

cancerlines

UNC LINEBERGER COMPREHENSIVE CANCER CENTER

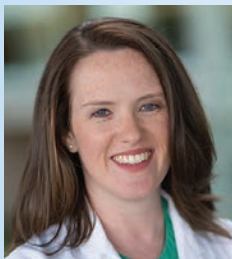
the inside lineup



3 Exercise makes a difference for cancer patients



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6 Autumn McRee, MD, collaborates to tackle GI cancers



8 Lineberger Club event features notable anniversary

Four paws, two handlers, one great comfort: SCHALL

A weary look crosses the face of a teenage girl; her jaw tightens, and her body tenses. Another day, another needle stick — a typical appointment for a pediatric cancer patient. But then, the tapping of nails on a shiny floor brings a different expression — a smile — for SCHALL, the rehabilitative facility dog at the N.C. Cancer Hospital's pediatric hematology oncology clinic.

Lifting spirits and helping ease tension are SCHALL's calling cards, as she strolls through the unit with primary handler "MT" Fore, MSW, LCSW, and checks in on patients with UNC Lineberger's Stuart Gold, MD, chief of pediatric hematology-oncology. SCHALL spends her days performing interventions that help reduce patient anxiety, depression and stress.

"Her role is also to normalize the clinic for kiddos so that it does not seem so foreign or scary," Fore said.

Named in honor of the late James E. Schall Jr., U.S. Army, who served in Vietnam and Korea and had a decorated military career, SCHALL was trained by paws4people, a Wilmington, North Carolina-based

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Sarah Jernigan hangs out with SCHALL in the pediatric oncology unit at N.C. Cancer Hospital.

"She's a dog, so when you take off her vest, she plays. She has a PhD in being a dog."

- Stuart Gold, MD, UNC Lineberger chief of pediatric hematology oncology

Stand Up to Cancer names "Dream Team"

Stand Up To Cancer (SU2C) awarded an \$8 million grant to a team of leading scientists, including six from UNC Lineberger Comprehensive Cancer Center, to develop therapies that use a person's immune cells to recognize and attack T-cell lymphoma. Helen Heslop, MD, of Baylor College of Medicine, will direct the team, and UNC Lineberger's Gianpietro Dotti, MD, will serve as co-leader.

The SU2C Meg Vosburg T-Cell Lymphoma Dream Team will develop and study chimeric antigen receptor T-cell (CAR-T) therapies, which involve modifying a person's immune cells to treat T-cell



lymphoma. It is SU2C's 23rd dream team and the first to include UNC Lineberger researchers.

CAR-T therapy is usually custom built for each patient. The SU2C team will focus on developing CAR-T therapies that can treat the entire spectrum of T-cell lymphomas



Gianpietro Dotti, MD.

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Shelton Earp, MD

director's message

When I meet with leaders from other cancer centers across the country, I am often asked for the secret behind UNC Lineberger Comprehensive Cancer Center and its success.

We're not the biggest, and we certainly don't have the largest budget. But we have brought together the right mix of people – faculty, staff, caregivers, donors and board members – who share a commitment to ending the burden of cancer, and we've made smart investments in

bold ideas to transform the study, treatment and prevention of cancer. This, in my opinion, is what enables us to conduct pioneering basic science and public health research, to develop new treatments and to provide innovative, compassionate care.

This issue of Cancer Lines illustrates this point nicely.

Our cellular immunotherapy program, established just a few years ago with support from the state of North Carolina and our generous donors, has quickly become a national leader and is sought out for multi-institutional collaborations. In February, Stand Up To Cancer named six UNC Lineberger researchers to its Meg Vosburg T-Cell Lymphoma Dream Team. Gianpietro Dotti, MD, is co-leader of this national team of top researchers who have been awarded an \$8 million grant to develop a chimeric antigen receptor T-cell (CAR-T) therapy.

Keeping on the subject of CAR-T, we continue to investigate different approaches to using this therapy to treat cancers that don't respond to standard treatments. We are about to launch a pediatric cancer trial for neuroblastoma and are currently exploring potential phase I trials for additional cancers.

Our profile on Robert Winston III provides insight on what motivated him and his wife, Tracy, to support gastrointestinal cancer research, including the work of Autumn McRee, MD, who is exploring novel treatment approaches for pancreatic cancer.

While we are well known for our research focused on laboratory and clinic discoveries, we are also leaders in studies that investigate the link between lifestyles, health and cancer outcomes. William Wood, MD, MPH, Claudio Battaglini, PhD, and Hyman Muss, MD, are doing some remarkable work with exercise and the benefits it brings to cancer patients.

You'll also read about Dustin Riedesel, who postponed his wedding after being diagnosed with a rare leukemia. Happily, under the care of Catherine Coombs, MD, his cancer was successfully treated, and he and his fiancée turned their wedding ceremony into a celebration of life. Equally inspiring, you'll learn about how our furriest team member – SCHALL, a rehabilitative facility dog – is bringing comfort, joy and excitement to our pediatric patients and their families.

