Duke Cancer Institute

notes

SUMMER 2016

Fluorescence Lights Up Hidden Cancer *by Angela Spivey*

Surgery is a crucial weapon against cancer. But cancer can evade it. A surgeon may think all the tumor has been removed, only to find out from pathology reports that some was left behind. That can mean a second surgery for the patient. Or, if microscopic cancer cells aren't found by pathologists, they could seed new tumors.

What if surgeons had a tool that could tell them immediately, in the operating room, whether they had removed all the cancer or not?

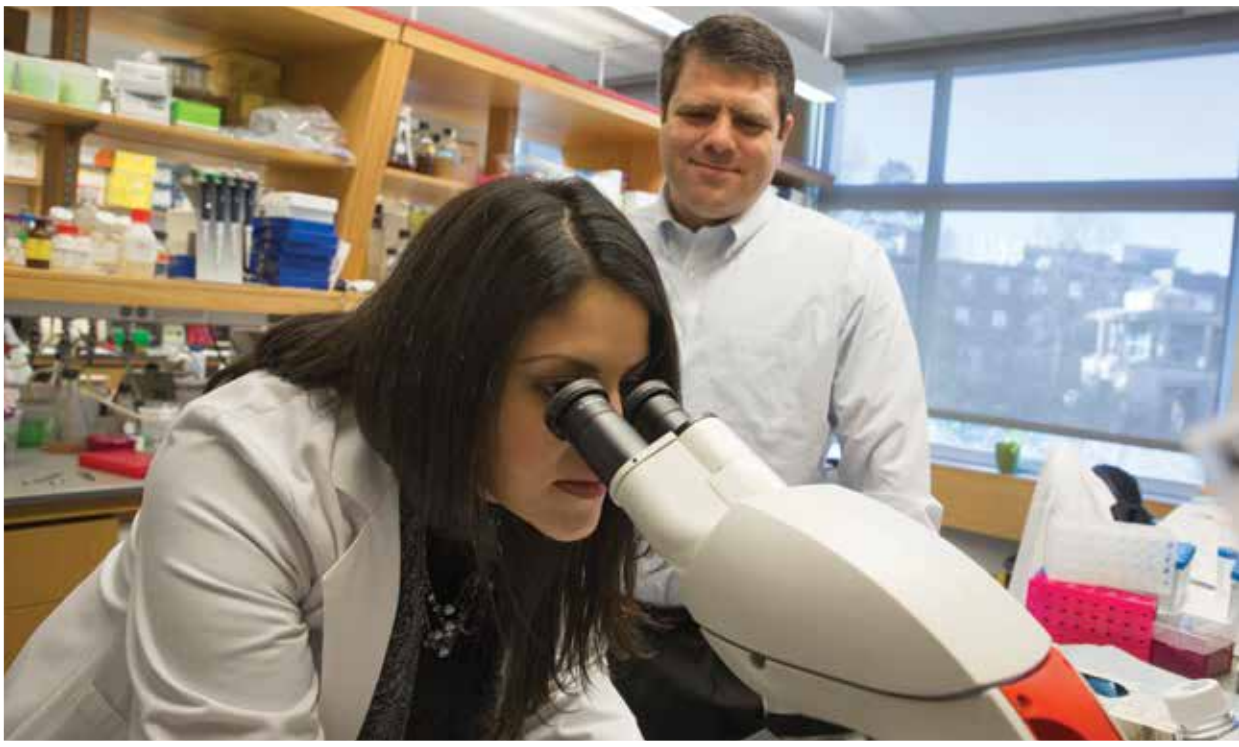
FIRST TIME IN HUMANS

Shawn Rocco

LUM015 is a blue liquid that when injected into a patient with cancer is absorbed by the tumor.

Duke is helping to develop such a tool, and the results of its first tests in humans made national news.

Collaborating with scientists at the Massachusetts Institute of Technology (MIT) and Lumicell Inc., researchers and doctors at Duke developed an agent that causes cancer cells to glow when viewed with a handheld imaging device. Lumicell is a company started by researchers at MIT and involving David Kirsch, MD, PhD, a professor of radiation oncology and pharmacology and cancer biology at Duke.



Shawn Rocco, Duke Health

MD-PhD student Melodi Javid Whitley works with David Kirsch to develop a new injectable agent that can cause cancer cells in a tumor to fluoresce, potentially increasing a surgeon's ability to remove the entire tumor on the first try.

