

DukeNed ALUMNI NEWS, FALL 2022

DEVELOPING NEW TOOLS TO FIGHT CANCER

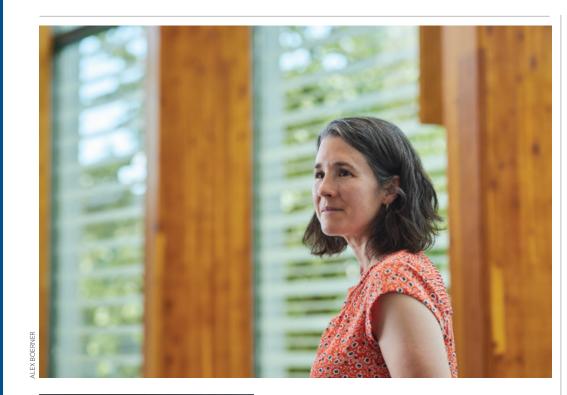
Alumni making a difference • Physician scientist pipeline • Dean's priorities





Physician Assistant Program Graduation

After two years of navigating classes and clinical rotations during a pandemic, the Duke Physician Assistant Program class of 2022 culminated their experience with a joyful graduation celebration at Duke Chapel in August. Above, graduate Maryanne Thelusma lines up to receive her degree.





COVER STORIES

Researchers at Duke are creating more precise approaches to stopping tumors

Alumni Making a Difference in Cancer Research and Care



SCHOOL WELCOMES NEW DST SCHOLARS

This year's cohort is made up of scholars who are exploring innovations in lung cancer treatment, fat storage and metabolism, aging, and biochemistry

FEATURE 'Laser Focused'

Dean Klotman reflects on the school's challenges and priorities

Developing New Tools to Fight Cancer

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- Engagement **24** Research Briefs
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FEATURE **One Foot in the Clinic,** the Other in the Lab

Duke is working to bolster the ranks of physician-scientists, who bridge the gap between research and patient care

Dear Friends

I hope this message finds you and your family in good health and good spirits. Every new academic year brings a surge of energy, fresh faces, and new ideas as nearly 600 incoming medical and health professions, masters, and graduate students from across the nation and beyond join their counterparts at the School of Medicine. Now, several months in, they are already fully engaged in the next phase of their education. It's an exciting time for them, and for us.

I began my tenure as dean and vice chancellor for health affairs five years ago with the firm belief that the School of Medicine can most meaningfully

fulfill its missions of research, education, patient care, and community engagement by committing to two broad, interrelated principles.

The first is that everyone within the School of Medicine community, and indeed across Duke Health and Duke University — regardless of department or unit, title, rank, or role - is a valued member of our community and has important contributions to make for the greater good of our institution and society.

The second is that the most important priority for any leader at Duke — and you will find leaders at Duke at every level, among staff, students, and faculty — is to serve its most important asset: our people. It is our responsibility to create an environment and provide resources that enable our School of Medicine community to flourish so we can positively impact others.

The last several years have brought challenges for all of us, both personally and professionally. There have been long days and hard decisions. And yet at every turn, our faculty, staff, and students have joined together, turning challenges into opportunities and making a difference in the lives of others.

The School of Medicine met the pandemic by

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Megan Mendenhall, Laura Perez, Lily Piel, Les Todd

accelerating collaborative research advances across a vast range of biomedical disciplines, departments, and units, including pioneering work toward a pan-coronavirus vaccine at the Duke Human Vaccine Institute and development and testing of innovative new therapeutic approaches. Our work on COVID-19 continues. Most recently, the Duke Clinical Research Institute was designated as a coordinating center for studies aimed at understanding and treating long COVID.

Our medical educators have innovated new ways to teach and learn, our clinical faculty and staff have created new techniques to test and care for patients, and our students have become leaders themselves, crafting solutions and volunteering to provide care.

The School of Medicine community is responding to the challenge of improving equity, diversity, and inclusion by instituting changes that will have a lasting impact. Under the leadership of Kevin Thomas, our first vice dean for equity, diversity, and inclusion, the school is embarking on its second year of implementing the road map for change detailed in a comprehensive strategic plan launched last year.

The driving force in all we do is an unwavering commitment to fulfill our missions: to educate the next generation of health care leaders, blaze new trails in research, provide world-class care, and care for the communities in which we live and serve.

You, our alumni and friends, are essential partners in helping us succeed at meeting these goals. Thank you for everything you do for the School of Medicine.

With warm wishes.

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Alumni Affairs, and School of Medicine Office of

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Kevin Thomas, MD Vice Dean for Equity, Diversity, and Inclusion Chief Diversity Officer

In DukeMed Alumni News, the names of alumni of Duke University and its constituent schools and degree programs are printed in bold along with their degrees and class years. HS (House Staff) signifies residencies, fellowships, or internships. Names of current students are printed in bold.

DukeMed Alumni News is mailed two times a year to alumni, donors, and friends of Duke University School of Medicine

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Your comments, ideas, and letters to the editor are welcome.

SUPPORTING ENDOWMENTS

Investing in Duke's Future

"We are both interested in the next generation: being certain they have the encouragement and the resources to do what we had the opportunity to do."

Linda Austin, BA'73, MD'77 and John (Jeb) Hallett, MD'73

Linda Austin, BA'73, MD'77, and John (Jeb) Hallett, MD'73, followed different paths to Duke. Linda transferred from Stanford as a rising sophomore. Jeb nearly didn't make it. After his application to the School of Medicine was turned down, he drove across the country to convince the dean of admissions that he deserved a spot. It worked.

Linda and Jeb credit the mentorship they received and the autonomy and confidence their teachers instilled in them for their success. Linda's Duke education led her to a distinguished career in psychiatry, including educating the general public about mental

EDITOR Dave Hart

DIRECTOR OF DIGITAL AND CREATIVE SERVICES Andrea Martin

Wendy Graber, Shantell Kirkendoll, Alissa Kocer,

PHOTOGRAPHERS David Banks, Alex Boerner, Chris Hildreth, Ken Huth,



health issues via her weekly radio show. Jeb went into vascular medicine, where over the course of a storied career he developed new standards of care in vascular surgery and built top-notch training programs.

Linda and Jeb are focused on the future, on the discoveries yet to be made and the students and trainees who will make them. This vision inspires their annual fund, endowment, and planned estate giving.

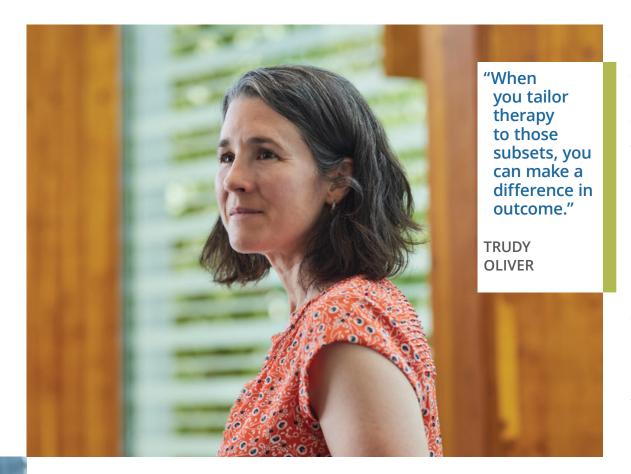
"We are both interested in the next generation: being certain they have the encouragement and the resources to do what we had the opportunity to do," says Jeb.

Endowment gifts provide sustained funding in perpetuity to shape the future and are just one of many ways you can support Duke University School of Medicine. Please consider making a gift online at

gifts.duke.edu/dmaa.

To learn more about how to support the School of Medicine, please contact Sarah Nicholson, assistant vice president, at 919-385-3160 or sarah.nicholson@ duke.edu.





RESEARCHERS AT DUKE ARE CREATING MORE PRECISE APPROACHES TO STOPPING TUMORS

> By Mary-Russell Roberson

> Photographs By Alex Boerner



moving into where we have a new set of tools we can use



or decades, medical cancer treatment has generally meant chemotherapy, radiation, or surgery, alone or in combination. But things are changing rapidly. Today, new approaches such as immunotherapies and targeted therapies are becoming available, with many more in research and development. In many cases, the new treatments are more effective, with fewer side effects.

"It's an exciting time to be in cancer research and cancer discovery," said Colin Duckett, PhD, professor of pathology, interim chair of the Department of Pharmacology and Cancer Biology, and vice dean for basic science. "We're moving into this era where we have a new set of tools we can use to treat cancer."

Researchers in the Duke Cancer Institute (DCI) and across the School of Medicine are helping to create these new tools, fueled by the knowledge and experience of experts from a wide range of disciplines.

Indeed, cancer research has always been a team-based endeavor at DCI.

"DCI was specifically created a decade ago to break down barriers between disciplines to stimulate collaborative research and multidisciplinary interaction," said DCI

Executive Director Michael Kastan, MD, PhD, the William and Jane Shingleton Distinguished Professor of Pharmacology and Cancer Biology.

Adding fuel to the fire is the Duke Science and Technology (DST) initiative, which aims to catalyze and support collaborative research in service of solving some of the world's most pressing problems, including cancer.

The new tools, though varied, all represent advances in personalized cancer medicine. Targeted treatments are chosen based on the genetic signature of a patient's tumor. Some immunotherapies take personalization even further, by manipulating a patient's own immune cells to create a treatment for that individual alone.

To match treatments to patients, the multidisciplinary Duke Molecular Tumor Board, led by John Strickler, MD, HS'11, and Matthew McKinney, MD'06, HS'06-'09, HS'10-'13, helps providers identify best practices, newly approved treatments, or clinical trials for advanced cancer patients based on genetic sequencing of their tumors.

"In precision cancer medicine — the right therapy for the right patient at the right time - all these things come together," Kastan said. "The targeted therapies, the immunotherapy, even standard chemotherapy, all of that is part of precision cancer medicine."

