

“Also, colorectal and pancreas cancers were things I had personal experience with, so I felt a deep commitment to working in those areas.”

George’s main passion is providing patients with new treatments, particularly in cases where there are few other therapeutic options. Trying experimental therapies helps current patients receive potentially beneficial treatments that aren’t on the market yet, and also helps future patients, who will benefit from the research collected during the clinical trial.

In addition to his research and caring for patients, George also serves as the director of the fellowship training program in gastrointestinal oncology. It’s a fitting role considering not only his commitment to educating the next generation of physicians, but also the fact that he completed all the steps of his education at UF, from his undergraduate years and medical school to his own residency and fellowship.

“I didn’t intend that to be the case, but at every step of my education, the next best opportunity was at UF,” he said. “To some degree, that helped me advance faster. I did not have major transitions so I could focus my education on the things that needed to be focused on.” — April Frawley
The UF Health Cancer Center held its third annual Pink Pumpkin Fest in October. As part of the event, attendees could participate in the Pink Pumpkin Painting Party or the Pink Pumpkin Pedal-Off, the proceeds of which are donated to triple-negative breast cancer research at UF Health. The Pink Pumpkin Fest aims to heighten awareness about breast cancer, promote early detection and increased survival through regular screenings, and to celebrate the lives of women who have battled breast cancer. Breast cancer is the leading cancer death for women of all races. Every year one in eight women will be diagnosed with breast cancer and nearly 40,000 women will die from it. The American Cancer Society estimates as many as 30 percent of those deaths could be prevented if every woman over 50 were aware of and followed through on recommended screening practices, such as annual mammograms and monthly breast self-exams.

Pink, pink, pink!

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