The results of tests of the imaging agent in 15 people with breast cancer and sarcoma were published in the journal *Science Translational Medicine* and were featured in *Time*, on CBS News, and many other national media outlets.

IT'S SAFE!

The study showed that the new agent, LUM015, was safe when injected into human cancer patients and did help distinguish between tumors and normal tissue.

The technology could significantly improve treatment for patients with sarcoma, breast cancer, and possibly other types of cancer, says Brian Brigman, MD, PhD, chief of orthopaedic surgery at Duke.

LUM015 is being tested further in a clinical study in breast cancer patients at Massachusetts General Hospital. Brigman aims to take the next step to develop LUM015 in sarcoma

Continued next page

Vice President Visits Duke Cancer Institute

During his visit to Duke on February 10, 2016, Vice President Joe Biden speaks with neuro-oncologist Matthias Gromeier, MD (left); Chancellor for Health Affairs A. Eugene Washington, MD, MSc; and John Sampson, MD, PhD, chair of neurosurgery and the Dr. Robert H. and Gloria Wilkins Professor of Neurosurgery.

Invoking the aspirational spirit that put U.S. astronauts on the moon, the vice president visited Duke as part of the National Cancer Moonshot Initiative he is leading to advance cancer research.

Shawn Rocco, Duke Health

Fluorescence Lights Up Hidden Cancer

Continued from page 1

Duke Photography

Brian Brigman

patients as well. But with the federal grant-funding environment extremely tight, paying for the study is a challenge.

Brigman has planned a multi-center clinical trial for sarcoma patients to take place at Duke, Memorial Sloan Kettering Cancer Center, Massachusetts General Hospital, and MD Anderson Cancer Center.

"This study has the potential to fundamentally change how we treat patients with sarcoma," Brigman says. "If the data in humans looks as good as the data in mice, for example, we may be able to perform more precise operations on patients, use less radiation, and improve local recurrence and survival in our patients."

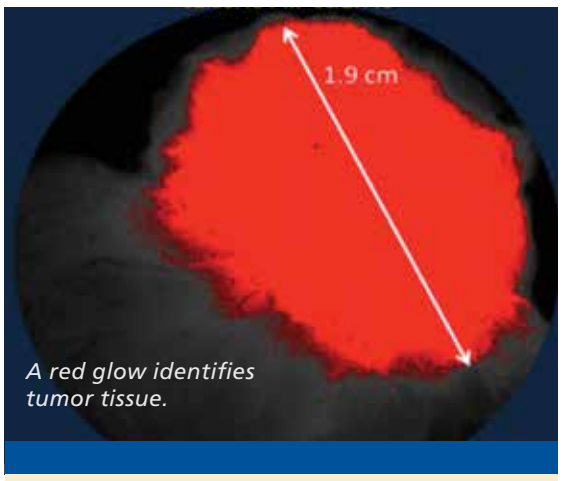
Brigman sought a federal grant to pursue the multi-center sarcoma study. His proposal for funding was highly ranked—in the 12th percentile, which means it was ranked higher than 88 percent of the proposals received by the agency in that funding round. But it just missed the cutoff to be funded—only proposals in the 11th percentile or above received grants.

> This study has the potential to fundamentally change how we treat patients with sarcoma.
> **– Brian Brigman, MD, PhD**

He's now seeking the funds needed for the trial from other agencies and from philanthropy.

"Clinical trials are notoriously expensive, especially when you're talking about multi-center studies," Brigman says. The planned study in sarcoma patients would cost about $2.5 million over five years.

David Kirsch has been awarded the Barbara Levine University Professorship in Cancer, effective July 1, 2016.



A red glow identifies tumor tissue.

HELP LIGHT UP CANCER

Your support can help Duke take the next steps to develop the fluorescent agent and handheld device that reveals cancer where it hides. To donate, call 919-385-3129 or visit **bit.ly/SpringDCI**.

A PATIENT WHO CHANGED CANCER

Peter Morrissette's life was changed forever by cancer. The father of three who loved to play ice hockey and compete in triathlons lost a leg to sarcoma (soft tissue cancer).

But Morrissette, of Cary, North Carolina, has also helped change cancer.