Is there a secret to our success? Why, yes; it's the people. It is clear to me that by making smart investments in people, resources and programs, and partnering with donors who share our vision, we will remain well positioned to provide today's best care and tomorrow's best hope. 8

SCHALL *continued from page 1*

nonprofit that raises, trains and places assistance dogs. According to Kyria Henry, executive director of paws4people, SCHALL began training at three days old and received more than 300 hours of training over two years in both Wilmington and West Virginia before her placement with the N.C. Cancer Hospital.

"SCHALL worked with student trainers from the paws4people UNCW Service Dog Training Program and paws4people staff to refine her skill set for her job in the pediatric oncology clinic," Henry said.

SCHALL is tasked with providing therapeutic assistance to any patient, family member or care team member in need, but she has a team of people who support her work with pediatric patients.

Gold said the goal of the pediatric hematology oncology clinic is to treat the whole patient. In addition to medical treatment, that can include talks with social workers, music therapy, art therapy and now, pet therapy. "We try hard in our clinic to provide care for every part of the being, and having a pup adds to that," Gold said. "She helps provide total care for the family."

"Adding SCHALL to our clinic family was somewhat of an experiment that Dr. Gold and I took on. It all started with an idea ...," Fore said. "We felt she would be fabulous addition to clinic but were not sure exactly how it was all going to work on a daily basis. We still are learning and growing and adjusting and adding in terms of how we use SCHALL's abilities to enhance patient and staff experience."

SCHALL's duties take her all over, and she's likely to be hanging out in patient rooms, snuggling in a bed or begging for a paw rub — her favorite — from patients and families in the clinic lobby.

"Patients want to see SCHALL more than me," Gold said. "They ask for SCHALL on repeat visits. It's common for the first words to come out of their mouths to be, 'where's SCHALL?'"



Stuart Gold, MD, and SCHALL take a stroll around the grounds of the N.C. Cancer Hospital. Gold is chief of pediatric hematology oncology and SCHALL's secondary handler.

The idea of having a facility dog in the clinic also gained support outside the hospital. Several campaigns were launched to raise funds to make SCHALL a member of the pediatric oncology team, and donors responded positively to the idea.

"So glad I was able to help. Being a cancer survivor myself, I know how much this precious dog will be able to help the children," said Denise Herndon, who donated to one of the campaigns.

And help SCHALL does, but often in costume with plenty of her signature doggie charm.

"She has a big job, but you would never know, as she remains relaxed, is not afraid to show her silly side and is just as sweet as she can be," Fore said.

And while the smiles on patient and family faces show the impact she can have, SCHALL has also managed to charm the seasoned staff in the pediatric clinic.

"Staff appreciate SCHALL as a beloved member of the team," Fore said. "For them she is comic relief, stress relief and a sweet co-worker to comfort them when needed."

"We're in a high-stress field with a high burnout rate, and she helps everyone relax," Gold said.

Seeing the impression SCHALL has on staff members and parents has been eye-opening, and Gold said he is hoping to do research on how a facility dog can impact kids and families. He hopes to see facility dogs used more on in-patient units and in hospital-based support

groups, like the Adolescent and Young Adult Cancer Support Program.

"It's one of those programs that the impact is subtle and intangible, but I hope that this will be a startup program," Gold said. "I hope we're an example for other programs, and it will keep evolving."

SCHALL has quickly become an important member of the clinic's team. And just like her human colleagues, she wants to unwind at the end of the day.

"She's a dog, so when you take off her vest, she plays," Gold said. "She has a PhD in being a dog." 8

Cancer patients, doctors find healing, health, in exercise

When she was diagnosed with breast cancer, Erin Juliano was an active, young mom who loved to run outdoors and do exercise classes at the gym.

While she tried to remain active during chemotherapy, surgery and radiation, she wasn't in the same shape afterward. Surgery made it difficult for her to raise her right arm, which required physical therapy.

"I certainly wasn't anywhere near where I was before my diagnosis," Juliano said, in terms of her physical activity level.

On her last day of radiation, her doctor handed her paperwork for Get Real and Heel, a free exercise program for cancer survivors at the N.C. Cancer Hospital. Launched in 2006 by UNC Lineberger, the program offers a space for patients to exercise alongside expert trainers who understand what they've gone through.

After more than a year in the program, Juliano made fitness gains, and a research study that tracks her heart rate, muscle mass and other health indicators with high-tech equipment confirmed her progress. She gained intangible benefits as well — a community of survivors who have been a source of motivation.

"There are some women who have been participating in the program since it started, and it's just so inspiring to see these women now thriving and back to their regular lives," she said.

Reaching more people

UNC Lineberger researchers are working to expand Get Real and Heel. They want to find innovative ways to reach more patients who can't physically make it to the facility and to improve outcomes for others.

"Our ultimate goal is to expand to other types of cancers, expand the facility and really help as many patients as possible," said UNC Lineberger's Claudio Battaglini, PhD, FACS, Get Real and Heel's program director and co-founder, and a professor of exercise and sport science at UNC-Chapel Hill.

