Breast Cancer Clinical Trial Providing Hope

Researchers and doctors at the Rena Rowan Breast Center at Penn’s Abramson Cancer Center are focusing on targeted therapeutics utilizing the knowledge that breast cancer is not one form of cancer, but different subtypes of cancer. The understanding of these subtypes is based on the presence or absence of specific receptors, or proteins, that can be found in tumors and fuel the growth of cancerous cells. These proteins — estrogen receptors, progesterone receptors, and human epidermal growth factor receptor 2 (Her-2) — are extremely important because they tell us how the tumor is going to behave. With these breakthroughs, we can develop targeted treatment plans for individual patients — ultimately leading to more positive outcomes.

For tumors where these receptors are present, there are drug therapies available that have shown high cure rates. But there is another subtype of breast cancer that does not exhibit any of these receptors, meaning that the tumors are ER negative, PR negative, and Her-2 negative, thus the name “triple negative” breast cancer. These tumors, found in approximately 15% of breast cancer cases, are particularly aggressive and have a high rate of recurrence. Because these tumors are triple negative, they generally do not respond well to receptor targeted drug therapies, and while they are responsive to chemotherapy, there is still an urgent need to find better treatment options for those diagnosed.

Angela DeMichele, M.D., M.S.C.E., Assistant Professor of Medicine at the Rena Rowan Breast Center, has designed a clinical trial specifically for patients who have been diagnosed with triple negative breast cancer. The Stage II trial will involve 37 women who have been diagnosed with Stage IV metastatic breast cancer and have failed one standard treatment. Dr. DeMichele is enhancing the Abramson Cancer Center’s national reputation in conducting innovative clinical trials; we currently have over 200 active ongoing trials. In this breast cancer trial, lessons learned and drugs that work on other types of breast cancer are used in new ways to offer hope to triple negative breast cancer patients. Patients in the DeMichele trial will be administered a combination of two drugs, or agents, Abraxane and Avastin (generic name bevacizumab).

The first drug, Abraxane, is very similar to another well established breast cancer drug, Taxol. An important component of Abraxane is that it is coated in albumin, a protein known to be absorbed into cells in very specific ways. It is thought that tumors create a protein called SPARC, and that it is this protein that binds to the albumin protein pulling it directly into the tumor and delivering the enclosed drug Abraxane in a more effective method. This is seen as an improvement over Taxol, because Abraxane will only be taken in by cancerous cells that are producing the SPARC protein, avoiding possible exposure and damage to healthy cells that do not produce SPARC. It is a new way of making the tumor receptive to drug therapies.

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High quality care. Preeminent scientists. New and exciting clinical trials. For all of these reasons, patients know that Penn’s Abramson Cancer Center is the best place to turn when faced with cancer. The number of survivors is growing, with cancer now seen as a chronic disease. In this issue of Penn’s Abramson Report, we profile a patient who is a perfect example of this paradigm shift. Kimberly Gavaletz successfully sought treatment for breast cancer at the Abramson Cancer Center’s Rena Rowan Breast Center. At the same time, she was caring for her young daughter, who also had cancer. Her story is one of hope and managing her cancer in an extraordinary way.

As the number of survivors increases, we recognize the need to develop patient programs that help adult and pediatric cancer survivors with the long-term management of health risks from cancer therapies. In response, we created an online, personalized care plan that anyone can access called OncoLife. Our health care professionals run this online program — the first of its kind — to provide relevant and accurate information to survivors.

Recognizing Breast Cancer Awareness month, this issue of Penn’s Abramson Report highlights the work of two prominent researchers within Penn who are striving to develop better detection methods and new therapies. Dr. DeMichele and her team have started a clinical trial aimed at giving hope to patients with a subtype of breast cancer, known as “triple negative.” Dr. Greene and his lab have developed a new blood test to detect cancer, including breast cancer, at a much earlier stage than current methods available. It is already showing promising results.

I continue to be impressed by the dedication of our surgeons, doctors, researchers, and staff to advancing cancer care, and I appreciate the Abramson Cancer Center’s many friends who, like you, support our efforts through their philanthropy. Your generosity makes our innovations in cancer research and patient care possible.

Craig B. Thompson, M.D.

Basic and Translational Research Update: Celeste Simon

M. Celeste Simon, Ph.D., is one of the Abramson Family Cancer Research Institute’s two female investigators, but she “believes the future is very bright for women scientists.” Under her direction, the Simon lab has established itself as one of the leading teams studying how oxygen (O₂) regulates development and stem cell maintenance, and how responses to O₂ availability impact disease with a focus on cancer progression.

