

Duke Med

ALUMNI NEWS Fall 2019



Filling Big Shoes at
the Center for Aging

Putting the 'One Duke'
Vision into Action

A New Target in
Parkinson's Disease

Healing Hearts

A Duke Team Expands
the Reach of Cardiac Care

MESSAGE FROM THE DEAN

DEAR FRIENDS,

We are in an unprecedented time of challenges and opportunities in patient care, health professions education, and research. As an academic medical center, Duke's ability to provide the best care for our patients, offer the most innovative education for our students, and accelerate scientific discovery depends on working efficiently and collaboratively. Many of you will recall a time when the School of Medicine, School of Nursing, and our clinical enterprise composed



of the Health System and Physician Practice functioned very independently. Today, a new model is emerging where the schools and clinical enterprise are much more interwoven, collaborative, and mutually beneficial. Following a "One Duke," philosophy, we will be better equipped and prepared to face our ever-evolving world.

I hope you'll read the article "Building Bridges" in this issue, which explores how partnerships across our campus are propelling our work in many areas. Other examples of this increased focus on collaboration are apparent in virtually every corner of our campus.

- Duke has begun work on a new initiative designed to drive our institution's leadership in science and technology. Through major investments in resources and recruitment of faculty, our goal is to increase Duke's focus on research that will make new and powerful contributions to fundamental knowledge and guide practical applications.
- Last summer, the School of Medicine launched a new Duke Precision Genomics Collaboratory. Svati Shah, MD, who was named associate dean for genomics and director of

the collaboratory, will lead this coordinating center for genetics and genomics activities across campus.

- Through the Translating Duke Health Initiative, which launched in 2017, 20 grants have been awarded and more than 15 new faculty members recruited to Duke. The strategy: encourage a team approach to address our world's most challenging health care issues.
- And recently, Duke launched AI for Health, a campus-wide data science vision to leverage artificial intelligence (AI) to transform biomedical research, enhance health care delivery, and foster healthier lives around the world by capitalizing on massive quantities of data, advanced quantitative methodology, and new computing platforms.

As 2020 approaches, I anticipate it will be one of the most exciting years in our school's history. There is a palpable momentum on campus—a feeling of renewal and progress and commitment to action that will accelerate our work to live out our core values of excellence in education, research, and patient care.

I always end each letter by thanking you, our partners. Be assured this isn't simply repeated rhetoric, but is instead a true reflection of my gratitude to each of our alumni and friends for your continued support.

Sincerely,

Mary E. Klotman, MD, BS'76, MD'80, HS'80-'85

Dean, Duke University School of Medicine,
Vice Chancellor for Health Affairs, Duke University

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

ON THE COVER

Duke surgeons Adam R. Williams and Camelo A. Milano perform heart surgery while Honduran surgeon Hugo Orellana (center) observes.

Photograph by Chris Hildreth.

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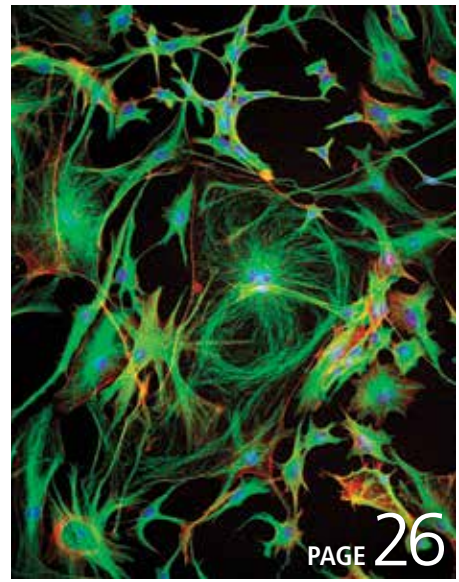
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Barton Haynes

DHVI Awarded \$129M Grant to Develop HIV Vaccine

The Duke Human Vaccine Institute (DHVI) will remain at the lead of the nation's effort to develop an HIV vaccine, receiving a third consecutive seven-year grant from the National Institute of Allergy and Infectious Diseases (NIAID) totaling at least \$129 million.