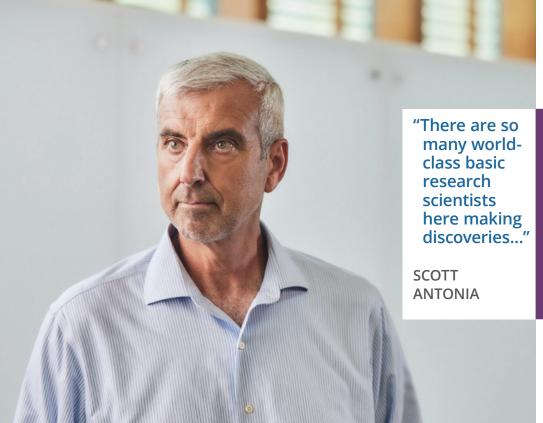
IMMUNOTHERAPY

Immunotherapy aims to harness the power of the immune system to fight cancer. That can mean activating the immune system, energizing exhausted immune cells, or helping immune cells find cancer cells by guiding them there or by removing cancer's "good guy" disguises.

Duke's Center for Cancer Immunotherapy supports these efforts by identifying promising basic science discoveries and building teams to translate those ideas into treatments.

"There are so many world-class basic research scientists here making discoveries

COVER STORY



that are potentially translatable as immunotherapeutic strategies," said Scott Antonia, MD, PhD, professor of medicine and the center's founding director. "That's what motivated me to come to Duke, because of the great opportunity to interact with basic scientists to develop new immunotherapeutics and get them into the clinic."

Antonia believes immunotherapy has the potential to revolutionize cancer treatment, but more work remains to be done to realize its promise. "The proof of principle is there," he said, "but still only a relatively small fraction of people enjoy long-term survival. If we can hone immunotherapeutic approaches, that's our best opportunity."

Among the most exciting immunotherapy work being facilitated by the center involves removing a patient's own T cells (a type of lymphocyte), manipulating them in the lab to make them more effective against

tumors, then injecting them back into the patient.

T cells can be manipulated in the lab in a number of different ways. In one approach, called CAR T-cell therapy, the T cells are engineered with an addition of synthetic antibody fragments that bind to the patient's tumor, effectively directing the T cells directly to the tumor cells.

In another approach, called tumor-infiltrating lymphocyte (TIL) adoptive cell therapy, the subset of a patient's T cells that have already managed to find their way into the tumor are extracted and then grown to large numbers before being returned to the patient. Antonia and his colleagues recently published a paper demonstrating the effectiveness of TIL expansion in lung cancer. "We're now doing the preparative work to develop clinical trials using this approach in brain tumors, and our intention is to expand into many other cancers as well," he said.

Antonia points out that innovations in CAR T-cell therapy and TIL therapy happening at Duke are possible because of collaborations with scientists in an array of disciplines, including antibody experts like Barton Haynes, MD, HS'73-'75, the Frederic M. Hanes Professor of Medicine, and Wilton Williams, PhD, associate professor of medicine and surgery, at the Duke Human Vaccine Institute, and biomedical engineers like Charles Gersbach. PhD. the John W. Strohbehn Distinguished Professor of Biomedical Engineering at the Pratt School of Engineering.

Furthermore, clinical trials for these kinds of cellular therapies require special facilities to engineer or expand the cells, which are provided by Duke's Marcus Center for Cellular Cures, led by Joanne Kurtzberg, MD, the Jerome S. Harris Distinguished Professor of Pediatrics, and Beth Shaz, MD, MBA, professor of pathology.

"It's been a very productive collaboration highlighting how Duke is uniquely positioned to develop immunotherapeutic strategies," Antonia said.



medicine - the right therapy for patient at

"Cancer treatment is approaching this personalized space where patients are no longer treated with a onesize-fits-all paradigm."

TAMMARA WATTS

TARGETED THERAPY



rgeted therapies exploit a tumor's weak spot: a genetic mutation, for example. The benefit is that the treatment kills only cancer cells and not healthy cells.

The prerequisite is knowing the genetics and biology of the specific tumor, no simple task.

Trudy Oliver, PhD'05, who joined the Department of Pharmacology and Cancer Biology faculty as a Duke Science and Technology Scholar, studies cancer development and the biology of tumor subtypes, particularly squamous cell lung cancer and small cell lung cancer.

"Even within small cell lung cancer, there are subsets that behave differently from each other," she said. "Our work suggests that when you tailor therapy to those subsets, you can make a difference in outcome." Some of the treatments she's identified are in clinical trials.

Sandeep Dave, MD, Wellcome Distinguished Professor of Medicine, is leading an ambitious project to analyze the genomics of the more than 100 different types of blood cancer. His project will

streamline the diagnosis of blood cancer and uncover potential therapy targets.

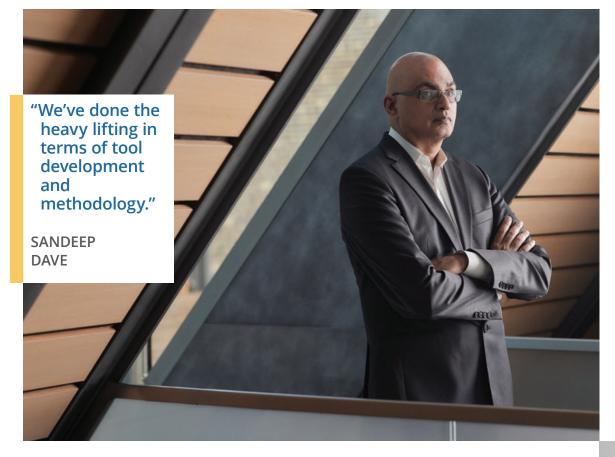
"All cancers arise from genetic alterations that allow cancer to survive and thrive at the expense of the host," he said. "These genetic alterations are a double-edged sword — they allow these cancer cells to grow, but on the other hand they do confer specific vulnerabilities that we can potentially exploit."

Dave said his background in computer science, genetics, and oncology helped him as he designed the project, which uses huge datasets. "We've done the heavy lifting in terms of tool development and methodology," he said, "which is ripe to be applied to every other type of cancer."

CANCER DISPARITIES

ancer disparities are caused by a complex interplay of elements, including access to health care and other resources, institutional bar-

riers, structural racism, and biology, such as ancestry-related genetics. For example, some genetic biological factors and social elements contribute to disparities in many



types of cancer.

"As cancer treatment is approaching this personalized space where patients are no longer treated with a one-size-fits-all paradigm, it's becoming increasingly apparent that there are differences in outcome with respect to race and ethnicity," said Tammara Watts, MD, PhD, associate professor of head and neck surgery & communication sciences, and associate director of equity, diversity, and inclusion at DCI. "The very broad hypothesis is that there are genetic ancestry-related changes that may play a critical role in the disparate clinical outcomes we see every day in our cancer patients."

For example, self-identified white patients with throat cancer associated with the human papilloma virus (HPV) have better outcomes compared to self-identified Black patients, even when controlling for elements such as health care access, education, and socioeconomic status.

experts at DCI to try to identify significant differences in gene expression among the two groups.

"I'm trying to tease out differences that may be impactful for disadvantaged patients based on race and ethnicity," she said. "But there could be differences that emerge that could be useful for designing targeted treatments for a broad group of patients."

That's because a targeted treatment for a particular genetic expression that might occur more commonly in Black people would help all patients with that expression, regardless of race or ethnicity.

Watts is far from alone in doing cancer disparity research at DCI. Tomi Akinyemiju, PhD, associate professor in population health sciences, uses epidemiology to study both biological factors and social elements that contribute to disparities in many types of cancer.

Jennifer Freedman, PhD, associate professor of medicine, Daniel George, MD'92, professor of medicine, and Steven Patierno,

PhD, professor of medicine and deputy director of DCI, are studying the molecular basis for why prostate, breast, and lung cancer tend to be more aggressive and lethal in patients who self-identify as Black. Patierno, who has been a national leader in cancer disparities research for more than 20 years, leads the Duke Cancer Disparities SPORE (Specialized Program of Research Excellence), funded by the National Cancer Institute. The SPORE grant supports these researchers as well as other DCI teams working on cancers of the breast, lung, stomach, and head and neck.

"One of the things that impresses me is that [cancer disparities research] is a high priority within DCI," said Watts, who joined the faculty in 2019. "These groups are actively engaged and collaborating and asking the questions that will drive change

for patients who have worse outcomes that are related to ancestry."

RISK, DETECTION, INTERCEPTION



ulation health sciences, and Katherine Garman, MD'02, MHS'02, HS'02-'06, HS'09, associate professor of medicine, are looking to decrease the incidence of stomach cancer by improving detection and treatment of the bacteria Helicobacter pylori, which can set off a cascade leading to stomach cancer. Epplein and Garman, also funded by the Duke Cancer Disparities SPORE grant, hope their work will reduce disparities because H. pylori infections and stomach cancer are both more prevalent among African

When preventing cancer isn't

Americans than whites.

goal line."

Patierno envisions a future where patients with pre-cancerous conditions or early cancer could take a pill to halt cancer development without killing cells — in other words, a non-cytotoxic treatment, unlike standard chemotherapy.

"We know it's there, but we're not going to poison it or burn it or cut it out because all of those have side effects," he said. "We're going to find a non-cytotoxic way to prevent it from progressing. That's the goal."

"We're going to find a noncytotoxic way to prevent it from progressing. That's the goal."

STEVEN PATIERNO



successful, the next best thing is to detect and treat early. A relatively new concept in cancer care is "interception," which means catching cancer just as, or even just before, it begins.

"The point is to prevent it from progressing to full blown malignancy," said Patierno. "In other words, stop the cancer from getting over its own

DCI Marks 50 Years of **Cancer Discovery**

uke Cancer Institute this year celebrates half a century of discovery and patient care as one of the initial comprehensive cancer centers established by the federal government.

Much of the progress in cancer treatment in recent decades can be traced to research funded by the "War on Cancer," which launched in 1971 when Congress passed the National Cancer Act. The act gave

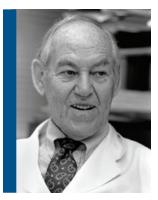
the National Cancer Institute (NCI) the authority and funds to create a national cancer program.

The backbone of the program is a network of comprehensive cancer centers that provide patient care and conduct rigorous research to find new and better ways to prevent, diagnose, and treat cancer.