Her lab’s breakthroughs may lead to new drug therapies. Dr. Simon has proven that hypoxia inducible factor, or HIF, plays an essential role in the development of blood cells and vessels. She has also shown that some gene mutations stimulate production of HIF. By learning how to control HIF activity and thereby eliminating oxygen to tumors, Dr. Simon’s research could hold a key to destroying tumors without the use of radiation or chemotherapy.

Dr. Simon has generated more than 140 publications during the course of her distinguished career.

Kevin R. Fox, M.D., Named Inaugural MacDonald Professor

We are pleased to announce that Kevin R. Fox, M.D., was recently appointed the inaugural recipient of the Mariann T. and Robert J. MacDonald Professorship in Breast Cancer Excellence, and has been appointed the Co-Director of the Rena Rowan Breast Center at the Abramson Cancer Center of the University of Pennsylvania. Dr. Fox, Professor in Medicine at the University of Pennsylvania School of Medicine, has been named as one of Philadelphia Magazine’s “Top Docs” since 1993 and cited as one of “America’s Best Doctors for Cancer” by several national physician surveys. Dr. Fox has been a part of the Rena Rowan Breast Center team for over 20 years. In this role, Dr. Fox will help to lead this team of experts to enhance the Rowan Center’s mission of treating cancer and providing hope and compassionate care to our patients diagnosed with breast cancer and their families.

Kevin Fox, MD, and Mariann and Robert MacDonald
When Kimberly Gavaletz first discovered a lump in her breast, she visited a friend who was a nurse to have an ultrasound. As soon as her friend looked at her, Kimberly knew it was bad news. She recalls, “We cried for five minutes, and then I said ‘well what are we going to do about this, I don’t have time to be sick.’”

Her attention and energy were instead focused on her young family, and importantly, on her two-year-old daughter, Julia. Julia was undergoing treatment for a rare pediatric cancer at The Children’s Hospital of Philadelphia (CHOP), the pediatric arm of the Abramson Cancer Center. Kimberly was driving more than an hour and a half each way from their home in New Jersey to bring Julia to CHOP. It was Julia’s doctors at CHOP who suggested that Kimberly seek treatment from their Abramson Cancer Center colleagues at Penn.

Kimberly did not waste any time. She met with Kevin Fox, M.D., of the Rena Rowan Breast Center, who confirmed that she had Stage II breast cancer that had spread to her lymph nodes. With a daughter undergoing intensive treatment for her own cancer, Kimberly refused to be emotional or feel sorry for herself. After consulting with Dr. Fox, Kimberly decided to take an aggressive approach to her treatment. She underwent a lumpectomy, had 37 nodes removed, and began chemotherapy. Kimberly had an adverse allergic reaction to the chemotherapy, so her treatment plan changed to six weeks of radiation. Kimberly states, “It is difficult to think of your own pain, when your toddler is undergoing treatment. After my first radiation treatment, my daughter said ‘Mommy, great job!’”

Together, Kimberly and Julia battled their cancers, and today they are survivors. Kimberly, an incredibly high-spirited person, wife, and mother of three children, stayed positive about their recovery creating a family mantra — “Recovery is a state of mind.” When she felt tired, Kimberly planted flowers in her garden and never lost hope. Today, that garden is in full bloom and is a testament to the overcoming of their illnesses.

Kimberly feels blessed to have had a strong support system with her husband, friends, family, and medical team at the Rena Rowan Breast Center. Kimberly even jokes that she is probably the only person who gained weight while undergoing treatment. Everyday, friends delivered delicious food. This past holiday season, the family was together and healthy. Julia is now four years old and looking forward to starting school.

“It is important to remember that cancer is not a death sentence, it is definitely not an easy road to travel, but there is hope,” says Kimberly. “For me, my daughter was my hope. We survivors are the definition of hope. Someday, someone may have an easier road to travel because of the experiences that we have gone through.”
New Blood Test: Early Detection Breakthrough

Mark I. Greene, M.D., Ph.D., F.R.C.P., John Eckman Professor of Medical Science, Department of Pathology and Laboratory Medicine, was recently honored for his pioneering work that led to the development of Herceptin®, the breast cancer drug that defines a new class of targeted cancer therapies. Greene and his colleagues have discovered how to disable breast cancer tumors without harming adjacent non-cancerous cells, which can happen during chemotherapy or radiation.