The initiative, called the Duke Consortia for HIV/AIDS Vaccine Development, or CHAVD, follows two previous seven-year HIV vaccine development grants from NIAID that DHVI has led, including awards in 2005 and 2012. The work completed in these initiatives has laid a scientific

foundation for HIV vaccine development.

NIAID, which is part of the National Institutes of Health, has awarded all three major grants. Under the terms of the current grant, NIAID could award the initiative an additional \$18 million, for a total of \$147 million.

The Duke CHAVD effort, led by Barton Haynes, MD, principal investigator of the CHAVD initiative, Frederic M. Hanes Professor of Medicine, and director of DHVI, will be a collaborative enterprise that draws on the expertise of leading HIV researchers across the country and in Europe. In addition to leading the research program, DHVI will also be the site for vaccine production at its manufacturing facility, the only such facility at an academic medical center dedicated to HIV vaccine production.

DUKE HEALTH BOV TRANSITIONS TO SCHOOL OF MEDICINE BOV

Under new guidelines designed to reflect the Duke University Board of Trustees' efforts to establish consistent governance practices across the university, on July 1, 2019, the former Duke Health Board of Visitors transitioned to become the Duke University School of Medicine Board of Visitors. The board will build on the success of the Duke Health Board of Visitors to focus on the school's core values of excellence in education, research, and patient care, as well as other topics of interest to friends, alumni, and grateful patients. At the same time, the former School of Nursing Board of Advisors will change its name to the School of Nursing Board of Visitors this fall.

The Duke Health Board of Visitors since 2006 had encompassed the School of Medicine, School of Nursing, and Duke University Health System. This transition gives both the School of Medicine and School of Nursing their own boards of visitors, bringing them into alignment with Duke's other schools and achieving consistency across the university.

HEAD AND NECK SURGERY ELEVATED TO DEPARTMENT

The former Division of Head and Neck Surgery & Communication Sciences within the Department of Surgery was elevated to department status on July 1, 2019. Elevation from division to department signals the growth and indepen-



Howard Francis

dence of the division. Department status can enhance awareness and recognition nationally and can also aid in the ability to recruit faculty in the specialty. Howard Francis, MD, Richard Hall Chaney Sr. Professor of Otolaryngology and former chief of the division, is interim chair of the new department.

The Department of Head and Neck Surgery & Communication Sciences provides comprehensive, multidisciplinary hospital-based care. The department has an equally strong focus on discovery and education. Research led by faculty in the department is funded by the National Institutes of Health, Patient-Centered Outcomes Research Institute (PCORI), and industry.

DUKE CONVENES SYMPOSIUM ON PARKINSON'S DISEASE

Scientists from diverse training and backgrounds gathered from around the world at the Washington Duke Inn in May to find new ways to treat, understand, and, eventually, cure Parkinson's disease.

The Duke Translational Symposium in Parkinson's Disease and Neurodegeneration featured faculty speakers from nine departments within Duke University School of Medicine as well as 11 clinicians and researchers from Duke National University of Singapore.

Assistant Professor of Neurology Laurie Sanders, PhD, organized the event, led a session on new therapies for Parkinson's, and gave a

lecture on possible biomarkers for Parkinson's in genetic clinical trials.

Parkinson's disease is a movement disorder that causes involuntary tremor, slowness, stiffness of the limbs, and balance problems. Symptoms progress over time and are more likely to occur with age. Treatments can help with symptoms but cannot cure the disease or slow its progression. Nearly one million individuals in the United States have Parkinson's.



Duke Co-leads Syphilis Vaccine Center

A new international, multi-university center co-led by the Duke Human Vaccine Institute and the University of Connecticut aims to develop a vaccine for syphilis.

The Cooperative Research Center is funded with a five-year, \$11 million grant from the National Institutes of Health.

In addition to Duke and UConn Health, the international study team includes researchers from Connecticut Children's Medical Center, the University of North Carolina at Chapel Hill Institute for Global Health and Infectious Disease, Masaryk University in the Czech Republic, and Southern Medical University in Guangzhou, China.

The program seeks to understand the immunology of syphilis using modern technology with a goal of ultimately making a vaccine against this resurgent pathogen.



Rebecca Previs, MD, goes down into the water during the Dunk-A-Doc fund-raising event.