Battaglini is now leading a team of experts from oncology, cardiology, psychology and immunology, as well as cognition sciences in a new study using advanced measurement tools to understand why some patients fully recover cardiopulmonary capacity — a measure of their ability to deliver oxygen — through exercise, and others don't.

"This is really something that takes a village to conduct a study that is so complex, but it's generating data that will teach us a tremendous amount," Battaglini said.

In another study, UNC Lineberger's Bill Wood, associate professor in the UNC School of Medicine Division of Hematology/Oncology, is using information from wearable sensors — such as the Fitbit — along with patient-reported survey data to track physical function and inform physical activity coaching in cancer patients.

He is currently working with a group mostly comprised of bone marrow transplant patients, but he plans to develop programs for patients with other cancers, patients in active treatment and cancer survivors.

He envisions using highly tailored coaching programs and systems that can track patient progress to reach more patients outside the cancer center.

"We would like to develop a program where we are coaching around all aspects of cancer



Above: Pam Timmons works on her balance during a Get Real and Heel exercise session. Below: Get Real and Heel exercise specialist Jean Owen gives Erin Juliano pointers as she works with weights.



care and using sophisticated trackers to make the 'prescriptions' as personalized as possible. We want to connect with patients where they are, so we can scale this approach to reach as many people as possible," Wood said.

And to improve outcomes for breast cancer patients 65 and older, Hyman B. Muss, MD, the Mary Jones Hudson Distinguished Professor in Geriatric Oncology, is leading a study looking at the impact of home-based aerobic and strength exercises on the health of people receiving chemotherapy for early-stage breast cancer.

"We want to know: what's the right exercise recipe, and can we tailor exercise for individual patients?" Muss said. "We're trying to learn how to best scale exercise so it's practical and doable wherever you live."

Honoring a passion

In addition to the new research, efforts are underway to expand and improve the Get Real and Heel facility on the edge of campus, which was originally outfitted by UNC Lineberger and the Department of Exercise and Sport Science. The campaign will raise \$300,000 to renovate the facility and replace the program's exercise equipment.

To support the effort, the Kulynych Family Foundation made a gift of \$150,000, and the Canon family

gave \$50,000. At a tea held at the Carolina Inn, past and present Get Real and Heel participants celebrated the program's achievements and raised \$35,000 to support the purchase of a range of equipment, from weights to individual exercise machines.

"I decided that I wanted to make a contribution to Get Real and Heel to honor my passion for the place and the goodness that is in the world that can create something like that," said Pam Timmons, a breast cancer survivor who attended the tea.

Timmons recalled when her doctor told her about the program after finishing breast cancer treatment in 2016, her first thought was: Not for me; I don't need a cancer support group.

"I wanted to put breast cancer in my rearview mirror and pretend it never happened," she said.

She ended up joining, and her perspective has changed. She said she's gained a special kind of motivation from the other survivors.

"A lot of these women have suffered so much; they're going to go through the rest of their lives with injuries their treatment caused, but they want life, and they're positive, and they're life-affirming," Timmons said. "They bring this spirit of 'I'm going to conquer this,' and that feeds me on a deep, deep level."

For Juliano, her treatment journey is not over, but she has returned to teaching math part-time and is running outside again, in addition to participating in Get Real and Heel. Recently, she went to talk to her son's elementary school class for a program on breast cancer.

"I talked about how everybody faces things that are very hard, and we just need to keep a positive attitude and know there are always people there who can help you," she said. "That was a moment where I was pretty much done with my treatment. It was where I could look back on it and say, I got through this." ❧

Investing in a winner, turning the tide on GI cancers

When Robert Winston III of Raleigh talks about what motivated him to support UNC Lineberger, he said matter-of-factly he was drawn to the cancer center's excellence. "I make no bones about wanting to support winning teams. I like winners."

Winston and his wife, Tracy, made a \$250,000 gift to support UNC Lineberger's gastrointestinal oncology program and the work of Autumn McRee, MD, the clinical trials lead for the gastrointestinal oncology program. With nearly 330,000 new cases of esophageal, colon, stomach, pancreatic and liver cancers in the United States projected for 2019, Winston said the need is clear, and contributions would allow researchers to further their work and strengthen his hope of seeing his investment pay off.

"The ultimate hope is that [our gift] is part of a cure or an improvement in cancer care," he said. "Somebody needs to fund the high-risk research. We like to be a part of that; we could come up with nothing, but if we don't try, we don't get there."

McRee's research is focused on advancing the development of promising new drugs that target a patient's tumor biology. "There is tremendous value in incorporating correlative translational science into our standard clinical trials," she said. "The goal is to harness the molecular profile of a patient's tumor to both improve treatment outcomes and to determine predictive biomarkers of response to prevent undue toxicity."