Building on this research breakthrough, Dr. Greene and his laboratory recently developed a new method for detecting small amounts of proteins associated with cancers, such as breast cancer. Applications of this paradigm-shifting method will make cancer detection relatively easy and much more accurate than current methods.

The sensitivity by the new method, called FACTT, short for Floresco Amplification Catalyzed by T7-polymerase Technique, is five times greater than the current, widely used immune-system method, called ELISA. “The current ELISA tests can only detect proteins when they are in high abundance,” says Hongtao Zhang, Ph.D., a Penn research specialist. “But many of the functional proteins - those that have a role in determining your health - exist in very low amounts until diseases are apparent and cannot be detected or measured at early stages of medical pathology. It was important to develop a technique that can detect these rare molecules to see abnormalities at an early stage.”

“With FACTT Technology, it is even possible that one could screen for multiple diseases at the same time and produce a precise accounting of whether disease-causing molecules are present at an early time when disease can be more easily treated,” says Dr. Greene. “FACTT is remarkably adaptable to any protein and can be performed in an automated format.” He says that the technology will soon be robotized so as to be able to screen for many rare disease-causing proteins using tiny amounts of blood.

FACTT Technology represents a way to couple early diagnosis with early treatment to prevent tumor emergence.

FACTT will enable better detection of very early recurrence, which is (Continued on Page 8)

New Center Focuses on Ovarian Cancer

George Coukos, M.D., Ph.D., has no hesitation in describing the reason for a new center on the Penn campus. “There was a tremendous need for this center and to advance the fight against ovarian cancer,” said Coukos, Director of the recently established Center for Research on Early Detection & Cure of Ovarian Cancer. “The need for early detection is crucial to win this fight. If caught in Stage I, the five-year survival rate of ovarian cancer is over 90 percent. If caught in Stage III, the survival rate drops to less than 30 percent.” Under Dr. Coukos, the center will focus on developing better detection methods and new treatment therapies, while improving the quality of life for women with ovarian cancer.

Early Symptoms of Ovarian Cancer

The American Cancer Society recently issued a list of symptoms that may alert women to ovarian cancer if suffered daily for at least three weeks from one or more of the following: (1) bloating; (2) pelvic or abdominal pain; (3) difficulty eating or feeling full quickly; (4) frequent or urgent urination.

Symptoms such as the ones listed above are relatively common, and are more likely to be due to causes other than ovarian cancer. But when their occurrence is unusual, when they are present almost daily, and when they last for more than a few weeks, they should prompt a woman to see her doctor, preferably a gynecologist.
The Abramson Cancer Center is pleased to welcome the following individuals to Penn as new faculty members. Each brings a wealth of experience and genuine enthusiasm to the pursuit of cancer research and patient care excellence.

David Jaffe, M.D., received his bachelor’s degree from the University of Pennsylvania and his medical degree from Harvard Medical School. Dr. Jaffe completed his internal medicine residency, gastrointestinal (GI) fellowship, and advanced endoscopy training all at Massachusetts General Hospital. He was on the faculty at Mt. Sinai Medical Center for 10 years, helping to build a premier biliary endoscopy program, and he was instrumental in the design and implementation of two state-of-the-art outpatient and inpatient endoscopy centers. As an expert in liver and pancreatic cancers, Dr. Jaffe provides outstanding clinical and endoscopic services to our patients as the Clinical Director of GI at Penn Medicine at Radnor.

John Plastaras, M.D., Ph.D., was recently appointed instructor in the Department of Radiation Oncology. Dr. Plastaras received his medical and doctorate degrees from Vanderbilt University and completed his residency at Penn. During his training, he worked in the laboratory of Dr. Wafik El-Deiry, studying the combination of sorafenib (Nexavar®) with radiotherapy. Dr. Plastaras will be involved in the care of patients with gastrointestinal malignancies, lymphoma, and other hematologic malignancies. His research will focus on combining targeted biologic agents with radiation in patients with esophageal, pancreatic, and rectal cancer. He is also conducting groundbreaking research using radioimmunotherapy for lymphoma.

Leslie Fecher, M.D., has been appointed Assistant Professor in the Division of Hematology and Oncology. Dr. Fecher will focus her research and clinical efforts in the field of melanoma, where she will be active in designing and implementing novel clinical trials involving chemotherapeutics, immunotherapeutics, and molecular agents. Additionally, she will provide clinical care to advanced stage melanoma patients as well as participate in the multidisciplinary Pigmented Lesion Clinic at Penn. Dr. Fecher received her M.D. from Indiana University School of Medicine and completed her internal medicine residency at the University of Texas Southwestern. She joins Penn after completing her medical oncology fellowship at Johns Hopkins University.