Dunking Docs for a Good Cause

Eighteen physicians from the Duke Cancer Institute volunteered to take the plunge each sitting on a collapsing chair over a large tank of water, while patients, faculty, and staff—in exchange for making a donation to support the DCI Center for Prostate and

Urologic Cancers—earned the privilege of throwing a ball at a target. Hit bullseye, and the doc got dunked.

The donors and damp doctors raised over \$7,000 for cancer research at Duke, and the next Dunk-a-Doc is set for May 2020.



After missing with her throws, Margaret Hardy, MSN, pushes the red button dunking Dan Blazer III, BA'92, MD'99.

Come back to revisit, reconnect, rekindle

November 7–10, 2019

Make your plans now to return to campus, share medical school memories, and reconnect with classmates and friends.

Thursday | November 7

Grand Rounds
Medical Alumni Association Awards Reception and Dinner

Friday | November 8

Golden Blue Devils and Class of 1969 Luncheon
Welcome Reception
Jazz Reception Celebrating Brenda E. Armstrong

Saturday | November 9

Breakfast with Dean Klotman and Special Guest Chancellor A. Eugene Washington
Notre Dame vs. Duke Football Game
Class Gatherings
After Party



Medical Alumni Weekend 2019

Registration

Online registration is available at medalumni.duke.edu.

Important dates:

October 24
Last day to cancel for a full refund
October 31
Last day for registration

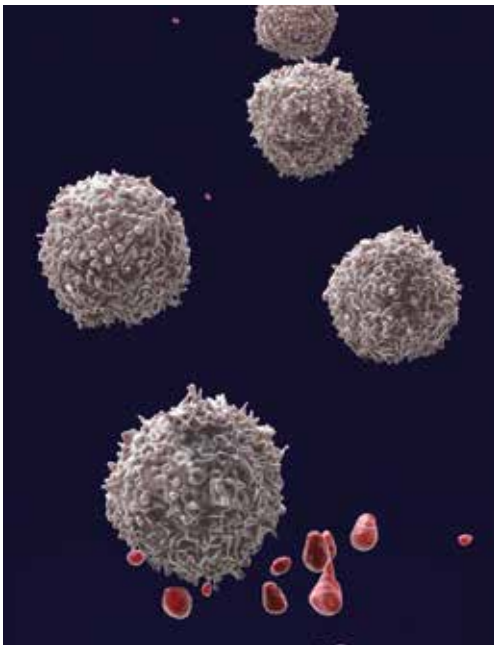
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Mary E. Klotman,
BS'76, MD'80, HS'80-'85
Dean, Duke University School of Medicine
Vice Chancellor for Health Affairs





T cells

SCIENCE SOURCE

RESEARCHERS IDENTIFY IMMUNE-SUPPRESSING ENZYME IN BREAST CANCER

Researchers at the Duke Cancer Institute have outlined a potential way to improve the effectiveness of immunotherapies in breast cancer by unclinking tumors to the body's immune system.

In research published in the journal *Nature Communications*, the researchers identified an enzyme in cells involved in regulating the growth and spread of breast cancers. Testing in mice, they demonstrated a way to shut down the enzyme's activity to allow T cells to mount an immune attack.

Donald McDonnell, PhD, Glaxo-Wellcome Professor in Molecular Cancer Biology and chair of Duke's Department of Pharmacology and Cancer Biology, and colleagues including lead author Luigi Racioppi, MD, PhD, reported that a kinase, or enzyme, called CaMKK2 is highly expressed in macrophages within human breast tumors. They performed a series of exploratory studies that revealed the molecule's potential utility as a therapeutic target for breast cancer. Working with colleagues at the University of North Carolina at Chapel Hill, they developed a new class of drugs that inhibited the growth of human breast tumors grown in mice.

The molecule suppressed tumor growth not only by increasing the accumulation of tumor-killing T cells, but also by reducing the tumor's capability to suppress T cell activity.