Duke was one of the original eight such centers, designated in 1973 because of the strong research and clinical care programs it had



Duke Cancer Institute 50th Anniversary



William Shingleton

already put into place, including one of the first brain tumor programs in the United States, said Steven Patierno, PhD, deputy director of today's Duke Cancer Institute (DCI), and professor of medicine. In fact, one of the advocates for the 1971 National Cancer Act was William Shingleton, MD, the first director of the Duke Comprehensive Cancer Center, as DCI was known in 1973.

As Duke celebrates its 50th anniversary of transforming cancer discovery and care, researchers and providers envision a future when all cancers are easily treatable; physicians can detect and stop cancer earlier and earlier; and everyone has the same opportunity to survive cancer.

Alumni Making a Difference in Cancer Research and Care

Changing the Status Quo

Treating the Whole Person



Lori J. Pierce, MD'85

Radiation Oncologist

Professor and Vice Provost for Academic and Faculty Affairs, University of Michigan

Past President, American Society of Clinical Oncology; Board Chair, Association of Clinical Oncology

What is your current research focus?

For a number of years, I've focused on radiation sensitivity. I treat breast cancer, and certain types of breast cancers are aggressive and don't respond well to radiation. So my focus has been looking at agents that can be combined with radiation that can increase the sensitivity of the tumor to radiation. We also have focused on developing molecular profiles that can predict sensitivity to radiation. And then the final area is directing a statewide consortium whose purpose is to improve the quality, efficiency, and cost effectiveness of radiation delivery for breast cancer, lung cancer, prostate cancer, and treatment delivered for bone metastasis. It's a very rewarding portfolio.

Why did you choose Duke for medical school?

I wanted to go to Duke because of its excellence and the fact Duke had that research year. If you survived your first year, you then did your clinical rotations in your second year, and you could spend your entire third year on research. I wanted that, and not many medical schools offered it.

How did Duke influence your career?

Duke changed my life. I had always planned to go into diagnostic radiology. When I got to my third year, Dr. Leonard Prosnitz, who was the chair of radiation oncology, said, "Why don't you come down to the clinic and see what we do?" And that changed my entire career. Radiology is a wonderful profession, but I discovered that I loved interacting with patients. That's what switched me to radiation oncology, and I never looked back. Duke changed everything.

Where do you see your field in 5-10 years?

Our field is clearly moving toward increasingly individualized care. One size does not fit all. There are so many different phenotypes of breast cancer, some far more aggressive than others, and we are increasingly able to look at the biology and genetic characteristics of each tumor and individualize how we treat each patient based upon that. We're getting better at knowing when more aggressive treatment is needed and when you can give less and still have good outcomes. I think that's clearly where we're headed.

You've spoken of the difference between "equality" of care and "equity" of care. What do you mean by that distinction?

It's a very important distinction. Equality means everyone gets the same care. That sounds great, but it's only great for everyone if everyone is starting at the same point. And we know that is clearly not the case. There are so many disparities in terms of access, social determinants of health, and other factors.

Equity is where you look at where each person is and give them what they need so that everybody has an equal outcome.

There's an analogy I like that illustrates the difference: two men are trying to look over a fence at a baseball game, but one man is tall and can see over the fence, and the other is short and can't. If you give them both stools that are the same height, the tall man can still see over the fence and the short man still can't. That's equality: you've treated them the same, but you haven't changed the outcome. With equity, the short man gets a taller stool, so they can both see over the fence.

Equity means giving people what they need to have an equal outcome. That's what we need to work toward in cancer care. To achieve that, we need to listen more, increase communication, look honestly at our own processes, and be willing to change the status quo.

Arif Kamal. MD. HS'12, MHS'15

Chief Patient Officer, American Cancer Society

Associate Professor, Medicine and Population Health Sciences, Duke University School of Medicine

Please describe your current role at the American Cancer Society.

The American Cancer Society (ACS) is a 109-year-old organization that's focused on providing patient support services, education, engagement, and navigation. For example, we recognize that having a place to stay is an important barrier to timely and high-quality cancer care. ACS has 31 Hope Lodges across the country where patients can stay if they need to travel for cancer treatment. We also provide lodging grants to cancer centers so they can provide vouchers and gift certificates for patients to stay in a hotel. With the arrival of our new CEO about a year ago, the ACS reorganized so that all our patient-facing, caregiver-facing, and clinician-facing activities are organized under one business unit, which is led by the chief patient officer. My role is to look across all those programs to provide a coordinated strategy and to tailor the strategy to particular locations.

How did your time at Duke as a hematology-oncology resident and then a faculty member influence your career?

Duke was a great training ground. As a faculty member I started Duke's outpatient palliative care clinic for cancer patients. People come to Duke with all kinds of cancers, and the patients are very racially and economically diverse. Duke has a real commitment to assessing their quality-of-life needs and creating a plan for them, so I got

to see a lot of great work in action. The ACS was looking for someone who sees the whole person and how to help them in their cancer journey, and that experience helped make me a good fit.

What are the biggest changes you see ahead for cancer care in the next decade?

Cancer centers are increasingly embracing not only to identify the it to people, but also to provide whole-person care. They will increase wrong drug.

We are also seeing shifts in decentralizing cancer care and clinical trials so that programs can provide services no matter where a person lives.

Your mother's experience with cancer influenced you to go into palliative care. How has palliative care advanced since then?

My mother was treated for cancer and passed in 2007, when I was completing

the idea that their job is right treatment and give

ingly address social determinants of health and systemic barriers to health care. Lack of access to food is emerging as one of the biggest challenges. About 40 percent of early-stage breast cancer patients don't take hormonal treatment every day because they can't afford it. Or they skip it for two weeks because they have to buy groceries. Until we solve this issue about how the patient will afford the treatment and also afford all the other components of their life, it is as much a threat to the patient's survival and prognosis as choosing the



an internal medicine residency at Mayo Clinic. I harnessed the energy of that experience to pursue a hospice and palliative medicine fellowship at the Mayo Clinic. That was a career-defining moment for me. The field of palliative care started in 2008, so when she was treated, palliative care — this concept of a dedicated and trained group of medical professionals whose sole focus is the patient's quality of life — wasn't even something you could access. Now, 100% of National Comprehensive Cancer Network centers have palliative care programs. National Cancer Institute comprehensive cancer centers are required to have palliative care to receive the designation, and the Commission on Cancer requires it for accreditation. So pretty much every cancer patient has access to palliative care. You couldn't have said that 10 years ago.

Alumni Making a Difference in Cancer Research and Care

A Targeting the Seeds of Cancer Growth



Eugenie S. Kleinerman, MD'75, HS'75

Pediatric Oncologist, University of Texas MD Anderson Cancer Center

Mary V. and John A. Reilly Distinguished Chair, Division of Pediatrics

Professor, Department of Pediatric Research and Department of Cancer Biology

Please describe the current focus of your research.

My major focus has been in developing new therapies, particularly immunotherapies, for children with osteosarcoma lung metastases. One goal is to understand why osteosarcoma almost exclusively spreads to the lungs and how the lung microenvironment contributes to this process and the failure of current immunotherapies. Recently we've learned that the tumor microenvironment can limit the killing function of T-cells and their ability to penetrate into the tumor. So, instead of targeting the tumor cells directly, we are working on how to alter the tumor microenvironment.

What led you to choose Duke for medical school?

When I was in eighth grade, we took a trip to Durham because my dad, who was a pathologist, knew the chair of pathology at Duke. I walked onto the Duke campus and said, 'Oh my gosh, this is so gorgeous. I have to go here.' I didn't get into the undergraduate school, so I went to Washington University, which appealed to me partly because it looked like Duke. Then I applied to medical school at Duke and

was fortunate enough to get in.

How did your time at Duke influence your career?

Duke was even more than I hoped it would be. I would not have had a successful research career without Duke. I was fortunate enough to work with incredible people like Ralph Snyderman [Chancellor Emeritus and former Dean of the School of Medicine] and Charlie Daniels [former professor of pathology]. They put me on the path. The attitude at Duke was. 'We don't make cookies; we make cookie cutters." We were encouraged to be leaders, to think outside of the box. I owe my career to Duke. This medical school and this university are very dear to my heart.

What do you see as the future of your field?

Immunotherapy is the way of the future. But we are really starting to understand that, in solid tumors, we must understand the tumor microenvironment. It's like planting seeds. If you plant tomatoes (T-cells) in sand, it doesn't matter how good the seeds are: they aren't going to grow. In solid tumors like the ones I study, immunotherapies are not very effective. We have to understand the impediments that are created by the tumor microenvironment and alter those in order to improve treatment efficacy.

What are the unique challenges and rewards of working with children?

In pediatric cancer overall, we're curing about 85%, although a large part of that is leukemia. In osteosarcoma, it's more like 65%. So there remain significant challenges for solid childhood tumors like osteosarcoma, Ewing sarcoma, and rhabdomyosarcoma. But most of the time we do get a response and most kids get better. You really become part of their family. It is incredibly rewarding to see your patients grow up and blossom into young adults. I took care of one young man who had osteosarcoma lung metastasis and whose pediatric oncologist had told his parents, 'There's nothing more we can do; just try to enjoy the time you have left.' He entered my clinical trial using Mepact, a liposome macrophage-activating immunotherapy. Today he's an orthopaedic oncologist at the University of Pittsburgh. I have many examples like that. Those are what keep you going.

Alumni Making a Difference in Cancer Research and Care

A Discovery That Comes Out of Nowhere

Bill Kaelin, BS'79, MD'82

Sidney Farber Professor of Medicine, Harvard Medical School

2019 Nobel Prize in Physiology or Medicine

Please describe your responsibilities in your current role.

I run a research lab of about 10 to 15 people, most of whom are postdoctoral fellows. Our focus remains to understand why mutations affecting specific tumor suppressor genes cause particular cancers and to understand, based on the functions of those genes, how we might treat cancers bearing such mutations. We also continue to work on oxygen sensing and its role in diseases where there's an interruption in oxygen delivery, such as heart attack and stroke. I have recently agreed to be the scientific director of a new program at the Dana Farber Cancer Institute called the Lubin Scholar Awards, which will provide support for young physician-scientists who are training to be laboratory-based investigators. That's a cause very near and dear to my heart.

How did your time as a student at **Duke University School of Medicine** influence your career?