He was one of 15 patients who were the first to receive an injection of LUM015, a fluorescent agent that makes cancer glow when it's viewed with a special device. The clinical study helped Duke researchers develop a technology that could make it easier for surgeons to see and remove all of the cancer the first time. [*see* Fluorescence*, on page 1 and above*]

HELPING OTHERS

At first, Morrissette was unsure about participating in the study, which would require extra time in the hospital before surgery. "I just wanted to be home with my family, in my own house being comfortable, leading up to the surgery," he says.

But then he thought about the possibility that LUM015 could someday prevent another sarcoma patient from going through a second surgery or a cancer recurrence. "I realized, looking at my daughters, if I could do something that would maybe help them, or help somebody in the future, I should do it," he says.

SIX MILES? NO PROBLEM

Three years after his leg amputation, Morrissette says he is "improving on a daily and weekly basis," after going through several different changes to his prosthetic leg and foot. "I'm able to go out and do a six-mile walk. I can walk on the treadmill," he says. "Climbing ladders around the house—it's not a big deal. It's all doable. The nurses, doctors, and medical staff at Duke, they are all top notch."

Though the clinical study examined the safety of LUM015 and didn't change Morrissette's treatment, he's glad that he was a part of it. "If I had to go through this again, I'd say 'Let's do the same thing,'" he says.

After an amputation, Peter Morrissette's prosthetic leg enables him to take six-mile walks.

Jim Rogalski

Peter Morrissette was one of the first 15 people to receive an injection of a fluorescent agent that may help surgeons detect cancer left behind.

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Joining Together to Accelerate Breakthroughs in Cancer Treatment

When Vice President Joe Biden launched the National Cancer Moonshot Initiative to accelerate cancer research earlier this year, we were honored that he chose to visit Duke Cancer Institute (DCI) and meet with some of our researchers, physicians, and patients.

A central feature of the moonshot—collaboration—also runs at the heart of Duke Cancer Institute. DCI itself is a unique administrative structure that breaks down typical barriers between departments and between a hospital and its medical school. In addition, as the vice president mentioned during his visit, the Research Triangle area's success is rooted in a history of partnerships between major universities, biotechnology companies, and federal research agencies. We were happy to have researchers and representatives from nearby UNC Lineberger Cancer Center join us in a panel with the vice president.

During his visit, Vice President Biden led a roundtable discussion and toured a laboratory, where he met with two Duke scientists—Nobel Prize winner Paul Modrich, PhD, and Matthias Gromeier, MD,—whose groundbreaking discoveries demonstrate how investment in basic science can lead to new treatments. In this issue of *DCI Notes*, you can read about another exciting advance that has emerged from investment in basic science and multidisciplinary collaboration. LUM015, a technology that "lights up" cancer, promises to make treatment more effective by enabling surgeons to know at a glance whether they have removed the entire tumor. Led by David Kirsch, MD, PhD, the development of this device involves the combined expertise of investigators and physicians from radiation oncology, engineering, and surgery.

Cancer is a formidable enemy. But, at Duke Cancer Institute, we try to beat it by breaking down traditional barriers. – Michael B. Kastan, MD, PhD

Cancer is a formidable enemy. But, at Duke Cancer Institute, we try to beat it by breaking down traditional barriers. Please join us. With you as our partner, we will continue to provide cancer care as it should be, and we will be able to move further and faster to end cancer as we know it. ■

Michael Kastan

Michael B. Kastan, MD, PhD
Executive Director, Duke Cancer Institute
William and Jane Shingleton Professor,
Pharmacology and Cancer Biology

Lung Cancer Patients May Not Need Annual Screenings

Most high-risk lung cancer patients may not need annual low-dose computed tomography (LDCT) screenings if they are cleared of disease in their initial test, according to a study led by a Duke Cancer Institute researcher.

The researchers found that even former heavy smokers appear to have a reduced incidence of lung cancer if their initial LDCT screening is negative, suggesting that less frequent screening might be warranted.

"This has significant public policy implications," says Edward F. Patz Jr., MD, the James and Alice Chen Professor of Radiology at Duke and lead author of a study published in *The Lancet Oncology*. "Not screening patients annually could save millions in health care costs and spare patients the radiation exposure and the downstream effects of false positive screenings."

Patz and colleagues analyzed data from the National Lung Screening Trial, a large prospective study that randomly assigned former smokers to either receive three annual low-dose CT scans or three chest radiographs for the early detection of lung cancer. Patients were ages 55-74 who had smoked for the equivalent of 30 years (one pack a day for 30 years, two packs a day for 15 years, etc.). ■

Shawn Rocco, Duke Health

Shorter, Intense Radiation for Early Prostate Cancer?