DUKE-NUS TEAM DEVELOPS PROMISING NEW APPROACH TO FATTY LIVER DISEASE

A team of researchers led by Duke-National University of Singapore Medical School (Duke-NUS) and National Heart Centre Singapore (NHCS) found that deactivating a specific protein—interleukin 11 (IL11)—with drugs called therapeutic antibodies reverses inflammation and scarring of the liver in patients suffering from an untreatable type of fatty liver disease called non-alcoholic steatohepatitis (NASH).

The findings, published in *Gastroenterology*, have implications for the development of drugs to treat the disease.

The team led by Anissa Widjaja, senior research fellow at Duke-NUS's Cardiovascular and Metabolic Disorders Programme, found that the IL11 gene triggers the development of NASH. The therapeutic antibodies developed by Duke-NUS and NHCS researchers inhibited IL11 in a pre-clinical model that mimicked the human form of NASH, preventing and reversing liver inflammation, and even leading to lower blood levels of cholesterol and glucose.



Anissa Widjaja

Inter-hospital Transfer Linked to Worse Stroke Outcomes

Endovascular therapy (EVT) presents a good chance of saving stroke patients' lives, but the treatment is not available everywhere, so many patients must transfer hospitals before they can receive this intervention. Duke research published in *Circulation* indicates that stroke patients who undergo inter-hospital transfers experience longer delays before receiving EVT and have worse outcomes.

The article, authored by the Duke Clinical Research Institute's Shreyansh Shah, MD, and Ying Xian, MD, PhD, examined data from the

American Heart Association's Get With the Guidelines-Stroke registry, which includes ischemic stroke patients from more than 2,000 hospitals across the U.S.

Between 2012 and 2017, almost 43 percent of the 37,620 patients who received EVT received the treatment after transferring hospitals. The Duke team found that while EVT can be effective, patients who transferred hospitals were more likely to develop symptomatic intracranial hemorrhage (7.0 percent versus 5.7 percent). They were also less likely to be able to walk independently at discharge or to be discharged to home. These differences in outcomes could be at least partially attributed to longer wait times that transfer patients experience.



Supporting Creative Research

EVEN THOUGH HE'D SPENT PART of his undergraduate years working in labs at the National Institutes of Health, **Oren Cohen, MD'87**, found the first year at Duke University School of Medicine rougher than he anticipated.

"It was very intense," says Cohen, chief medical officer at Covance, Inc., a clinical research company. "But there was a big portrait of Dean Davison in the lecture hall, and I always found that a very reassuring presence. For such a young institution, Duke has been blessed with world-class deans who care about students and education as well as science and the institution." That includes the current dean, **Mary Klotman, BS'76, MD'80, HS'80-85**. Cohen is proud to serve as president of the Medical

Alumni Council during her tenure, he and his wife, Carrie Faber, are generous donors to the School of Medicine through the Davison Club.

"Lack of resources is so destructive to scientific progress," Cohen says. "For me, it's all about equipping the dean with some discretionary funds that can make all the difference in allowing people to continue to pursue creative ideas."

DAVISON CLUB



Carrie Faber and Oren Cohen

"For me, it's all about equipping the dean with some discretionary funds that can make all the difference in allowing people to continue to pursue creative ideas."

Oren Cohen

Gifts to the Davison Club provide critical unrestricted support for medical education through scholarships, curriculum enhancements, new technologies, and innovative research. **Make your gift online at gifts/duke.edu/daa.**

To learn more about supporting the Davison Club, please contact **Jill Malley**, at 919-385-0060 or jill.malley@duke.edu.



A macrophage cell

Researchers Uncover Pathway for Breast Tumor Recurrence

A team of Duke Cancer Institute researchers has filled in critical details about how breast cancer can recur long after apparently successful treatment.

Senior author James V. Alvarez, PhD, assistant professor in the Department of Pharmacology and Cancer Biology, said small reservoirs of treatment-resistant cells can persist after treatment, often going undetected because there are too few of them to show up in scans.

In findings published online in *eLife*, using mouse models, the team was able to locate the residual cancer cells. Alvarez and colleagues found that these residual tumor cells lay low and, over time, switch on signaling proteins called cytokines that communicate with immune cells.

Responding immune cells rush to the tumor sites. One type of these immune cells are macrophages, which deposit a form of collagen that has been shown to be important for dormant cells to wake up and grow again.