I received excellent clinical training at Duke medical school, and I had a number of clinical heroes and role models. Once I got on the wards in the second year of medical school, I could see why we had done all of the rote classroom learning during the first year, and that really re-energized me. All of that ultimately led me to decide to do a chief resident year at Johns Hopkins. I would also highlight the third year in the

Randy Jirtle, who was a mentor. That opened my better known for doing physical chemistry.

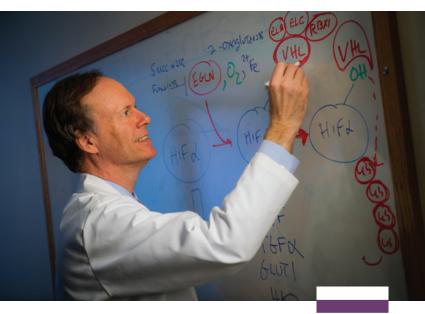
What is the major way that winning the Nobel Prize in 2019 has changed things for you?

What are the biggest changes you see ahead for cancer basic and translational research in the next decade?

What's wonderful about science is the occasional discovery that comes out of nowhere and completely changes the way you think. I'll actually be rather disappointed if I'm correct in predicting the next big thing. So I'll cheat a little bit - this is a medical student trick and I'll answer a related question. We always have a healthy back and forth between what I would call reductionist biologists who want to go deep on a particular question, versus what I'll call systems biologists, who seek a much broader description of a system, but

medical school curriculum, where I had the opportunity to work in a laboratory run by epigenetics pioneer fun-loving and enthusiastic eyes to the life of a research scientist, and it was a much more positive experience than the rather painful one I had as an undergraduate student working on a protein biochemistry project in a laboratory that was much

I've tried to ensure that it doesn't change my professional life to any great degree. The biggest change is that I have to be a little bit more mindful of what I say and what I write because people pay a little bit more attention.



without the same degree of depth. Both approaches have their strengths and weaknesses. But I'm hoping the pendulum swings back somewhat toward the reductionists, because I think in cancer biology the trend has gone too far in favor of the systems biologists who are using admittedly exciting technologies to describe cancer cells. But on one level we've been describing cancer cells for decades. To cure them, we need the reductionists to go in and do the mechanistic work. For example, seeing that a particular gene is highly expressed in a cancer doesn't prove that that gene is required by that cancer. We need to do experiments in model systems and silence the gene. If the cancer cells are still completely happy and able to form tumors and kill a mouse, then its expression may have been correlative but not causative.

'Laser Focused'

DEAN KLOTMAN REFLECTS ON THE SCHOOL'S CHALLENGES AND PRIORITIES

By Dave Hart

Last summer, Mary E. Klotman, BS'76, MD'80, HS'80-'85, was reappointed for a second five-year term as dean of Duke University School of Medicine, vice chancellor for health affairs at Duke University, and chief academic officer for Duke University Health System.

On mornings when she can fit into her schedule, Mary E. Klotman, MD, dean of Duke University School of Medicine, starts her day by swinging by Monuts on Ninth Street and picking up a couple of breakfast burritos.

She delivers these to her son Sam and his wife. Jess. who live in Durham with their son, Jacob Patrick, who was born last January — Klotman's first grandchild.

"I'll call and say, 'Can I get you breakfast?" said Klotman. "I used to tell myself I was going over to help, but it's mainly just so I can see JP. It works."

After the few exceptionally eventful years, seeing her grandson is a tonic.

"Especially during the past two years, it's easy to get so caught up in things that it becomes all-consuming," Klotman said. "It's hard to step away and unwind. JP came along at just the right time. There's so much going on in the world, and seeing a new baby is like magic."

'THERE WAS NO PLAYBOOK'

Klotman was two and a half years into her first five-year term as dean, leading multiple key priorities, when the pandemic hit. Duke suspended normal operations and Klotman organized a crisis team, composed primarily of the school's vice deans.

"We navigated COVID successfully because everyone worked together for the common purpose of fulfilling our missions while keeping people safe, and because everyone stepped up to serve. I was incredibly proud of our faculty, staff, and students."

MARY E. KLOTMAN

They met first thing every morning to assess and strategize.

"There was no playbook," Klotman said. "But everybody was extraordinary every single day. They came to the table with ideas, with humor, with offers to help, and with incredible camaraderie. Nobody cared about taking credit. And I have to say, we had very few missteps. I was very, very pleased. And lucky."

The School of Medicine and Duke University Health System, along with the entire university, became nationally known for their effective and efficient pandemic response. "We're trying to intentionally learn from that experience and change policies and processes for the better," Klotman said.

TURNING A MOMENT INTO A MOVEMENT

A few months after the pandemic struck came a second epochal event: the murder of George Floyd by police in Minneapolis. Floyd's killing triggered an international wave of protests and spurred institutions across America to examine their cultures to identify and reform racial and ethnic inequities.

Klotman and her team launched a wide-ranging series of conversations, town halls, and meetings that coalesced into what became called Moments to Movement, a comprehensive initiative to improve equity, diversity, and inclusion across the School of Medicine. Black faculty, staff, and students shared powerful stories of their encounters with deeply rooted structural and societal racist attitudes and practices.

"The realization that so many

Duke University School of Medicin

Dean Mary E. Klotman, Mr

people experienced Duke so differently than I thought they did was heartbreaking," Klotman said. "The message was, 'Our experience is not the same as yours.' And we knew that what we were hearing was only the tip of the iceberg."

Klotman launched a strategic plan designed to outline steps to reduce racial inequity at all levels. Under the direction of Kevin Thomas, MD, the school's first vice dean for equity, diversity, and inclusion, the School of Medicine has begun implementing the plan's detailed steps.

"The work they did was so incredibly detailed that it provided us with a road map to change," Klotman said. "You can't change culture overnight, but you can start to make organizational changes and procedural changes, and all those things layered together start to move the needle. I'm excited about this work. We have to deliver on this."

FOCUS ON THE PRIORITIES

Klotman is committed to maintaining momentum on the major projects begun on her first watch, including the anti-racism strategic plan, the new Duke Health Integrated Practice, and the "Patient First" medical education curriculum.

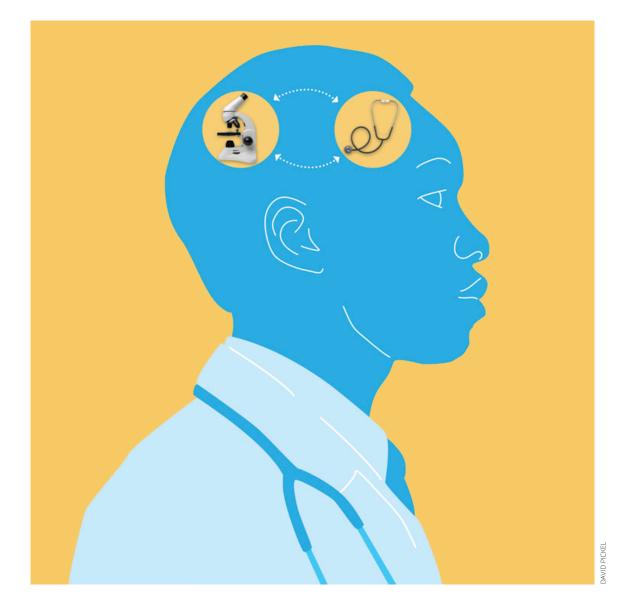
"We're going to be laser focused on constantly looking at what we've accomplished and evaluating what we need to do," she said.

One important area of emphasis will be continuing to support the school's research community. The School of Medicine is a leader in the Duke Science and Technology (DST) initiative, which aims to attract top scientists to complement current research faculty in areas including cancer, neuroscience, and immunology.

Among Klotman's other priorities is doing a deep dive into wellness among the School of Medicine's workforce and student population.

With every significant event, Klotman has seen a spirit of cooperation and service throughout the School of Medicine community elevate the institution and its people.

"We navigated COVID successfully because everyone worked together for the common purpose of fulfilling our missions while keeping people safe, and because everyone stepped up to serve. I was incredibly proud of our faculty, staff, and students. And they have continued to show the same spirit over and over ever since."



One Foot in the Clinic, the Other in the Lab

THE SCHOOL OF MEDICINE BOLSTERS THE PHYSICIAN-SCIENTIST PIPELINE

By Alissa Kocer

ealth challenges across the globe — everything from climate change to infectious disease and better treatment options for patients - precipitate the need for skilled physician-scientists: physicians who see patients in the clinic and who also devote time to scientific research.

cellular and molecular basis of disease that physician-scientists gain in the lab gives them unique insights into complex medical problems in the clinic — and the experience they gain interacting with patients in the clinic in turn informs their research. This dual role gives physician-scientists unique perspectives on health challenges that are critical for

advancing biomedical research and care.

Rasheed Gbadegesin, MD, Wilburt C. Davison Distinguished Professor and associate dean of physician-scientist development at Duke University School of Medicine, is a pediatric nephrologist. He's also a scientist who conducts basic and translational genomics research involving

HOW YOU CAN HELP

Philanthropic partners are essential to the success of the School of Medicine. To help us build the physician-scientist pipeline and support our students and future leaders in science and medicine, please contact Sarah Nicholson, assistant vice president for development and alumni affairs, at

Sarah.nicholson@duke.edu.

that is moving from clinic to bench to clinic," Gbadegesin said. "I can collect samples from a patient, bring them to my lab, and relate to who this patient is and why I am Despite the important role they play, the number of physician-scientists in the workforce is dwindling.

patients with kidney disease.

side and back from bench side

studying the patient."

that rate is just 1.5%.

clinical care.

"What I find fascinating about

Thirty years ago, 4.5% of physicians

also participated in research. Today,

working to bolster this necessary

workforce, offering a range of pro-

grams and pathways for students

and early career physicians interest-

ed in pursuing both research and

Most students enrolled in the MD

the entire third year of Duke's

unique curriculum is dedicated to

research or other scholarly activ-

ity — and, of course, the school's

biomedical PhD programs are re-

emphasizes cross-departmental

training, students have many op-

portunities to craft paths of study

that incorporate a range of fields.