Giving early-stage prostate cancer patients a slightly higher daily dose of radiation can cut more than two weeks from the current treatment regimen without compromising cancer control, according to a national study led by a Duke Cancer Institute researcher.

The research team compared the shortened radiation therapy schedule of about 5.5 weeks to the standard 8-week regimen to determine if rates of cure were similar. Both treatment schedules were similar in terms of controlling cancer, but doctors reported slightly more mild side effects in patients getting the shorter radiation schedule. The study was published in April 2016 in the *Journal of Clinical Oncology*.

"This study has implications for public policy," says the study's principal investigator, W. Robert Lee, MD, a professor in the Department of Radiation Oncology. "Because the shorter regimen has advantages such as greater patient convenience and lower costs, it's important to establishing whether we can cure as many patients with the shorter regimen. Our study provides that information for the first time," he says. ■

Erin Tait

Stock car driver Quin Houff (right) with his mom, Kate Houff, and his "BeatinCancerwithDuke" race car. Quin is so grateful for the treatment his mom received at Duke that he is donating half of his prize winnings from his top 10 finishes in 2016 to Duke Cancer Institute.

Quin Houff Motorsports

Houff Family Outraces Cancer

by Angela Spivey

Quin Houff (pronounced "howf") of Weyers Cave, Virginia, fell in love with racing at age eight, driving go-karts with his dad, Zane. "Our family has a trucking business, and they say driving is in our blood," Quin says. By age nine, Quin was racing mini-cup cars (half-size stock cars). "I'm just very competitive. For some reason I have a need for speed," he says.

Now, at age 18, Quin drives faster cars in longer races. He began racing full-sized stock cars when he was 15, winning Rookie of the Year honors. In 2015, he joined the LFR Driver Development Group—a team in Mooresville, North Carolina, that coaches and develops race car drivers. He hopes it's a step on his way to a career as a NASCAR driver.

A DEVASTATING DIAGNOSIS

That same year, Quin's whole family slammed on the brakes when his mom, Kate, was diagnosed with cancer for the second time. Doctors at a local hospital told her that they could manage it with medication but that she'd likely live with cancer for the rest of her life. "We were pretty devastated by that," Quin says.

Courtesy of Kate Houff

Kate Houff decided to look at her fight with cancer as an adventure. While staying near Duke for six weeks of treatment, she boarded her horse nearby and used her down time to ride.

> My whole purpose in this is to give back to Duke and let people know that if you or someone you know is fighting cancer, you're not alone. – Quin Houff

The family sought a second opinion from Duke's Kimberly Blackwell, MD, who recommended a more aggressive treatment plan. They liked what they heard. "They said we would grab it by the horns and try to completely beat it," Quin says.

Quin labeled his race car with the motto "BeatinCancer" in pink to honor his mother as well as his grandmother, who is also fighting breast cancer. "At every track I went to, it hit a lot of people's hearts; they have family and friends fighting cancer too," he says.

BEATING CANCER

While staying in the Durham area for six weeks of treatment, Kate boarded her horse at a nearby barn and used the time away from home to get in as much riding as she could. "We treated this journey trying to beat cancer as an adventure," she says. Now the cancer that had appeared throughout her body is not detectable on images. "My doctors are cautiously optimistic," Kate says.

Quin says, "Duke's plan worked perfect. Now instead of living with cancer, my mom is living the way she is meant to live—cancer free."

The family was so happy with the outcome that Quin has changed his car's motto from "BeatinCancer" to "BeatinCancerwithDuke." He has set up a website—**beatincancerwithduke.org**—where he asks friends and fans to donate to Duke Cancer Institute research.

"Cancer is an awful thing, and my whole purpose in this is to give back to Duke and let people know that if you or someone you know is fighting cancer, you're not alone," Quin says. "This is beatable, and you can overcome it."

Quin Houff Motorsports

PUT THE BRAKES ON BREAST CANCER

Visit **beatincancerwithduke.org** to donate to the Houff family's fundraiser for Duke breast cancer research.

Bigner and Kirsch Receive 2015 Outstanding Investigator Award

The National Cancer Institute has awarded a prestigious Outstanding Investigator Award to two Duke Cancer Institute researchers.