The next step, researchers said, is to test whether currently available drugs that inhibit macrophages can delay or prevent recurrence.

Trouble Managing Money May Hint at Dementia

Trouble managing money in aging adults can be a harbinger of dementia and, according to Duke research in *The Journal of Prevention of Alzheimer's Disease*, could be correlated to protein deposits built up in the brain.

Senior author P. Murali Doraiswamy, MBBS,

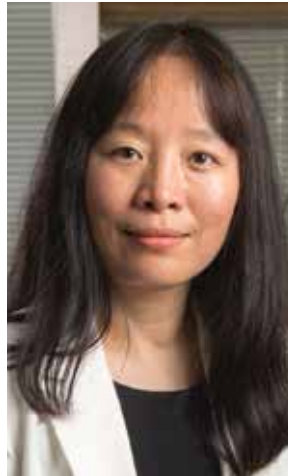
professor of psychiatry and geriatrics, said the findings are based on 243 adults ages 55 to 90 participating in a longitudinal study called the Alzheimer's Disease Neuroimaging Initiative, which included tests of financial skills and brain scans to reveal protein buildup of beta-amyloid plaques.

Testing revealed that specific financial skills declined with age and at the earliest stages of mild

memory impairment. The scientists found the more extensive the amyloid plaques were, the worse that person's ability to understand and apply basic financial concepts or complete tasks such as calculating an account balance.

Duke researcher Sierra Tolbert, the study's lead author, said the findings suggest that financial capacity assessments could also help doctors track a person's cognitive function over time.

STUDY SHEDS LIGHT ON HOW ANESTHESIA WORKS



Fan Wang

A Duke University School of Medicine team has discovered part of the answer to a 170-year-old question: why exactly does general anesthesia work?

In a study published online in *Neuron*, a team led by Fan Wang, PhD, Morris N. Broad Distinguished Professor of Neurobiology, found that several general anesthesia drugs knock you out by hijacking the neural circuitry that makes you fall asleep.

The finding is one of the first to suggest a role for hormones in general anesthesia and provides valuable insights for generating newer drugs that could put people to sleep with fewer side effects.

When graduate student Li-Feng Jiang-Xie and Luping Yin, PhD, a postdoctoral fellow in the Wang lab, examined mice that had been placed under general anesthesia, they found a cluster of actively firing neurons in a tiny brain region called the supraoptic nucleus, which releases large amounts of hormones into the bloodstream.

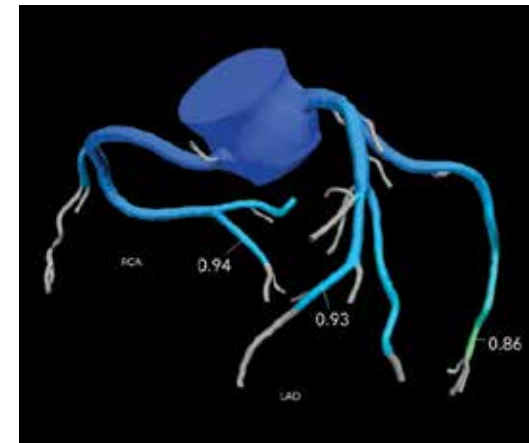
When the researchers switched on the cells, the animals fell into a deep slumber called slow wave sleep, typically associated with unconsciousness. When the research team killed off the cells, the mice continued to move around, unable to fall asleep.

STUDY CONFIRMS EFFECTIVENESS OF NON-INVASIVE CARDIAC SCANS

One-year follow-up results show that a new, non-invasive technology to evaluate heart pain provided a reliable way to identify which patients had dangerous artery blockages, according to a study co-led by the Duke Clinical Research Institute.

The findings, reported at an American College of Cardiology meeting, suggest that fractional flow reserve CT (FFR-CT) scans are effective in helping doctors determine which patients need more aggressive treatments.

Lead author **Manesh Patel, MD, HS'97-'01, '02-'06**, chief of the Division of Cardiology at Duke University School of Medicine, and colleagues analyzed data from more than 5,000 patients who under-



went FFR-CT scans for clinically suspected coronary artery disease. In patients with moderate-to-severe coronary artery disease, a negative FFR-CT was associated with a low one-year risk of a major cardiac event such as heart attack or death compared to patients with a positive FFR-CT.