McRee said donor support provides critical funding in the early stages of research, when it can be challenging to obtain external grant. "Research requires funding," McRee said. "Donor support ... allows us to generate data we can use to produce a more successful grant application."

Winston said the promise of McRee and her colleagues' research – and their approach to patient care – inspired his family's gift. "The people at Lineberger are fantastic," he said. "They are compassionate. They care about people who get ill and understand how devastating this disease can be, and that's what makes it so great; they're great researchers, and they're compassionate people."



Tracy and Robert Winston III.

"The people at Lineberger are fantastic. They care about people who get ill and understand how devastating this disease can be."

- Robert Winston III

The family is also motivated to ensure everyone in North Carolina has access to high-level cancer care. "The investment the state makes in the cancer center with the University Cancer Research Fund is a wonderful gift to our residents. It is a difference maker," he said. "I love that Lineberger is an institution for the people of North Carolina, and it is a wonderful thing to know you can get the best care in the world in your own community. It's very exciting."

Winston is also proud to continue his family's long association with the cancer center and to the university. His parents, Charlie and Flo Winston, served on UNC Lineberger's Board of Visitors and have been affiliated with UNC Lineberger dating back to its first years. His family's connection to the university is even deeper. A Winston first enrolled at Carolina in 1844 and his great uncle, George Tayloe Winston, served as university president from 1891-96. Winston himself is a 1984 graduate, he was a member of the university's Board of Trustees, 2003-11, and he served as chairman of the board from 2009-11.

"We have had a relationship with Lineberger for quite a number of years," Winston said. "What I clearly saw was a level of excellence and improvement and continued growth in attracting top level physicians and researchers, and I thought this was worthy of the investment. This is an institution I am excited about being affiliated with and what the future holds for it." 🗝

SU2C *continued from page 1*

and are less expensive to produce. The team is also working to identify biomarkers that will help track the effectiveness of the therapy and is evaluating a novel small molecule that shows encouraging activity in reducing the size of T-cell lymphomas.

In addition to Dotti, the other UNC Lineberger scientists named to the team were Anne Beaven, MD, Paul Eldridge, PhD, Natalie Grover, MD, Joel Parker, PhD, and Barbara Savoldo, MD, PhD. Patty Spears, who chairs the UNC Lineberger Patient Research Advocacy Group, was appointed as an advocate. The team also includes scientists from Wake Forest Baptist Medical Center Comprehensive Cancer Center, Baylor College of Medicine and the University of Texas MD Anderson Cancer Center.

"This is wonderful news for people who have T-cell lymphoma that hasn't responded to standard therapy,

and it is national validation of the strength and success of our cellular immunotherapy program," said Shelton Earp, MD, UNC Lineberger director.

"It is quite remarkable how much our cellular immunotherapy program accomplished in such a short period of time," Earp said. "Jon Serody, Lineberger associate director, conceptualized our immunotherapy effort and led the key recruitments. With Jon, Gianpietro, Barbara and Paul, we went from discussing the concept of the program to providing innovative CAR-T therapies in North Carolina in roughly four years. That is a real achievement made possible by investment from the University Cancer Research Fund."

UNC Lineberger is one of a select few academic medical centers in the United States with the faculty and facilities to identify new therapeutic targets and design, develop and deliver novel CAR-T therapy

to patients. The cancer center recruited Dotti and Savoldo in 2015 to help lead its CAR-T program, and it currently has designed and opened five CAR-T clinical trials.

SU2C, a division of the Entertainment Industry Foundation, was established in 2008 by film and media leaders to utilize the industry's resources to engage the public in supporting a new, collaborative model of cancer research and to increase awareness about cancer prevention as well as progress being made in the fight against the disease. As SU2C's scientific partner, the American Association for Cancer Research and a Scientific Advisory Committee conduct rigorous, competitive review processes to identify the best research proposals to recommend for funding, oversee grants administration, and provide expert review of research progress. 🗝

Breast cancer gene driver linked to better treatments for patients

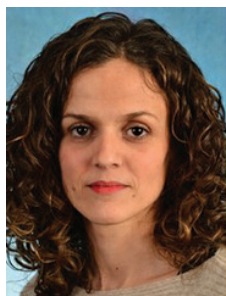
A study by UNC Lineberger researchers provides an important insight into why a certain type of breast cancer changes at the molecular level after it has spread.

Researchers found increased expression of the gene FGFR4 in metastatic breast cancer tumors. They believe this gene may be responsible for driving molecular changes in the breast cancer subtype known as luminal A, and could help them potentially develop better treatments for metastatic breast cancer patients.

“Our research focused on this new target, FGFR4, which could offer novel therapeutic opportunity for metastatic breast cancer patients,” said UNC Lineberger’s **Charles M.**



Perou



Garcia-Recio

Perou, PhD, the May

Goldman Shaw Distinguished Professor of Molecular Oncology and professor of Genetics and of Pathology & Laboratory Medicine. “We now plan to design new studies based upon these findings.”