The award supports investigators with outstanding records of productivity in cancer research by providing extended funding stability and encouraging investigators to continue or embark on projects of unusual potential in cancer research.

Darell Bigner

David Kirsch

Darell Bigner, MD, PhD, director of the Preston Robert Tisch Brain Tumor Center at Duke, received almost $7 million to support additional animal and human studies for two separate immunotherapies that are showing promise for treating lethal glioblastoma in early clinical trials. One of the treatments uses a modified poliovirus, and another uses a bacterial immunotoxin. New studies will combine each of these immunotherapies with a class of drugs called checkpoint inhibitors, which work to awaken the body's immune system to attack cancer cells.

"This is extremely important support for our work, and we are excited to move forward with the studies," Bigner says.

David Kirsch, MD, PhD, professor in the departments of radiation oncology and pharmacology and cancer biology, received a $6.6 million award to fund ongoing research in his lab to improve the efficacy and safety of radiation therapy for people with cancer.

The seven-year grant will provide more time to probe potential leads in improving radiation treatment, Kirsch says. "Many grants last about five years. This kind of opportunity allows investigators the flexibility to take more risks and conduct experiments that might take longer. If there's a really important question you're trying to answer, it could take seven years from initiating the first experiment to finally publishing your findings. Now we can spend the time looking at those questions, which is really exciting."

Bigner and Kirsch are among about 60 recipients of the award nationwide.

Kastan Elected to National Academy of Sciences

In recognition of his distinguished and continuing achievements in original scientific research, Michael B. Kastan, MD, PhD, executive director of Duke Cancer Institute, has been elected to the National Academy of Sciences (NAS). He is one of only 84 new members.

Michael B. Kastan

Kastan is the William and Jane Shingleton Professor of Pharmacology and Cancer Biology and Professor of Pediatrics at Duke University School of Medicine. His research interests include cellular responses to DNA damage and the impact on cell viability and cancer formation.

The NAS is a private, nonprofit institution that recognizes achievement in science by election to membership and provides science, technology, and health policy advice to the federal government and other organizations.

Hwang Named One of *Time*'s Most Influential People

Shelley Hwang, MD, chief of breast surgery at Duke Cancer Institute, has been named one of *Time*'s 100 most influential people for 2016 as a pioneer in her field. One of the world's foremost experts in early-stage breast cancers, she has become an international leader calling for research to guide treatment for ductal carcinoma in situ (abnormal cells in milk ducts that have not spread to surrounding tissue).

Shelley Hwang

"This is a wonderful recognition for the ground-breaking work done by Shelley and reflects her continuing commitment to identifying the most appropriate and directed therapies for women diagnosed with breast cancer," says Michael B. Kastan, MD, PhD, executive director of Duke Cancer Institute. "She is a considerate and compassionate physician and surgeon and is an integral component of DCI's Women's Cancer Program. We are proud of her international leadership in the field."

Quality of Life after Double Mastectomy

Although having a double mastectomy has shown little impact on reducing deaths among women with cancer in only one breast, increasing numbers of women decide to undergo the procedure.

But does a preventive double mastectomy improve quality of life? A study from Duke Cancer Institute found little evidence that it does.

Among almost 4,000 women surveyed in the study, contralateral prophylactic mastectomies (CPMs) were associated with slightly higher satisfaction in women's perception of how their breasts looked and felt, but primarily among women whose mastectomies were followed by reconstructive surgery.

"In our analysis, women who had CPM also reported marginally higher psychosocial well-being – feeling confident, emotionally healthy, accepting of their bodies," says senior author Shelley Hwang, MD, chief of breast surgery at Duke. "But the differences between women who did and did not get CPM were very small and diminished over time. Psychosocial well-being continued to increase in both groups, even beyond 10 years after treatment."

"Unless a woman has a gene mutation that places her at significantly increased risk of a new cancer in the other breast, CPM doesn't prolong life and our study shows that it doesn't make for a notably better quality of life," Hwang says.

"The key to having long term satisfaction with treatment decisions is to review all the options and recognize the tradeoffs," she says.

HWANG TO LEAD LARGE STUDY OF DCIS TREATMENT

Hwang will lead the first large U.S. study aimed at resolving an ongoing debate about the best way to treat ductal carcinoma in situ (DCIS). DCIS is a small cluster of abnormal cells in the breast ducts that has not spread to surrounding tissue.