The day her eyelashes froze together turned out to be a pivotal day for Heather Whitson, MD, HS'01-'04, '06. She was a medical school student at Cornell University at the time, spending the winter in Boston doing research with a Harvard geriatrician. She was enjoying the research so much she was hoping to do her residency at Harvard so she could continue it. But when her eyelashes froze, she started dreaming of warmer climes.

“At that point I asked [my mentors at Cornell and Harvard], ‘If you wanted to do geriatric research and be someplace with warmer winters, where would you go?’” says Whitson. “They both immediately said, ‘Duke’ and ‘Harvey Cohen.’ And it wasn’t just Duke, it was Harvey Cohen.”

So she headed to Duke for her residency, and she has been here ever since. Today she is an associate professor in medicine and ophthalmology.

Heather Whitson steps into big shoes at the Center for Aging

By Mary-Russell Roberson

Photo by Chris Hildreth

CHANGING OF THE GUARD

And this summer, she became the new director of the Duke Center for the Study of Aging and Human Development, taking over the reins from **Harvey Cohen, MD, HS'65-'67, '69-'71**, who stepped down after 37 years on the job. Although Cohen vacated his corner office for Whitson, he isn't retiring from the faculty just yet. He has moved into her old office and is continuing to mentor, teach, and do research.

Cohen, like Whitson, came to Duke to do a residency and never left. The Walter Kempner Professor of Medicine, he is considered a pioneer in geriatrics and has been instrumental in positioning Duke as a national leader in the field. He has held many leadership roles at Duke over the years, including chair of the Department of Medicine and founding chief of the Division of Geriatrics.

“I would be way more terrified stepping into this new role if not for the fact that Harvey is not retiring,” Whitson says.

“One of the things that he has taught me is that you never outgrow the need for wise advice.”

For his part, Cohen has full confidence in Whitson. “I’ve mentored Heather for years and have been delighted to see her develop in her career and her research,” he says. “She’s ready for leadership.”

SOLVING THE PUZZLES OF AGING

Whitson has been drawn to older people her whole life. As a child and teenager, one of her favorite activities was visiting nursing homes. As an undergraduate at Stanford, she loved volunteering in the Alzheimer’s unit at the VA hospital. She particularly remembers a man who always mistook her for his wife. “I was fascinated



by what was going on in this man's brain," she says. "What circuits were supporting the things he remembered from years ago but failing to function in so many other domains?"

During her internal medicine residency at Duke, she gravitated toward older patients. She says, "When there was an 89-year-old who was weak or dizzy in the ER, people were like, 'Heather's going to be so excited to help this person.'"

Part of the intrigue was the complexity that older patients often presented. "What I like about internal medicine is the puzzle of trying to sort out what is causing the symptoms and what's the right thing to do about it to help the patient," she says. "The puzzle is so much more complex and interesting in an older person who may have a lot of medications and conditions and age-related impairments in their body."

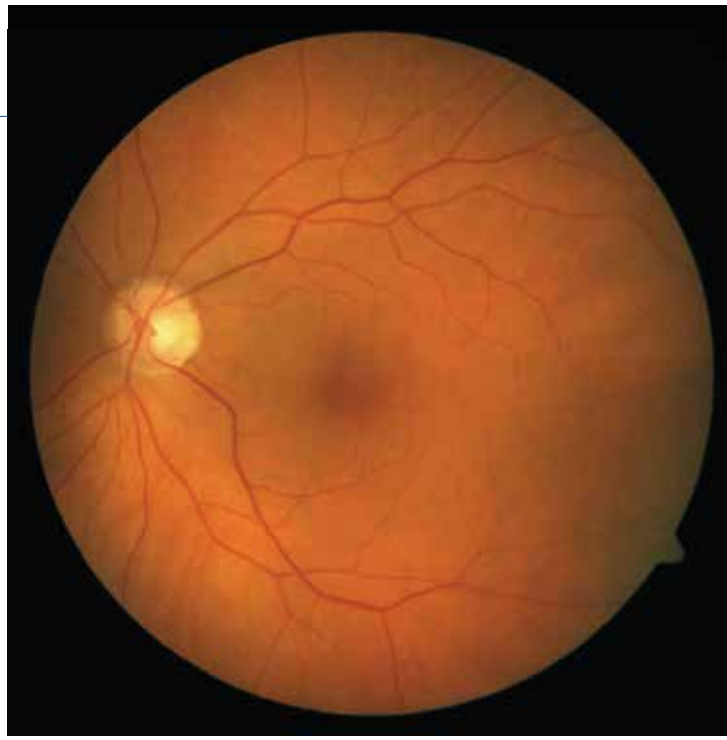
Today, Whitson's research centers on the intersection between cognitive decline and sensory loss, particularly low vision. She's interested in how the two interact both on a functional level and physiologically. Functionally, having low vision and cognitive decline add up to significant disability—it's harder to find things if you can't remember where you put them and also can't see well.