Program (MSTP) is specifically

designed to train physician-sci-

entists. Duke's MSTP, the nation's

fourth oldest such program and

consistently ranked among the

best, offers a targeted path for

in science who are interested in

The program, which leads to

both MD and PhD degrees, typical-

ly integrates the clinical curriculum

of the Duke School of Medicine

scientific disciplines relevant to

medicine. MSTP students gener-

science and clinical experiences,

ally spend two years on core basic

then move into graduate research

with a graduate education in

academic medicine.

students with strong backgrounds

careers in the medical sciences and

The Medical Scientist Training

search-focused. And because Duke

and interdisciplinary education and

program conduct scientific research

TRAINING LEADERS

The School of Medicine is actively

'We need to continue to treat and invest in human resources for biomedical research in order to sustain the advances we've made and to make more."

RASHEED GBADEGESIN

designed for students who want to take care of patients and also do cutting-edge research."

CHRISTOPHER KONTOS

022





for 4-5 years before returning to the MD program for one year of individualized clinical training.

"This path is designed for students who want to take care of patients and also do cutting-edge research that will advance biomedical science and improve health," said Christopher Kontos, MD, HS'93-'97, professor of medicine and director of the MSTP. "The MD-PhD has a grounding in clinical medicine that helps them view scientific problems from a clinical perspective and helps them think about clinical problems from a scientific perspective."

The MSTP is also addressing one of the challenges facing the physician-scientist pathway: making sure young people know the path exists. Duke's MSTP students are actively engaged in outreach to high school and younger students, as well as college undergraduates, to make them aware of the possibilities and opportunities available to those with an interest in both science and medicine.

ADDRESSING CHALLENGES

The Duke Office of Physician-Scientist Development (OPSD) works to improve engagement and address the challenges that have deterred students and physicians from pursing the physician-scientist career path.

Among those obstacles are the potential burden of student loan debt, the length of time necessary to complete medical school specialty training, limited opportunities to engage in research during specialty training, and the competitive nature of applying for and receiving research grants.

To address these challenges, OPSD has launched initiatives in education and professional development, research funding, and scholarships, and has created additional opportunities to conduct research during clinical training and provided career mentoring for medical students engaged in conducting scientific research.

OPSD has successfully competed for funding to support research in residency and to retain current

physician-scientists. Gbadegesin and colleagues are also working to increase the diversity of the physician-scientist workforce by providing early exposure through summer and year-long research experiences for non-Duke and post-baccalaureate students. They have provided scholarships to medical students who wish to extend their third-year research year into two years at no additional cost.

Through awards and other resources, OPSD provides continuity of research progress during medical students' return to clinical training. And the office provides mentorship and professional development opportunities to junior faculty to help them succeed in their independent research careers.

Daniel Joh, MD, PhD'19, a Duke resident in plastic surgery and a graduate of Duke's MSTP, can't imagine a career without living in both the clinical and scientific worlds. He notes that immersion in both is key. "It's a matter of timing of meaningful exposure to decide to do both," he said.

A NECESSARY WORKFORCE

The School of Medicine's programs to boost engagement and increase the number of physician-scientists in the workforce are vital. The world needs them to succeed. Consider the COVID-19 pandemic: physician-scientists played a key role in rapidly learning about the disease and developing vaccines and treatment options.

The efforts made by the MSTP, OPSD, and others at Duke to prepare the next generation of physician-scientists are opening the doors to exceptional students, increasing retention of junior faculty, and getting more trainees invested in this vital career path.

"We need to continue to treat and invest in human resources for biomedical research in order to sustain the advances we've made," Gbadegesin said, "and to make more."

DCRI Named Coordinating **Center for** Long COVID

The Duke Clinical Research Institute (DCRI) has been named the **Clinical Trials Data Coordinating** Center for large-scale national research studies aimed at understanding and improving the treatment of long COVID.

As the data coordinating center, DCRI will partner with RTI International, the study's Administrative Coordinating Center, to accelerate the clinical trial process, oversee the study's program-wide infrastructure, establish a patient registry, and launch simultaneous prevention and therapeutic multi-intervention studies among adults and children.

The data coordinating center is part of the National Institutes of Health (NIH) Researching COVID to Enhance Recovery (RECOVER) initiative. In December 2020, Congress provided \$1.15 billion in funding over four years for NIH to support research into the prolonged health consequences of SARS-CoV-2 infection.

RECOVER brings together patients, caregivers, clinicians, community leaders, and scientists from across the nation to understand, prevent, and treat long COVID. The initiative comprises multiple sub-awards to researchers at institutions across the country.

Emergency **Medicine Elevated** to Department Status

The former Division of Emergency Medicine within the Department of Surgery in the Duke Uni-00 versity School of Medicine was



Transplant Center Performs 10,000th Transplant

The Duke Transplant Center recently performed its 10,000th transplant, according to data from the Organ Procurement & Transplantation Network (OPTN). The Duke center performed its first organ transplant, a kidney, in 1965.

This is a milestone that only 18 other centers in the U.S. have achieved and the first in North Carolina to meet that mark.

The Duke Transplant Center has reached this lifesaving goal by focusing on research and innovation to expand access to organs for patients on waiting lists. Recent achievements include:

elevated to department status on July 1, 2022. Elevation from division to department signals the growth and independence of the division.

Charles (Chuck) J. Gerardo, MD, MHS'13, Charles J. Gerardo formerly chief of the

division, is interim chair of the new department. He joined the then-newly designated academic **Division of Emergency Medicine** in 2000, and during his 22 years of service, he has served in multiple leadership roles, including director of undergraduate medical education, director of the Emergency Medicine Global



Health Program, and vice chief of clinical operations.

Emergency Medicine is involved in patient care, research, eduand community

engagement. Duke is designated a Level One trauma center, stroke center, and percutaneous coronary intervention center.

The department has a strong focus on research and is highly regarded for its dedication to training and mentoring the next generation of emergency medicine physicians.

DHVI Awarded Grant to Build **Structural Models** of HIV

• Duke surgeons were the first in the U.S. to

• Duke surgeons were the first in the U.S. to

perform "donation after circulatory death"

(DCD) heart transplants in both adult and

• Duke performed the Southeast's first living

liver transplant between an HIV-positive

• Duke has reduced its median wait time to

the U.S. median wait time of 149 days.

heart transplant to 63 days — less than half

successfully implant a new-generation CAR-

MAT artificial heart to bridge the gap until the

patient successfully received a human heart

Researchers at the Duke Human Vaccine Institute (DHVI) received a federal grant totaling more than \$27 million over five years to focus on building structural models of HIV that will help guide the development of therapies and vaccines.

The newly formed Duke Center for HIV Structural Biology at DHVI will become one of the few such centers in the U.S. funded



by the National Institute of Allergy and Infectious Diseases, which is part of the National Institutes of Health.

With the funding, researchers at DHVI will create detailed three-dimensional models that will help reveal how HIV enters host cells, engages the host immune system, and lies dormant within the host during antiretroviral therapy only to rebound when the therapy is withdrawn. These models will help scientists better understand the virus and develop better ways to prevent and treat HIV infection.

compassionate care. Akwari was the first African American surgeon on the faculty of Duke University. He was a compassionate physician, a dedicated mentor, and a champion for women and underrepresented racial and ethnic groups in the field of medicine. He joined the Duke faculty in 1978 and forged the way for many Black academic

Magnify

A closer look at the people of the Duke University School of Medicine and their inspiring stories

bit.ly/SoM-Magnify

Growing up in Florida as the child of Haitian immigrants,

'A Leader Already

Antoinette Jasmine Charles learned the importance of community service. Today, as a medical student at Duke, she's a leader who is contributing to national conversations about health equity.

The Department of cation and training,

transplant.

pediatric patients.

donor and recipient.

School Creates **Akwari Endowed Professorship**

With the support of generous donors, Duke University School of Medicine has established the Onyekwere E. Akwari, MD, Endowed Professorship, and named Lisa McElroy, MD, MS, assistant professor of surgery and population health sciences, the inaugural recipient of this new faculty position.

This professorship was created to honor Akwari's legacy and to support a faculty member who has distinction in the field of surgery and shares Akwari's commitments to equitable and

surgeons. Akwari died in 2019. McElroy joined the Duke faculty in 2019. She specializes in abdominal transplant surgery, with an academic focus on overcoming inequities in access to organ transplant.



Duke Surgeons Perform World's **First Partial Heart Transplant**

At just 17 days old, Owen Monroe became the world's first partial heart transplant recipient. The revolutionary surgery was performed in April 2022 by Duke pediatric heart surgeons at Duke University Hospital. Today,

baby Owen is proof that this new approach can save lives.

"At the beginning, it was, 'How do we save our son?' Owen's mom Tayler said. "But our hope then turned into, 'I hope this can help other children.'

> It's amazing what this could potentially do for the world and the medical community."

While she was still pregnant, Tayler Monroe and her husband Nick learned their son Owen had a rare congenital heart defect called truncus arteriosus. The condition creates one large blood vessel lead-

ing out of the heart instead of two smaller ones. Shortly after Owen was born, doctors also discovered the valve on the top of his heart was leaking significantly. This meant Owen either needed new heart valves or a heart transplant right away.

At just five pounds and less than a month old, Owen underwent the eight-hour surgery. He recovered well and was able to leave the hospital with his parents about seven weeks later.



Finding a Path Through the Land of the Undiagnosed

Millions of Americans experience significant health problems that defy diagnosis. Those are the cases that Vandana Shashi, MD, and the Undiagnosed Diseases Network (UDN) site at Duke take on. Shashi and the UDN help patients with rare and mysterious illnesses find answers.

A Champion for Affirming Health Care

Understanding intersecting cultural identities — and providing care that respects and affirms those identities — is at the heart of



Tyson Pankey, MD, PhD's work as a clinician, educator, and researcher. Pankey, an assistant professor in the Department of Psychiatry & Behavioral Sciences, wants to flip the script on how health care providers talk to and care for people in the LGBTQ+ community.

Becker Named Vice Dean for Faculty

Mara L. Becker, MD, MSCE, professor of pediatrics, is the new vice dean for faculty for Duke University School of Medicine. Prior to her appointment, she served as vice chair for faculty and chair of the Appointment, Promotion, and Tenure (APT) Committee in Duke's Department of Pediatrics.