The study, entitled COMET (Comparison of Operative to Medical Endocrine Therapy) for low-risk ductal carcinoma in situ, received funding through a $13.4 million, five-year award from the Patient-Centered Outcomes Research Institute, an independent, nonprofit organization authorized by Congress in 2010 to support research that enlightens health care decisions.

The study will enroll 900 patients diagnosed with low-risk DCIS from 100 cancer centers throughout the United States, with enrollment slated to begin later this year. The trial will take four years to accrue all patients, with follow-up and analysis to continue for at least five years.

To support pioneering researchers and physicians like Dr. Hwang, use the enclosed envelope or visit **bit.ly/SpringDCI**.

Kristin Schroeder spends six months of the year treating children with cancer at Bugando Medical Centre in Mwanza, Tanzania. She started a non-profit organization to help provide life-saving cancer treatment to children in Tanzania who might otherwise go without.

Photograph courtesy of Kristin Schroeder

A Small Price to Pay

In Africa, affording even $200 to cure their child of cancer is impossible for most families. Duke's Kristin Schroeder is helping change that. *by Aliza Inbari*

Kristin Schroeder, MD, MPH, remembers the dad that called to tell her he had found a way to pay for the medicine to treat his son's lymphoma; he had just sold his cow. He said he would come the next day to get the chemo at Bugando Medical Centre in Mwanza, Tanzania.

"I said, 'oh my goodness!' A cow in Tanzania can be a large portion of the family's income, used for milk or to sell for meat to support the family. That was a huge wake-up call for me that things have to be changed. It was not fair to expect families to give up everything for treatment," says Schroeder.

CURES FOR ALL

Soon after that experience, Schroeder, a pediatric oncologist and a second-year research fellow at the Duke Hubert-Yeargan Center for Global Health, started a nonprofit to improve pediatric cancer treatment and give children the same chance of cure regardless of where they live. Together with her mentor, Nelson Chao, MD, MBA, she started ICCARE (i-ccare.org), which provides chemotherapy free of charge to patients at Bugando Medical Centre.

More than 60 percent of the world's new annual cancer cases occur in Africa, Asia, and Central and South America, according to the World Health Organization. These regions account for 70 percent of the world's cancer deaths. This disparity is most striking in children. In the United States, cancer survival rates among children are over 80 percent, but in low-income countries, survival rates are less than 30 percent. Through ICCARE, Schroeder hopes to change those statistics.

TRACKING OUTCOMES

ICCARE has helped many children, including Nyangeta, an 8-year old girl who had Wilms tumor, a common pediatric kidney cancer seen in children in Tanzania. The organization raised money to cover the full cost of Nyangeta's treatment and transportation. After completing chemotherapy and a full resection, she is doing well.

For many pediatric cancers in Tanzania, it costs only $200 to cure a child. "If we find a way to help these kids, it does not cost a lot. It's just needs dedication," Schroeder says.

Schroeder is tracking patient outcomes to find other ways to improve care. Through a Duke Cancer Institute pilot grant for global cancer, she established a regional cancer registry at Bugando Medical Centre in collaboration with Duke and Tanzanian colleagues. The registry includes more than 1,000 patients after the first year. While tracking their diagnoses and outcomes, she found that 60 percent of the pediatric patients start treatment, but never finish it. The reasons are varied. "The average family in Tanzania makes less than a $500 a year, so $200 for them is exorbitant," Schroeder explains. "The average travel time is seven hours each way, and the cost of transportation is a huge barrier for care. Because of lack of education about cancer, many patients come at late stages when it is harder to treat them."

Schroeder and her team in Bugando educate local clinics on early signs of pediatric cancer. She also hired a patient educator who teaches parents of

Continued on page 7

Kristin Schroeder

Working with colleagues at Duke and Tanzania, Kristen Schroeder established a regional cancer registry to track patient outcomes and improve care.

Kristin Schroeder

HOW YOU CAN HELP

Your support helps Duke Cancer Institute and our partners improve cancer treatment around the globe. To make a gift, visit **bit.ly/SpringDCI** or call 919-385-3129.

Jared Lazarus, Duke Photography

Kristin Schroeder spends half of the year providing clinical care and conducting research on pediatric cancers in Tanzania and the other half treating pediatric brain tumors at Duke.

newly diagnosed children about cancer and chemotherapy. These parents go back to their communities and educate other families.