The researchers discovered that when the luminal A breast cancer subtype metastasizes, it sometimes changes to show characteristics of the more aggressive HER2-enriched subtype. They found evidence to show that changes in expression in the FGFR4 gene may be responsible.

“Usually the subtype is maintained between the primary and metastases, except in some cases, where luminal cancers undergo a change,” said the study’s first author **Susana Garcia-Recio, PhD**, postdoctoral researcher at UNC Lineberger. “It looks like some luminal tumors become HER2-enriched during metastases. There are some genes responsible for these changes that could be potentially targeted in metastatic patients.”

Experimental immunotherapy approach to target AML subtype

UNC Lineberger researchers have identified a potential way to target a subtype of acute myeloid leukemia (AML) using chimeric antigen receptor T-cell (CAR-T) therapy.

Recently, researchers presented preliminary findings from CAR-T preclinical studies directed toward a potential target called B7-H3, found on the cell surface in certain types of AML. They believe they can genetically engineer a patient’s normal white blood cells to create T-cells that will home in on this target and kill AML cells.

“Treatment has been more elusive for AML, ... partly because no good targets have been identified on the surface of AML cells that allow us to use CAR-T to target them without also



Lichtman

targeting normal components of our immune system,” said the study’s first author **Eben Lichtman, MD**.

The researchers created CAR T-cells that tracked the B7-H3 marker that proved effective in both controlling tumor cell growth and prolonging survival in mouse models with this disease. And while this marker can be found on certain immune cells called “antigen presenting cells” that act as scouts for the immune system, targeting the cancer with CAR T-cell therapy did not cause significant toxicity in their preclinical experiments.

“This target is present on normal immune cells called antigen-presenting cells, but usually they express a lower level compared to tumors,” said UNC Lineberger’s **Gianpietro Dotti, MD**. “That is why we believe we can kill the tumor, but spare the normal antigen-presenting cells.”

Dotti said this marker may be a promising target in other cancers in addition to AML, including ovarian and pancreatic cancers.



Dotti

Scientists train computer to identify, classify breast cancer tumors

Using technology similar to the type that powers facial and speech recognition on a smartphone, UNC Lineberger researchers have trained a computer to analyze breast cancer images and then classify the tumors with high accuracy.

In a study published in the journal NPJ Breast Cancer, researchers used images of breast cancer tumors from the Carolina Breast Cancer Study to train the computer to classify tumors for grade, estrogen receptor status, PAM50 intrinsic subtype, histologic subtype and risk of recurrence score. To do this, they created software that learned how to predict labels from images using a training set, so that new images could be processed in the same way.

“The computer extracted a lot of information from the images,” said UNC Lineberger’s **Melissa Troester, PhD**. “We would like to test how well these features predict outcomes, and if we can use these features together with things like molecular data to do even better at giving patients a precise view of what their disease course looks like and what treatments might be effective.”



Troester

Study shows promise for fighting relapsed blood cancer with CAR-T

UNC Lineberger researchers reported promising early results from a clinical study of an investigational cellular immunotherapy that used patients’ own, genetically engineered immune cells to recognize and fight Hodgkin and non-Hodgkin lymphoma.

Recently, researchers revealed preliminary results from a clinical study of an investigational cellular immunotherapy for lymphomas expressing the CD30 protein marker. Data from the phase Ib/II trial showed that the treatment was safe and generated “excellent”

responses when used after a specific chemotherapy regimen.

“Hodgkin lymphoma is a generally curable disease, but there is a small percentage of patients who have had disease that doesn’t respond to therapy. From these early results, this could be a promising option for them,” said UNC Lineberger’s **Natalie Grover, MD**.

Researchers presented preliminary data for 24 patients. The majority of patients had Hodgkin lymphoma. Prior to enrolling in the study, most patients had received more than seven treatments, including brentuximab vedotin, which can target the CD30 marker.

“We identified a lymphodepletion regimen that can be used with these specific CAR T-cells and make a difference in the outcome for these patients without significant toxicities associated with other cellular immunotherapies,” said the study’s senior author **Barbara Savoldo, MD, PhD**.

Work will be ongoing to try to improve outcomes for the investigational treatment, including through another clinical trial that is designed to evaluate a mechanism to recruit CAR T-cells to tumor sites.

Researchers find mailed kits increase cervical cancer screening rates

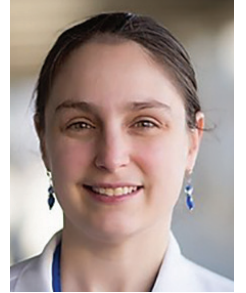
UNC Lineberger researchers found that mailing self-collection kits to test for high-risk human papillomavirus infection has the potential to boost cervical cancer screening – especially for low-income women who are overdue for testing.

In the journal *Obstetrics & Gynecology*, researchers reported they mailed home HPV screening kits to 193 low-income women in North Carolina who were overdue for screening, according to national guidelines. This approach detected

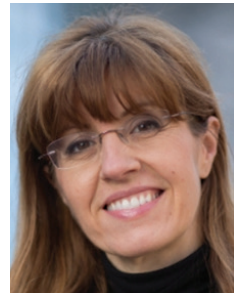
high-risk HPV in all cases of women who were found to have high-grade, abnormal cervical precancerous growths.