As vice dean for faculty, Becker oversees the Office for Faculty and provides leadership on all faculty matters, including advancement, development, mentoring, and professionalism.

A physician-scientist, Becker's translational research interests focus on identifying factors that enhance response and minimize toxicity to drugs used for the treatment of rheumatic diseases in children. focusing on individualized therapeutic strategies. She is a faculty leader in the Duke Clinical Research Institute, where she focuses on developing and supporting novel networks to carry out pediatric research and clinical trials.

Coleman Named Chief of Vascular and Endovascular Surgery

Dawn Marie Coleman, MD FACS, has been appointed chief of the Division of Vascular and Endovascular Surgery.

Coleman, a clinical professor of surgery and pediatrics, joins Duke from the University of Michigan in Ann Arbor, where she

20

served as co-director of the Pediatric Renovascular Hypertension Center as well as program director for the Integrated Vascular Surgery Residency and Fellowship at Michigan.

Her clinical and translational research interests encompass a unique pediatric vascular surgery practice, and her research leverages a multidisciplinary team to deeply phenotype patients with renovascular hypertension resulting from aorto-renal arterial dysplasia.

Coleman serves as a lieutenant colonel in the U.S. Army Reserve, assigned to a Forward Resuscitative Surgical Team. She has deployed on three occasions to support forward operations in the Middle East.

Michelle Winn **Awardees** Named

Inclusive Excellence Award.

Each year, the Winn Awards

from across the School

of Medicine who have

exemplified excellence,

innovation, and leadership

through helping to create a

more diverse and inclusive

Duke University School of Medicine this summer named the 2022 recipients of the Michelle P. Winn



environment. Rao Tata The recipients of this year's Winn Inclusive Excellence Awards are:

- Amanda Clark, MA, Doctor of Physical Therapy student (trainee award)
- Christie McCray, MEd Administrative Manager (staff award)
- Sonali Biswas, BS'18, MS'22, medical student (student award)



Andrew Spector, MD,

The Office of Equity,

Diversity, and Inclusion es-

tablished the Michelle Winn

Inclusive Excellence Award in

2016 to recognize individuals

who have made significant

contributions to diversity

Duke University School of

and inclusion within the

Medicine community.

Bass Receives

Leadership

Leadership Award.

The annual award

al who exemplifies the

role model to others."

Bass joined Duke in

1981 as a staff assistant

Anesthesiology. When she

managerial role. In 1996, she

continued her Duke career

at the Duke Comprehensive

Cancer Center (now the Duke

Cancer Institute) as the office

manager. In 2002, she tran-

sitioned into DCI's Research

left, in 1996, she was in a

in the Department of

Award

Administrative

Gloria Johnson Bass, MA,

was awarded the 2022 Su-

san B. Clark Administrative

recognizes "a Duke Health

administrative profession-

qualities of dedication to

the institution, service to

others, personal strength

of character, and acting as a

associate professor of

neurology (faculty award)

Mara L. Becker

Dawn Marie



Bass

Suzanne Barbour



Administration division. Purushothama

Barbour Named Dean of The Graduate School

Suzanne Barbour, PhD, a biochemist and national leader in graduate education, has been appointed dean of The Graduate School and vice provost for graduate education.

Barbour also holds a faculty appointment in Duke University School of Medicine.

Barbour is responsible for ensuring the excellence of Duke's graduate programs, leading longterm strategic planning for graduate studies, and managing The Graduate School's work that supports students and faculty throughout the university.

Prior to coming to Duke, Barbour was dean of The Graduate School and professor of biochemistry and biophysics at the University of North Carolina at Chapel Hill. In 2021, she was selected in the first class of fellows of the American Society for Biochemistry and Molecular Biology.

ISRB Names Tata a Rising Star

Purushothama Rao Tata, PhD, assistant professor of cell biology and medicine, received a 2022 Rising Star Award from the International Society for Regenerative Biology. The Rising Star Award is presented to early career researchers charting new directions and making novel scientific contributions in regenerative biology research.

Tata's lab research focuses on understanding the cellular ensembles of organ regeneration at single cell resolution in the lung and other epithelial tissues.

The other 2022 Rising Star Award winner is Mayssa Mokalled, PhD, an assistant professor at Washington University in St. Louis. Mokalled trained at Duke University School of Medicine as a postdoctoral researcher in the laboratory of Ken Poss, PhD, James B. Duke Distinguished Professor of Cell Biology.



When Shannon Norris, BS'93, MD'97, was considering her college options, she had her eye on New England. A high school counselor convinced her to attend a Black Student Alliance Invitational Weekend at Duke, and by the end of that experience, this was where she wanted to be.

After she graduated and was looking for a medical school, once again she looked north - until Duke offered her a full ride Dean's Tuition Scholarship to the School of Medicine. "I couldn't turn that down," says Norris. "It was the best decision I've ever made."

Norris's experience at Duke propelled her into her successful career as a breast imaging radiologist in Atlanta. She's now an active member of her reunion committee and alumni board, and a generous supporter of the Davison Club and scholarship giving. "Duke enabled me to graduate debt free" Norris said. "That was such a leg up. And now when I come back to campus and see all the energy and activity, I'm all in. I wish I could go to Duke all over again. If I can help some other young people experience that, I want to do that."

SUPPORTING SCHOLARSHIPS

"I wish I could go to Duke all over again. If I can help some other young people experience that, want to do that."

Shannon Norris, BS'93, MD'97

Gifts for medical education are among the most meaningful ways you can support Duke University School of Medicine. Please consider making a gift online at gifts.duke.edu/dmaa.

To learn more about how to support the Davison Club and the School of Medicine, please contact Jill Malley, director of Davison Club & Special Gifts, at jill.malley@duke.edu.

SOM Faculty Win DST Spark **Seed Grants**

Four School of Medicine faculty were among the nine winners of the inaugural Duke Science and Technology (DST) Spark Seed grants named by the Office for Research & Innovation. The awards recognize bestin-class research projects proposed by early- to mid-career faculty from across campus and the School of Medicine.

2022 DST Spark Seed Grant-winning faculty and projects from the School of Medicine are:

- Raluca Gordan, MS'08, PhD'09, Associate Professor of Biostatistics & Bioinformatics, Computer Science, and Molecular Genetics and Microbiology: "Using Deep Learning to Train a Singlemolecule DNA Sequencer to Accurately Identify DNA Lesions"
- Stefano Di Talia, PhD, Associate Professor of Cell Biology and Orthopaedics: "Synchronized Clocks in Zebrafish Patterning"
- Debra Silver, PhD, Associate Professor of Molecular Genetics and Microbiology, Cell Biology, and Neurobiology: "Interrogating Subcellular Gene Expression in the **Developing Brain**"
- Tomokazu Souma, MD, PhD, Assistant Professor of Medicine: "Harnessing Female Resilience Factors to Promote Renal Repair"

Post-Docs Named MOSAIC **Scholars**

Two postdoctoral researchers at Duke University School of Medicine have received Postdoctoral Career Transition Awards under the Maximizing Opportunities for Scientific and Academic Independent Careers (MOSAIC) program.

The MOSAIC program is part of the National Institutes of Health's efforts to enhance diversity within the academic biomedical research workforce and is designed to facilitate the transition of promising postdoctoral researchers from diverse backgrounds into independent, tenure-track or equivalent research-intensive faculty positions.

Duke's 2022 MOSAIC

• Asiya Gusa, PhD, a postdoctoral scholar in the Molecular Genetics and Microbiology program who studies stress adaptation in the human fungal pathogen Cryptococcus.

Scholars are:

• Ian Williamson, PhD, a postdoctoral researcher in the Molecular Genetic and Microbiology program who is researching enteric involvement in neurodegenerative disease.

Dana Rubenstein Wingler Named a Pew Scholar

Laura Wingler, PhD, assistant professor of pharmacology and cancer biology, has been named a 2022 Pew Scholar in the Biomedical Sciences. The award provides four years of funding to early-career scientists to explore some of











Kelly Goo



the most pressing questions in health and medicine.

Wingler was a postdoctoral scholar in the lab of Nobel laureate Robert K. Lefkowitz, MD, James B. Duke Professor of Medicine and professor of biochemistry and chemistry, for several years before becoming an assistant professor in 2020. Her lab studies G protein-coupled receptors, proteins that are the targets of almost one-third of clinically used drugs.

Schweitzer Fellows Named

Two Duke University School of Medicine students are among the 28 graduate students named as 2022-23 Schweitzer Fellows by the North Carolina Albert Schweitzer Fellowship.

The Schweitzer Fellows will spend the next year learning to effectively address the social factors that impact health and developing lifelong leadership skills.

This year's class of Schweitzer Fellows includes:

• Kelly Goo, a fourth-year medical student, and Dana Rubenstein, a thirdyear medical student, who are implementing a hybrid telehealth/home visiting program to help low-income elderly and/ or disabled people living in Durham who have a mobility barrier to accessing primary care.

Barr-Spach Scholarship Recipients Named

Medical students Christine Park and Miranda Morris

are recipients of the Barr-Spach Medicine and Engineering scholarship. The scholarship is awarded annually to third-year Duke medical students who have been accepted into the MD-MEng dual degree program. The award, administered through Duke MEDx, supports recipients as they complete master's degrees from Duke's Pratt School of Engineering.

Park and Morris are part of the first cohort to pursue Duke's Artificial Intelligence for Product Innovation Master's of Engineering (AIPI) as medical students.

Three Selected for ELAM and **ALH Fellowships**

Tomi Akinyemiju, PhD, and Mara Becker, MD, MSCE, were selected as members of the 2022-2023 class of fellows for the Hedwig van Ameringen Executive Leadership in Academic Medicine (ELAM) Program at Drexel University College of Medicine. Becky Smith, MD, HS'11, was selected as one of the inaugural fellows for the parallel Executive Leadership in Health Care Program.

ELAM is aimed at expanding the national pool of outstanding women candidates for leadership in academic medicine, dentistry, public health, and pharmacy. The ELH program is focused on executive health care leaders.

Interested in Board Service?