TAILORING TREATMENT FOR TANZANIA

Over the last year, Schroeder has been working with colleagues in Muhimbili National Hospital in Dar es Salaam, the only other pediatric cancer center in Tanzania, to develop treatment protocols for patients in countries with limited resources. Due to lack of infrastructure and access to laboratory evaluations, Schroeder cannot give highly immuno-suppressive chemotherapy, which requires follow-up visits and supportive care that is not available in Tanzania. The adapted protocol uses limited toxic chemotherapy by applying decreased doses and a shorter duration of chemotherapy.

> It doesn't matter where in the world you live. Any time you tell a family that their child has cancer, it's the worst day of their lives.
>
> **– Duke pediatric oncologist Kristin Schroeder**

Moving forward, Schroeder needs funding to establish point-of-care testing to get lab results quickly. She would love to have a hostel for patients to stay in after treatment. Support is also needed for undergraduate and graduate students from Duke who are interested in conducting research in Tanzania, and for Duke experts to train medical personnel in Tanzania.

For the past two years Schroeder has hopped between Durham and Tanzania every three months. She is dedicated to improving survival for children with cancer no matter their location. "It doesn't matter where in the world you live. Any time you tell a family that their child has cancer, it's the worst day of their lives," she says.

In Summer 2016, Schroeder will finish her research fellowship and will join the Duke faculty as an assistant professor in the Department of Pediatrics and Duke Global Health.

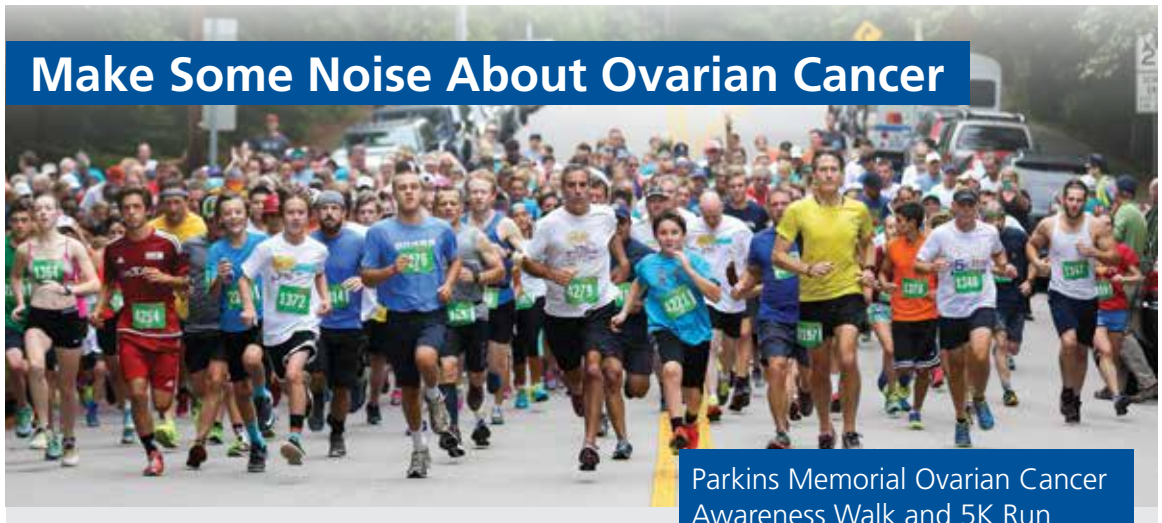
DUKE GLOBAL CANCER

About 70 percent of the world's 7 million cancer deaths occur in low- and middle-income countries. The Duke Global Cancer Initiative is a partnership between Duke Cancer Institute and Duke Global Health Institute to mobilize the resources of Duke University to expand cancer research, education, and clinical care in poor countries.

The partnership engages researchers from the university and medical center to identify the causes of cancer around the world and develop effective strategies for preventing and treating the disease, palliative care, and innovative uses of technology. Led by Nelson Chao, MD, MBA, Donald G. and Elizabeth G. Cooke Cancer Research Professor, the initiative also focuses on training health providers through exchange programs, developing new research projects, and expanding partnerships across campus and internationally.

Duke physicians and researchers are working at three sites: the Tata Medical Center in Kolkata, India; the Barretos Cancer Center in Barretos, Brazil; and at the Bugando Medical Centre in Mwanza, Tanzania. To learn more, visit globalhealth.duke.edu/topics/cancer.