“This ... has big potential to increase screening access among under-screened women and to do that successfully,” said UNC Lineberger’s **Jennifer S. Smith, PhD**, the study’s senior author.

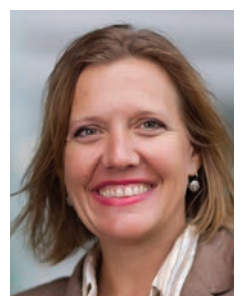
“HPV tests are being widely used now in the United States, but only through physician collection in clinical practice, which requires that women come to a clinic. Offering HPV testing using self-collection by mail has a lot of potential to reach women who are the highest risk of being under-screened, those who don’t access regular medical care,” said the study’s first author **Andrea Des Marais, MPH**. 8



Grover



Savoldo



Smith



Des Marais

Physician explores GI cancers through clinical trials, collaborative work



Autumn McRee, MD.

Autumn McRee, MD, has a career filled with discoveries under her belt. From realizing her interest in medicine and research to selecting gastrointestinal oncology as her specialty of choice, McRee has found both a passion and a place that fosters a sense of collaboration and exploration in UNC Lineberger, along with pivotal research of her own along the way.

McRee got her first taste of research as an undergraduate at Vanderbilt University. Knowing medical school was in her future, McRee took part in a summer research program at Washington University in St. Louis to better prepare herself. McRee said she was fortunate to work with a renowned researcher focused on acute promyelocytic leukemias.

“It was a pivotal experience for me,” she said. Working with translational scientists and seeing how research in mouse models could have real-world results in patients opened her eyes and helped set her career trajectory. “It was a really profound experience that led me down the path of oncology from which I’ve never wavered.”

During medical school at the University of Texas Health Science Center, she found herself drawn to oncology rotations and was thrilled by the science she saw there.

But the patients she encountered during her fellowship at UNC Lineberger left the most significant impression. “I was really drawn to taking care of cancer patients — their fortitude, the connections we make with our patients, the incredibly close ties with our patients; they are really unique,” she said.

Finishing her training and looking to the next phase of her medical career, McRee decided that UNC Lineberger was a perfect fit. It had everything she wanted in a medical community — dedicated researchers, solid science, and above all else, teamwork.

“I was drawn to the opportunity to collaborate with great scientific minds at UNC Lineberger,” McRee said. “I translate what happens in the lab into clinical trials where I can learn

directly from patients. I couldn’t do it without the groundbreaking technology and data that’s openly shared with me. These researchers truly want to work with me to further the field of oncology,” she said.

Now, more than 10 years later, McRee oversees clinical trial development, activation and enrollment for the GI oncology program. McRee’s translational work with UNC Lineberger researchers Channing Der, PhD, and Jen Jen Yeh, MD, has yielded exciting results in pancreatic cancer treatment. She is currently leading a phase Ib trial of ERK inhibition and palbociclib based on preclinical data in RAS mutated pancreatic cancer from the Der lab. She also is collaborating with Yeh on a novel medical device that uses iontophoresis as a more effective means of delivering chemotherapy to locally advanced pancreatic cancers.

“In the research space, I am most proud of the novel concepts we’ve put together to treat pancreas cancer more effectively,” she said. McRee hopes their work can give patients with pancreatic cancer options that weren’t previously available to them.

McRee and her clinical trials team have seen success, as well, taking research from the lab to the clinical trial stage. Stemming from both UNC Lineberger

sponsored trials, as well as cooperative group and industry sponsored trials, the team enrolled more than 60 patients from across North Carolina, and McRee said those numbers were a big milestone for her group. “It’s been a fun and very rewarding part of my job,” she said.

“It’s nice to work in a place where colleagues are more than just coworkers. It makes all the pivotal research we’re doing even better when I do it with people I love working with and respect,” McRee said. “I always tell people I’m a product of the UNC system. I was trained here by giants in the field, and I just feel really blessed that I’ve been granted all the opportunities I’ve been given at Lineberger.”

“It’s nice to work in a place where colleagues are more than just coworkers. It makes all the pivotal research we’re doing even better when I do it with people I love working with and respect.”

- Autumn McRee, MD

Honors and Awards

Honors

Ethan Basch, MD, MSc, FASCO, has been elected to the American Society of Clinical Oncology Board of Directors.

Shawn Hingtgen, PhD, is being honored with a Phillip and Ruth Hettleman Prize for Artistic and Scholarly Achievement by Young Faculty in recognition of research focused on harnessing the potential of stem cells to develop new and better methods for treating terminal cancer.

Mallory Lexa, MSN, RN, OCN, CNL, and Kimberly Wehner, DNP, FNP-BC, were honored with the Oncology Excellence Award for Nursing, and **Amy Mellow and Loretta Muss** were recognized with the Oncology Excellence Award for Service.