Paul Wissel, M.D., has started as an Associate Professor after serving for the past two years on staff at Penn Presbyterian Medical Center. Previously, he served as a Clinical Associate Professor at the University of North Carolina at Chapel Hill for 10 years. Dr. Wissel specializes in gastrointestinal tumors with a focus on clinical pharmacology of oncology therapeutics.

Penn’s Abramson Cancer Center will benefit greatly from the wide range of experience and specialized knowledge of each of these four individuals, and is proud to welcome them to the ranks of our prestigious faculty.
OncoLife™ Survivorship Care Plan

“The good news for cancer survivors is that their numbers are growing,” said James Metz, M.D., a radiation oncologist at Penn’s Abramson Cancer Center and editor-in-chief of OncoLife™. Thanks to more successful therapies, an estimated 10 million cancer survivors are living in the United States today. Unfortunately, cancer treatments are not without consequences, and many of these survivors are dealing with the long-term effects of treatments with little or no guidance.

Cancer patients have to endure many negative side effects of treatment, and the side effects do not all stop once it is discontinued. For example, chemotherapy can cause cognitive impairment. Radiation therapy administered near the heart or major arteries can cause premature heart disease. Women treated for Hodgkin’s disease as children run an increased risk of developing breast cancer as adults.

“We were getting an increasing number of e-mails at OncoLink™ from cancer patients all over the world asking basically the same thing: ‘Is what’s happening to me a result of my cancer treatment?’,” said Carolyn Vachani, RN, MSN, AOCN, oncology nurse educator and creator of OncoLife™. “We knew we had to help and we knew we had to create a plan that anyone could access.”

In response to this need, a team of cancer specialists at Penn’s Abramson Cancer Center started OncoLife™. OncoLife™ is the first and only web-based adult cancer survivorship care plan. It is an individualized plan-of-care that will help adult cancer survivors with the lifelong management of health risks from cancer therapies.

The OncoLife™ program follows the National Institute of Medicine’s recommendations for adult cancer survivors. The new program — free and easy to use — provides cancer survivors with information regarding the health risks they face as a result of cancer therapies, as well as a defined plan-of-action to maintain their health once they are out of treatment.

OncoLife™ Survivorship Care Plan is a simple on-line questionnaire at http://www.oncolink.org/oncolife/ where patients anonymously answer a few demographic questions and seven disease-specific questions, such as type of cancer, treatment, chemotherapy, radiation therapy, and surgery, etc. Once all the questions are answered and submitted, OncoLife™ produces a personalized, comprehensive long-term survivorship care plan that participants can review with their health care team. With this information, patients can further assess their health and become active participants in their own follow-up care.

What distinguishes OncoLife™ and OncoLink™ from other Web-based cancer information resources is that both are completely run by oncology physicians, nurses and other health care professionals from Penn’s Abramson Cancer Center. “We’re real doctors and nurses who see real cancer patients every day,” said Maggie Hampshire, RN, BSN, OCN, a radiation oncology nurse and managing editor of OncoLink™. “We’re the ones providing the information on our website and responding to patient inquiries — not copywriters or PR agency consultants. We don’t just write about people living with cancer, we’re helping them get on with life after it.”

To access the OncoLife™ program, survivors can go to the OncoLink™ homepage http://www.oncolink.org and click on the link for the OncoLife™ page on the right side of the page.
The second drug, Avastin, is a therapeutic antibody that is delivering the drug therapy in a new way. It is believed to work by targeting and inhibiting the function of the “vascular endothelial growth factor” (VEGF) that stimulates new blood vessel formation, providing the nutrients that are thought to spawn tumor growth. Dr. DeMichele explains: “Avastin is not cutting off all the blood supply. It is actually remodeling the blood supply by cutting off these little feeder blood vessels, so that the only way in and out of the tumor is through the main blood vessels.” This should allow a more direct path for the drug to enter through and fight the tumor in a more targeted way. This combination of Abraxane and Avastin could lead to more effective treatments for those suffering from triple negative breast cancer.

Dr. DeMichele is particularly excited about this clinical trial. “You are not treating every breast cancer patient the same way,” she says. “We are learning something about the molecular components of the tumor and then actually pulling out certain subgroups of patients who get very specific treatments.” The Abramson Cancer Center is at the forefront of research in the field of targeted therapeutics. Dr. DeMichele exclaims, “This is the wave of the future.”