Make Some Noise About Ovarian Cancer



Ovarian cancer is known as "the disease that whispers" because it often brings few symptoms until the late stages, making early diagnoses difficult. Join the **14th annual Gail Parkins Memorial Ovarian Cancer Awareness Walk and 5K Run** to spread the word about ovarian cancer.

Melanie Bacheler created the event to honor her mother, Gail Parkins, who lost her courageous battle with ovarian cancer at the young age of 56. All funds raised support ovarian cancer research at Duke Cancer Institute.

Parkins Memorial Ovarian Cancer Awareness Walk and 5K Run

Saturday, September 17, 2016

Competitive 5K Run: 9:30 a.m.
2-mile walk: 10:30 a.m.
Registration for both opens at 8:30 a.m.

For more information and to register, visit **www.ovarianawareness.org**.

Duke Cancer Institute

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A COMMUNITY OF SUPPORTERS

On Valentine's Day 2009, Meg Lindenberger was diagnosed with breast cancer. Throughout her treatment—a bilateral mastectomy and four rounds of chemotherapy—Duke surgeon Randall Scheri, MD, and his team ensured that Meg never endured nausea or missed a day of work at IBM. The day after her outpatient surgery, she participated in a teleconference call with her team.

Retired now, Lindenberger and her husband, Bill, of Pinehurst, North Carolina, spend some of their time and energy supporting Duke Cancer Institute (DCI).

"I feel a sense of gratitude to Duke for saving my life," says Lindenberger, who serves on the DCI Board of Advisors. As a member of the DCI's Shingleton Society, Lindenberger makes regular gifts and encourages her friends to as well. The society honors the generosity of those who make an annual gift of $1,000 or more to DCI.

"My friends know that I don't jump on just any bandwagon, so when I advocate for a cause, they listen," she says. "Fighting cancer takes more than just one person—it takes a community of people supporting the work to make a difference."

Shingleton Society donors are part of a legacy of devoted DCI pioneers and partners dedicated to extending and improving the lives of all people with cancer. The society pays tribute to William Shingleton, MD, the founding director of Duke Comprehensive Cancer Center, now known as Duke Cancer Institute. Members receive invitations to educational and recognition events from Duke Cancer Institute and Duke Health, including the annual Society Luncheon and Shingleton Awards Celebration.

Lindenberger sees her fellow DCI supporters as a true community. "We love seeing the people we have gotten to know at the Shingleton events, and I love hearing about the research going on at Duke. I am so impressed by how these researchers persevere for years to develop an idea that will make a difference for people with cancer," she says. "I was a biochemistry major in college. I see myself in some of these young researchers, and I am so proud of them."

> Fighting cancer takes more than just one person—it takes a community of people supporting the work to make a difference.
>
> **– DCI supporter Meg Lindenberger**

Please consider a gift of $1,000 or more to Duke Cancer Institute and become a member of the Shingleton Society. This committed group of annual donors stands shoulder-to-shoulder with physicians, researchers, and caregivers in the quest to eradicate cancer as we know it. Together we can advance cancer discovery and research, enabling us to deliver tomorrow's health care today!

DCI supporter Meg Lindenberger with brain tumor researcher Matthias Gromeier, MD, at a cancer research symposium. Gromeier developed a re-engineered poliovirus to activate the immune system to kill brain tumor cells.

Shingleton Society Annual Giving Levels

- $25,000 Innovator
- $10,000 Leadership
- $5,000 Ambassador
- $2,500 Founder
- $1,000 Member

To donate, use the enclosed envelope or visit **bit.ly/SpringDCI**.

FDA Grants Poliovirus Therapy "Breakthrough" Status

A poliovirus therapy developed and tested at Duke has won "breakthrough therapy designation" from the U.S. Food and Drug Administration, which will expedite development and review of the treatment. This news was reported by CBS News' *60 Minutes* on May 15, 2016.

In addition, the team at the Preston Robert Tisch Brain Tumor Center is moving to open a clinical trial for children with brain tumors. It has also received grants to expand the research to explore the therapy's effect on solid tumors.

To learn more, visit **dukemedicine.org/blog/60-minutes-updates-viewers-poliovirus-therapy-glioblastoma.**

60 Minutes anchor Scott Pelley interviews brain tumor physicians Annick Desjardins, MD, and Henry Friedman, MD, at the Duke Cancer Center.

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