Awards

Channing Der, PhD, was presented with the National Cancer Institute’s Outstanding Investigator Award (\$4.2 million of research support over seven years), which recognizes accomplished cancer researchers whose work has breakthrough potential.

Andrew Wang, MD, and Jonathan Serody, MD, were awarded a four year, \$2.09 million Research Opportunities Initiative grant to support their research using pharmacoengineering approaches to develop more effective personalized cancer vaccines.

Daniel S. Reuland, MD, MPH, and colleagues with the Carolina Cancer Screening Initiative, received a five-year, \$5.5 million grant from the National Cancer Institute to boost screening for colorectal cancer.

Diagnosis changed their plans but strengthened bond

Less than a week before their wedding, Dustin Riedesel and his fiancée Katie were debating whether they should cancel.

Riedesel had just been diagnosed at UNC Medical Center with a rare form of blood cancer called acute promyelocytic leukemia. At first, he told his fiancée that maybe they should see how he felt at the end of the week before canceling.

“Which now seems absurd, but I didn’t know what I was dealing with,” Riedesel said. “I didn’t taste fresh air again for 33 days.”

When they learned about the diagnosis and intensive treatment plan, they canceled the wedding, which had been scheduled for Dec. 3, 2016. To keep it good-natured, his fiancée sent out a text to the bridal party saying “just to let everybody know, Dust got cold feet ... and leukemia.”

Friends and family kept their plane tickets in order to visit him in the hospital, and the wedding vendors agreed to reschedule for a later date.

Now in total remission, Riedesel said his experience with cancer influenced his perspective on marriage. He saw the loving and giving nature of his wife in full bloom, and how she embodied the commitment they were going to make. It gave him certainty she was the person he wanted to spend the rest of his life with.

“The joke I tell people is: don’t waste your money on premarital counseling, get premarital cancer,” he said. “It’s the way to go if you want to be sure about the person you’re marrying.”

Diagnosis, treatment and ‘the best possible news’

About eight days before the wedding, Riedesel scratched an ingrown hair on his leg. Overnight, it turned into a sore spot that resembled a spider bite, and within a few hours, it developed into a rash, a fever and flu-like illness with muscle cramps and pain. He said he probably would have stayed on the couch until he felt better, but his then-fiancée forced him to go to urgent care, where he was immediately sent to the emergency room. After testing, he was rushed to the UNC Medical Center, where, by dumb luck, two of his nurses were named Grace and Faith.

“If it wasn’t for Katie, I do think I would have just tried to sleep off leukemia,” he said.

He was diagnosed with acute promyelocytic leukemia, a rare subtype of acute myeloid leukemia, in which immature blood cells accumulate, leading to a deficiency of red and white blood cells and platelets. Initial signs and symptoms include fatigue, dizziness, shortness of breath and symptoms from blood clotting problems. There were early warning signs, Riedesel said, recalling that he had recently felt uncharacteristically exhausted after a recreational basketball game.

Early treatment for acute promyelocytic leukemia is important, said UNC Lineberger’s Catherine C. Coombs, MD, assistant professor in the UNC School of Medicine Division of Hematology/Oncology, as patients can experience complications with bleeding and blood clotting. Initial treatment involves treatments that allow cancerous blood cells to mature into regular blood cells.

“This type of leukemia is characterized by a high rate of mortality in the first month after diagnosis, but the good news is, after they make it through the first



Katie and Dustin Riedesel at their wedding in 2018.

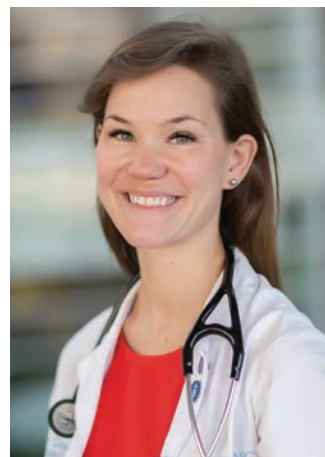
month, the survival rate is high,” Coombs said.

Riedesel started treatment almost immediately. His fiancée was by his side each night. On the date and time they were scheduled to be walking down the aisle, he was transferring from intensive care unit to the fourth floor of the N.C. Cancer Hospital. The transfer was “the best possible news,” he said.

At the end of his hospitalization, a bone marrow biopsy showed he had a complete remission, and he proceeded onto a regular consolidation treatment plan to completely eradicate any small traces of the leukemia that remained and ensure a high cure rate. This September marked the one-year anniversary of when a bone marrow biopsy showed he was in complete remission with no traces of leukemia left, although he still returns for testing.

‘A celebration of our life’

Riedesel said he and his wife Katie are grateful for the expertise of the doctors at the N.C. Cancer Hospital, which is “all the difference between life and death.” But in particular, they’re thankful for the nurses and staff and their dedication to their patients. That has translated into the way they want to see their marriage going forward.