For more information about the triple negative breast cancer clinical trial, please call 215-349-5730. Information on other clinical trials being conducted at Penn can be found on Oncolink at www.oncolink.org.

Help us to provide essential funding to advance treatments and provide compassionate care by becoming a member and friend in our Partners in Hope program.

**Partners in Hope**
Donors in each category receive all the gifts and honors awarded to those in previous categories.

**Friend**
$10 - $99
Membership as a Partner in Hope

**Friend - Bronze Circle**
$100 - $149
A subscription to our newsletter, *Penn’s Abramson Report.*

**Friend - Silver Circle**
$150 - $249
Invitations to patient care conferences.

**Friend - Gold Circle**
$250 - $499
Invitations to Abramson Cancer Center special events and a subscription to *PENN Medicine Magazine.*

**Circle of Hope**
$500 - $999
Recognition in online and printed materials and a copy of the Abramson Cancer Center’s annual report.

**Patient Care Society**
$1,000 - $2,499
An opportunity to provide a personal narrative on how cancer touched your life.

**Faculty Society**
$2,500 - $4,999
Complimentary tickets to Annual Research Seminar.

**Benefactor**
$5,000 - $9,999
Abramson Cancer Center lapel pin and/or special gift.

**Abramson Cancer Center Director’s Society**
$10,000-$99,999
Couples’ tickets to the Annual Research seminar, invitations to exclusive events, and membership into the Society Special Services Program to facilitate referrals and medical care for you or your family.

To make a gift to the Abramson Cancer Center, please go to www.pennhealth.com/abramson or call 215-898-0578.

**Matching Gifts**
Whether you are making a small gift or creating a major legacy, involving your employer can double your contribution to the Abramson Cancer Center. Check with your human resources department to see if your gift qualifies for matching funds or contact Penn’s Matching Gifts Office at (215) 898-5069 or go to http://www.matchinggifts.com/uofpa/

The estate of Catharine Ducker has made a $1.2 million bequest to Penn’s Abramson Cancer Center’s research efforts. Ms. Ducker’s generosity and legacy will provide crucial funding for innovative and lifesaving cancer therapies in honor of her parents J. Ralph Custer and Sadie Egolf Custer. Ms. Ducker was interested in advancing cancer research and chose the Abramson Cancer Center based on its distinguished national reputation in the field.
critically important. Dr. Greene said, “Women often have a lumpectomy and are sometimes treated with radiation or chemotherapy, but despite this conventional therapy, the cancer still can occasionally re-occur,” says Dr. Greene. This technology will provide an early warning bell in the detection of many other types of cancers.

**Development of a test for the cancer marker Her2/neu**

Her2/neu proteins are over expressed in more than 30 percent of primary breast, ovarian, and pancreatic tumors. Higher blood concentrations of Her2/neu correlate with a lower response rate to chemotherapy and shorter survival time after relapse. Dr. Greene’s team compared detection of Her2/neu in the blood between ELISA and FACTT.

Using ELISA, researchers could not detect Her2/neu from mouse blood until the tumors reached an inoperable size. With the new FACTT technology, they could detect Her2/Neu in some mice when tumors were barely visible and within two days of implantation in mice. These results indicate that it is possible to detect tumors at very early stages so that tumor emergence or reoccurrence can be rapidly treated or even prevented.

Recent clinical trials support the notion that early treatment prevents tumor reoccurrence in women with breast tumors. FACTT technology represents a way to couple early diagnosis with early treatment.

Jeanne M. Rogers, RN, MEd, was recently appointed to serve a four-year term on the Pennsylvania Cancer Control Prevention, and Research Advisory Board. Ms. Rogers, who has been with Penn since 1993, serves as the Associate Executive Director of Penn’s Abramson Cancer Center and Administrative Director of the University of Pennsylvania Cancer Network.

“It is an honor to be asked to serve on the Advisory Board,” said Rogers. “This vital group plays an instrumental role in advising the Pennsylvania State Secretary of Health and the Governor on issues related to cancer prevention, screening, treatment, and research that are of interest to the citizens of the Commonwealth. Our small, but diverse group has one ultimate goal and that is to provide cancer patients and their families access to affordable state-of-the-art care.”

From left to right: Barbara Fox, Cindy Stern, RN, MSN, CCRP, Jeanne Rogers, RN, MEd, Cathy Belt, RN, MSN, AOCN, Craig Thompson, MD

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FOR INFORMATION OR APPOINTMENTS

We hope you never need us. But if you do, please know that we are here for you with a “patients first” attitude and a compassionate environment to offer hope and comfort to those who need it most.