"Since my time as an undergraduate and through medical and business school, I have prioritized giving back to Duke in line with the benefits I have received from the university. As a recent medical school representative of the Duke D.C. board and now a member of the Board of Visitors, I always look for ways to incorporate alumni engagement and the current student body into this work. Of the many lessons the global pandemic has highlighted, the value of community and collective action to achieve improvement certainly ranks near the top." Malik Burnett, BS'07, MBA'12, MD'12

"Serving on the Duke Alumni Nashville regional group as the School of Medicine representative allows me to connect with other DukeMed alumni and any Duke undergraduates who attended medical school at another institution. At our regional board meetings, I suggest and plan medical topics and events to keep everyone informed on the exciting work SOM faculty contribute to advancing science and patient care. Maintaining enthusiasm for Duke in Nashville is easy, and I will remain Forever Duke

wherever I go." Rowena Dolor Cuffe, AB'87, MD'91, MHS'98, HS'91-'95



FIND YOUR OPPORTUNITY FOR ALUMNI ENGAGEMENT

Are you looking for an opportunity to meet and network with other Duke alumni, deepen your connection with Duke, and support the School of Medicine? Serving on one of Duke

Alumni's 21 regional boards may be the answer! Engaging with Duke alums across the institution while representing the School of Medicine is a great way to serve Duke in your own community while maintaining campus connections.





"My time as SOM representative on the Duke Alumni Philadelphia Regional board has expanded my connections to Duke and to Philadelphia in so many ways! I've met amazing alums from all walks of life in all age groups. And, I've learned about Big Duke—what's happening in the engineering school, law school, Fugua, and more. And I have been proud to share what DukeMed is doing on campus and elsewhere. As always, Duke continues to give me so much, even as an alum. I am eternally grateful!" Janice Gault, BS'87, MD'91



"One of the main reasons I chose Duke was the cohesiveness across the entire campus, and that feeling of cohesion has only grown as I've graduated and become an alumni volunteer. Through my role on the Duke Alumni Regional Board, I've been able to network, interact, and befriend countless people in my city. Their diverse array of careers and interests have enriched my life, while our shared affinity for Duke has brought me a genuine sense of pride and community!" Oren Mushin, MD'11

SUSTAIN Duke University School of Medicine's institutional mission through your continued engagement.

CONTACT Brie Russell at brie.russell@duke.edu regarding your interest in serving on a regional board or other Duke University School of Medicine alumni engagement volunteer opportunities.

CRISPR Technology Shows Success at **Preventing and Treating COVID**

In what is believed to be a first, a research team led by Duke Health has demonstrated a way to use CRISPR technology to successfully prevent and treat COVID-19 infections.

The proof-of-concept experiments, conducted in mice by senior author Qianben Wang, PhD, professor in the Department of Pathology at Duke University School of Medicine, and colleagues, modified a currently available lipid nanoparticle to deliver a specific CRISPR/ Cas13 mRNA that generates an inhospitable environment in the lungs for SARS-CoV-2 infection.

If further research in humans validates the approach, it could lead to a prevention strategy that is not dependent on the ability of antibodies to recognize specific viral structures, so it would be effective regardless of how the virus mutates. The approach also has a treatment benefit, lowering the virus burden and forestalling an immune overreaction that can become deadly during infections.

The research was published in the online journal Nature Chemical Biology.

Old-School **Assessment Beats Genetic Testing for Predicting Heart** Disease

A genetic risk for heart disease is far less predictive of problems than actual lifestyle risk factors such as high blood pressure, high cholesterol, and diabetes even among younger adults.



Glioma Study Finds Geographic Differences in Hispanic Populations

Although typically classified as a single ethnic group, people of Hispanic heritage have markedly different risks for brain tumors based on their geographic origins, suggesting greater diversity that warrants attention in the health care setting.

The insight — published in the journal Neuro-Oncology by a team of researchers at Duke Health — resulted from an analysis of glioma brain tumors, which are known to be less prevalent among people of Hispanic heritage compared to non-Hispanic white people.

Lead author Kyle Walsh, PhD, associate professor in the Department of Neurosurgery at Duke University

to accurately identify cardiovascular risks compared to a simple risk equation that uses basic health measures.

Senior author Michael Pencina, PhD, vice dean for data science at Duke University School of Medicine and director of Duke AI Health, and colleagues analyzed two large databases. They applied two predictive models: a polygenic risk score, which calculates the number of inherited genetic variSchool of Medicine, and colleagues including senior author Quinn T. Ostrom, PhD, assistant professor of neurosurgery at Duke, confirmed the ethnic difference in glioma incidence but identified a gap within the Hispanic group that had not previously been exposed. Notably, populations that trace their heritage to the Caribbean had higher rates of the lethal brain tumors than those from Mexico or Central America.

The researchers found, however, that people of Mexican or Central American origin tended to have worse outcomes from gliomas than those from the Caribbean.

ants likely to put a person at risk of cardiovascular disease; and a scoring model using traditional long-term risk factors that are largely preventable depending on lifestyle choices.

The researchers found that the polygenic risk score provided limited predictive accuracy for cardiovascular disease risk compared to the traditional health assessment.

Pace of Aging May Help Predict Risk of Dementia

Regardless of what the calendar says, individuals age physically at different rates: some experience only a few months' worth of biological aging in a year, while others age more quickly.

Duke scientists have discovered that the pace of biological aging may serve as a powerful predictor of an individual's risk of developing Alzheimer's disease or other cognitive decline.

Terrie Moffitt, PhD, Nannerl O. Keohane University Distinguished Professor of Psychology and Neuroscience; Avshalom Caspi, PhD, Edward M. Arnett Distinguished Professor of Psychology and Neuroscience; and colleagues analyzed data from a longitudinal study that has tracked 1,037 people born in Dunedin, New Zealand, for nearly 50 years.

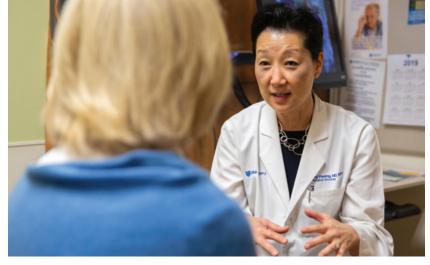
Among that cohort, the researchers found that people showing signs of cognitive decline were aging faster than those who weren't. The pace of aging predicted Alzheimer's disease, mild cognitive impairment, and cognitive functional decline.

This new approach to tracking biological age using the pace of aging could become a useful tool to check for factors that accelerate aging and cognitive decline as well as to track interventions that might slow those processes down.

Real-time Imaging System Helps Avoid Repeat Surgery After Lumpectomy

A Duke University School of Medicine study shows the potential of new imaging technology to change the landscape of breast cancer surgery.

Shelley Hwang, MD, MPH, the Mary and Deryl Hart Distin-



Shelley Hwang

guished Professor of Surgery, led the study of fluorescence-guided lumpectomy that illuminates cancer cells to help breast cancer surgeons see and remove them.

Incorporating the imaging system during operations reduced the need for repeat surgery by 19% among women undergoing lumpectomy to remove breast cancer tumors, according to the study in JAMA Surgery.

An estimated 20% to 40% of

women who have lumpectomy undergo repeat surgery because the marginal tissue shows sign of cancer.

The imaging system relies on a fluorescent agent that was developed by investigators at Duke University and MIT, which is injected about three hours before surgery, and a handheld imaging device to scan the area where the tumor was removed to locate any lingering cancer cells.

Duke University School of Medicine **Medical Alumni Weekend** November 3-6, 2022

Rediscover | Reconnect | Rekindle

Thursday | November 3 Saturday | November 5

Friday | November 4

Class of 1972 Dinner

Medicine Grand Rounds All Alumni Luncheon Medical Alumni Association Awards Celebration

Online registration is available at

medschool.duke.edu/maw

Registration

Breakfast with Dean Mary E. Klotman and special guests Class of 1972 Medallion Ceremony Cocktails, Class Reunion Dinners, and Class Photos #ForeverDuke: Recent Alumni Gathering All Alumni After Party

Sunday | November 6

All Alumni Farewell Breakfast

RESEARCH BRIEFS

Fish Oil Appears to Ease Post-Operative Delirium

Fish oil triglycerides appear to be effective at reducing instances of inflammation in the brain and preventing post-surgical delirium in mice and tissue engineered human models, according to Duke Health and Duke Biomedical Engineering researchers.

Published in the British Journal of Anaesthesia, the findings point to a potential new therapeutic approach for delirium — a common complication of general surgery, particularly in older adults, that causes confusion, disorientation, or a sudden change in mental abilities. There



are no approved therapies for post-surgical delirium.

Lead author Niccolò Terrando, PhD, associate professor in the Department of Anesthesiology at Duke University School of Medicine, and colleagues administered a fish oil lipid injectable emulsion to mice before orthopedic surgery, a common trigger for delirium in the clinic.

Mice that received the fish oil did not show behavioral signs of delirium or associated brain pathology after surgery. The treated animals also exhibited less inflammation in the brain.

Ouestions? Brenda Rimmer, 919-385-3177, brenda.rimmer@duke.edu



For more information, please visit medschool.duke.edu/maw

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Duke **SCIENCE** and **TECHNOLOGY** CHALLENGE ACCEPTED

Duke **SCIENCE** and **TECHNOLOGY**

Challenge Accepted

SCHOOL WELCOMES NEW COHORT OF DUKE SCIENCE AND TECHNOLOGY SCHOLARS

By Shantell Kirkendoll

uke University School of Medicine continues its investment in Discience faculty recruitment and retention with the addition of four additional Duke Science and Technology Scholars.

The new cohort is made up of scholars who are exploring innovations in lung cancer treatment, fat storage and metabolism, aging, and biochemistry.

"The scholars have accepted the challenge to address the most pressing global issues," said Colin Duckett, PhD, vice dean for basic science. "Their deep scientific knowledge, cultivated through connections at Duke, will help move science forward."

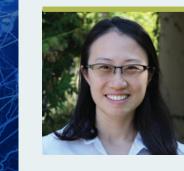




He is a top investigator of adipose tissue, where the body stores fat, and its link to heart disease, cancer, and type 2 diabetes. Growing rates of obesity have increased the urgency of understanding

adipose tissue biology.