Catherine Coombs, MD

“You really appreciate the generosity of spirit in other people – the people who are really kind, selfless with their time – it makes you want to give more,” he said. “That was something we talked about in the way we want to treat each other in the marriage going forward.”

Riedesel said he was contacted by a woman who was on one of the clinical trials for the treatment he received, and it demonstrated the need to give back for support research. The treatment that he received became standard after clinical trial results were published in 2013, Coombs said.

“This cancer was uniformly fatal at one time, and the standard treatment we have now is based on a study published five years ago,” Coombs said. “It’s amazing that advances are continually made to improve the cure rate with lower overall toxicity for patients.”

Riedesel and his wife Katie are now involved in raising funds for cancer research, and he tries to encourage people to donate blood plasma. In addition to his day job, he is a writer who has told the story of his own cancer journey on his blog, and he also finished a novel during his hospitalization, which he sells to raise money for the Leukemia & Lymphoma Society.

And they were able to reschedule their wedding to a break in treatment in May, 2017, on a day when they had a blue sky and 70-degree weather. Since their wedding had already come around once, Riedesel said he could care less about the flatware, the food and the bouquets.

“It wasn’t so much a celebration of the day, but a celebration of our life – not just the past – but the future we could now build together,” he said. 8

calendar of events

March

16th 21st annual Polar Challenge Golf Tournament and Polar Party, Chapel Hill

April

13th Tar Heel 10-Miler, Chapel Hill

May

18th Victory Ride for Cancer, Raleigh

For more information about these events and other UNC Lineberger news, visit www.unclineberger.org, or follow us on [f](#) [t](#) [i](#)



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Lineberger Club event showcases survivors, research advancements

While Marie Wood felt like she had just been to war, still, she was happy. After a diagnosis of ovarian cancer, surgery and six months of chemotherapy, the Greensboro resident, mother of four and successful interior designer, learned her cancer was in remission.

Life was good. She had just wrapped up the holidays with her family at the end of 2017 when the call came in. Her cancer had returned.

"What I came to understand is, this cancer is a beast," said Wood, speaking to nearly 200 people at the 32nd Annual Lineberger Club Breakfast and Basketball Game, an event held at the Carolina Club as a show of appreciation for supporters who help make UNC Lineberger's research possible.

Wood shared the story of her motivation to launch the Triad chapter of She ROCKS Inc., a Wilmington, North Carolina-based nonprofit that has raised more than \$600,000 for ovarian cancer research at UNC Lineberger.

UNC Lineberger Director Shelton Earp, MD, described strides made in cancer prevention, research and treatment at the center and also recognized the center's many supporters, including Pearl Schechter, who has attended all 32 Lineberger Club events.

"On behalf of our division, our moms, our sisters, our friends, and our daughters, I want to thank you for what you're doing," said UNC Lineberger's Paola Gehrig, MD, professor and director of gynecologic oncology in the UNC School of Medicine. She described important advances made in ovarian cancer research and care and also spoke of the "amazing" legacy of Beth Quinn, the late founder of She ROCKS.

Wood described meeting other young women who had ovarian cancer that did not respond to treatment. She helped launch She ROCKS The TRIAD to raise



Left to right: Paola Gehrig, MD, Marie Wood and Emma Rossi, MD, at the recent Lineberger Brunch and Basketball Game.

money for research and to raise awareness. At its inaugural event, they raised \$76,000.

"I challenge each of us to make a difference by using our energy, our voices and our resources to give back to this learning institute and bring about changes, and in many cases, a cure for cancer," she said.

Wood said ovarian cancer can become like a chronic disease, but that is not the case for everyone. It took four months to get her cancer back in remission in 2018, and she is now in treatment again, but her spirits remain high.

Longtime donors hold annual coffee

UNC Lineberger Board of Visitors member Ginger Finley and Laura Bromhal held their annual Holiday Coffee event in December, raising funds for UNC Lineberger.

This signature holiday event started in the 1980s, originally as a coffee for young mothers at the neighborhood drugstore, but has transitioned into an annual holiday celebration. Over the years, these events have raised more than \$25,000 to benefit UNC Lineberger.

"The coffee has made us realize every little bit counts," Finley said, previously. "It doesn't have to be a big gift to make a difference."

Tenth annual concert honors Bobby Garrett



A gospel choir performs at the Bobby F. Garrett Cancer Benefit Concert.

The Bobby F. Garrett Cancer Benefit Concert was held Dec. 1, 2018, at St. Matthew AME Church in Raleigh. In its 10th year, the concert is held in memory of Bobby Fletcher Garrett, who was treated at UNC Lineberger.

The afternoon concert featured gospel groups from across the Triangle and beyond. Over the past nine years, this benefit concert has raised more than \$90,000 to establish the Bobby F. Garrett Head and Neck Cancer Research Endowed Fund at UNC Lineberger.

Organized by Alice Garrett and her family, they hope the event helps raise funds and awareness for head and neck cancer, as well as helping other patients and families with cancer.