Gupta has made significant discoveries about the origins of fat cells and the genetic factors controlling adipose tissue precursor cells. He is also a member of the Duke Molecular Physiology Institute.



Shuo Han, PhD, relocates from Stanford University School of Medicine to join the Department of Biochemistry and the Duke Microbiome Center. Her recent work identified promising bioactive molecules produced by the human gut microbiota. Her lab will study how gut bacterial metabolism impacts aging and physiology. Her future

targets that can help extend good health, and she sees potential for collaborations with colleagues in Biochemistry, the Duke Microbiome Center, and the Duke Aging Center.



research seeks to identify molecular



Seok-Yong Lee, PhD, has been retained through support from Duke Science and Technology to continue his work in the Department of Biochemistry and as a member of the Duke Cancer Institute. Lee examines the design of membrane transport proteins how they use their architecture to take advantage of selective transport and how scientists can use this selective

transport for therapeutic potential in humans.



Trudy G. Oliver, PhD'05, has joined the Department of Pharmacology and Cancer Biology, after relocating her lab from the Huntsman Cancer Institute at the University of Utah in Salt Lake City. She investigates under-studied subtypes of lung cancer, specifically squamous and small cell lung cancer. Her lab will explore tumor development, growth, and drug resistance to uncover

vulnerabilities that can be targeted by therapeutics in these aggressive cancers. She hopes to bring new treatment options to patients.

"I completed my PhD in the pharmacology and cancer biology department almost 20 years ago, and I loved my experience and training at Duke," she says. "I was excited to return and join many wonderful friends and colleagues in this area, and to help give back to the program that launched my own career in science."

OBITUARIES

Clarence Almon Bailey Jr., BS'54, HS'60-'61, died on January 31, 2022. He was 89. He received a medical degree from the University of North Carolina at Chapel Hill in 1957. He completed an internship at the Medical College of Virginia and served as a pediatric resident at the University of Florida and Duke University School of Medicine. He was board certified in allergy and immunology. He served as a captain in the U.S. Air Force at Eielson Air Force

Base near Fairbanks, Alaska, for three years. In 1964, he began a private pediatric practice in Durham, North Carolina, which he continued for 40 years until his retirement in 2004.

Roberta Kay Beach, BS'67, MD'71, died on May 28, 2022. She was 76. She earned her undergraduate degree at Duke University and received her medical degree from Duke University School of Medicine, where she edited the medical school newsletter. She received a master's degree in public health at the University of California, Berkeley, and then moved to Colorado, where she lived the rest of her life. Her work as a pediatrician and a specialist in adolescent

medicine and teen sex education brought her many local and national awards and recognition. She co-authored chapters in several medical publications.

Dorothy "Dot" Cody, MD'53, died on February 4, 2022. She was 92. She attended a pediatric internship at the University of Arkansas Medical School. She served as the tuberculosis control agent for the state of Arkansas until her family moved to Kansas in 1962 so her husband, John, could complete his residency. She later worked as the campus physician at Fort Hays State University in Hays, Kansas, until her retirement.

Ann Christine Dunnigan, MD'77, died on January 31, 2022. She was 72. She was elected Alpha Omega Alpha at Duke and earned a master's degree in public health at the University of North Carolina at Chapel Hill. She did her pediatric residency at the Medical Center Hospital of Vermont and Bellevue New York University Hospital in Manhattan. She did a fellowship in pediatric cardiology at Duke University School of Medicine and a fellowship in cardiac



electrophysiology training at the University of Minnesota. She was a professor of pediatrics at the University of Minnesota Medical School, where she was a cardiac electrophysiologist and congenital cardiologist. She worked at Abbott Northwestern Hospital, CentraCare, Gillette Children's Specialty Health-care, and outreach at clinics in Rapid City and Sioux Falls, South Dakota.

John Snow Glover, MD'59, HS'64, died on May 1, 2022. He was 89. He received his undergraduate degree from the University of North Carolina at Chapel Hill and attended Duke University School of Medicine, where he remained as an intern and then as chief resident in obstetrics and gynecology. He began his medical practice in Charlotte with his Duke classmate, Thomas H. White, MD'59, HS'59-'64, in 1965. He was drafted by the U.S. Navy in 1967



and served as a Navy physician for two years. He served as chair of the Department of Obstetrics and Gynecology at Presbyterian Hospital (now Novant) and was a physician to the Charlotte community for more than 34 vears. He served on numerous boards, including the first board of Charlotte Planned Parenthood, and worked with groups including Teen Health Connection and Mecklenburg Ministries.



John "Jack" Ashley Goree, MD'55, HS'56-'59, died

on May 27, 2022. He was 94. He served in the U.S. Navy, and after leaving the military he graduated from Stanford University and Duke University School of Medicine. He began his medical career at Duke and attended the Karolinska Institute in Sweden to study interventional neuroradiology. After he returned to Durham, he introduced this specialty to the South, teaching at Duke for the next 33 years.

Ben Pushmataha McCarley, MD'52, died on July 26, 2022. He was 96. He attended Virginia Military Institute and served in the U.S. Army Air Force before graduating from Southern Methodist University, earning his medical degree at Duke University School of Medicine, and completing his internship at the University of Alabama. He worked as a pediatrician, served on the faculty at Children's Hospital in Dallas, and was president of the local school board.

George W. McLean, MD'73, died on March 30, 2022. A graduate of Duke University and Vanderbilt University, he practiced endocrinology for 40 years. In his early career, he taught at the University of Tennessee in Erlanger and later was in solo practice.

George Stuart Scott, AB'61, MD'66, died on April 16, 2022. He was 82. After receiving his undergraduate and medical degrees at Duke, he served an internship at Duke University Medical Center. He completed his residency and fellowship at George Washington University in Washington, D.C. He was a lieutenant commander with the Public Health Service at the National Institutes of Health in Bethesda, Maryland, from 1968-1970. He went into



private practice in internal medicine and pulmonary diseases in Montgomery County, Maryland, from 1970 to 2004. After closing his practice, he worked as a contract physician for the 3rd Infantry Division at Fort Stewart in Savannah, Georgia, until retirement in 2007.

Gordon Anderson Tripp, MD'61, died on January 25, 2022. He was 86. After completing a year of internship at Cook County Hospital in Chicago, he joined the Peace Corps, serving as a physician in Cameroon and Nigeria from 1962 to 1964. He completed his psychiatry residency at Hennepin County Hospital in Minneapolis, Minnesota, then moved to Washington, D.C., for a fellowship in child psychiatry at the National Children's Hospital. He practiced at the National Children's Hospital and the Walter Reed Medical Center before settling into a private analytic practice in Washington, D.C., where he spent the rest of his career.

Donald Tucker, BS'55, MD'58, BSM'59, HS'58-'62, died on January 31, 2022. He was 87. He served in the U.S. Navy as the director of the cardio-pulmonary catheterization lab at Portsmouth, Virginia Naval Hospital, achieving the rank of lieutenant commander. In Greenville, North Carolina, he joined Medical Arts and then started Quadrangle Internal Medicine, which later became Physicians East, one of the largest private multi-specialty medical practices in North Carolina. He retired from Physicians East in 1999 after a long and distinguished career. He was a fellow of the American College of Physicians and the American College of Cardiology. He served for six years as a member of Duke University Hospital's advisory board. He was a past president of the Pitt County Medical Society and a trustee for Pitt County Memorial Hospital. He was a charter member of the Davison Club at Duke University.





Henry Griffith Utley, PhD'66, MD'69, died on May 29, 2022. He graduated with an MD/PhD from Duke and practiced for 25 years as an eye surgeon in Athens, Georgia.

John Victor Verner Jr., AB'50, MD'54, HS'54-'59,

died on May 2, 2022. He was 95. He was commissioned as a second lieutenant in the U.S. Army and served in Seoul, Korea. As a medical student at Duke, he was elected to the honorary medical society Alpha Omega Alpha and won the Mosby award for scholarship. He trained at Duke, serving as chief resident in medicine, and the University of Michigan. He served on the faculty at Duke for 15 years, then joined the Watson Clinic in Lakeland, Florida, where he practiced for 35 years and served in numerous leadership positions. He was a clinical associate professor of medicine at the University of South Florida, a fellow of the American College of Physicians, and served two terms as a governor of the Board of Internal Medicine. He received a Distinguished Alumnus Award from the Duke Medical Alumni Association in 1972.

William R. Welch, MD'71, died on February 15, 2022. He was 79. He attended Tufts University on a Navy ROTC scholarship and was commissioned as an ensign in the U.S. Navy, stationed at the Portsmouth Naval Shipyard in New Hampshire. After earning his medical degree from Duke University School of Medicine, he completed an anatomic pathology residency at SUNY Upstate Medical University and became a diplomate in anatomic pathology



in 1975. He was a staff surgical pathologist with an emphasis on gynecological pathology at Massachusetts General Hospital and then at Brigham and Women's Hospital until his retirement in 2021. He also served as a consultant staff pathologist at the Dana Farber Cancer Institute and as an associate professor of pathology at Harvard Medical School.

Erich Wolfe Wouters, MD, HS'85-'91, died on January 26, 2022. He was 62. He earned his bachelor's degree in chemistry from Emory University in 1981 and attended medical school at the University of Alabama at Birmingham. He completed his surgical internship and orthopedic surgery residency at Duke University Hospital. He was a lifelong member of the Piedmont Orthopedic Society. In 1991 he moved to Jasper, Alabama, and joined Southern Orthopedics and Sports Medicine Associates, where he practiced until his retirement in 2008.

Michael Francis York, MD'97, died on May 12, 2022. He was 68. After finishing the Honors Program at the University of Maryland in three years, he went to Duke University School of Medicine and then completed a residency in family medicine at East Carolina University in Greenville, North Carolina. He worked at a rural Appalachian hospital for two years before becoming a solo family practitioner in Upper Marlboro, Maryland, for 20 years.











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Marking the start of their medical careers, 120 first-year students in the Doctor of Medicine (MD) program received their white coats during the White Coat Ceremony on August 5. Over 70% of this year's class are women, and 29% are from underrepresented racial and ethnic groups. 🎽 bit.ly/DukeWhiteCoat2022