There is evidence that the two interact physiologically as well. Low vision co-occurs with cognitive decline more often than chance would suggest. Are there similar biological mechanisms behind seemingly disparate conditions like age-related macular degeneration and Alzheimer's disease? Or does reduced sensory information put extra stress on a brain already beginning to struggle with reduced cognitive function? Whitson is continuing to tease out the interrelationships between the two. She's also increasingly adding in a third concept—resilience.

"When an older brain loses vision, it doesn't have the plasticity to compensate in the way that a younger brain would, and people underperform," Whitson says. "We're trying to understand how we can help older people be more resilient in the face of a stressor like that."

TAKING THE BROAD VIEW

Resilience—the ability to retain or regain function after a



Heather Whitson, working with Duke researchers from the Duke Eye Center, is studying the link between Alzheimer's disease and changes in the retina.

"When an older brain loses vision, it doesn't have the plasticity to compensate in the way that a younger brain would, and people underperform. We're trying to understand how we can help older people be more resilient in the face of a stressor like that."

stressor—is a big theme of the Center for the Study of Aging and Human Development (commonly referred to as the Center for Aging). Stressors accumulate as people age—a new diagnosis, the loss of a spouse, moving out of the family home. Because stressors can be both physical and emotional, the center takes a broad view of resilience, applying the concept to psychological, social, physical, and cognitive aspects of aging.

Taking the broad view comes naturally to the interdisciplinary Center for Aging, which was established in 1955 as one of five such centers funded by the Office of the Surgeon General.

The center houses two long-running grants from the National Institute on Aging (NIA): a Claude D. Pepper Older Americans Independence Center and a postdoctoral research training program. The Pepper Center, led by geriatrics professors **Kenneth Schmader, MD, HS'86-'88**, and Miriam Morey, PhD, focuses on research related to physical resilience. The postdoctoral training program provides two years of research support and mentorship to three newly minted PhDs or MDs each year.

In addition to these two grants, the Center for Aging administers many investigator-initiated grants worth significant funding each year.

The center's 128 senior fellows include academic clinicians and PhD scientists of all stripes, from social sciences to biological sciences. These investigators generate knowledge about stressors and resilience in late life on many fronts, including nutrition, physical activity, social support, the immune system, and the interplay

of genetics and life experience.

They are also investigating models of care in the medical system that can help older people recover better from surgeries, falls, and other physical setbacks.

And social workers at the Duke Dementia Family Support Program, run through the Center for Aging, provide support groups, newsletters, and educational programming for North Carolinians with dementia and their families. "The Family Support Program is looking at the stressor of dementia and trying to promote resilience in light of that

CLASS GIFT CAMPAIGN RESULTS ARE IN CONGRATULATIONS, **CLASS OF 2019!**



92 students donated to their Graduating Class Gift Campaign, for an impressive overall participation rate of **76%**

By a remarkable coincidence exactly **\$2,019** was raised, and this year funds supported the **Brenda E. Armstrong, MD, Endowment Fund.**

The **Brenda E. Armstrong, MD, Endowment Fund** aligns Dr. Armstrong's strong commitment to student diversity, recruitment, and retention by providing support for programs that are designed to expand the interest of middle school, high school, and undergraduate college students and encourage them to consider careers in medicine and the biomedical sciences.

Gifts of \$20.19 or more presented students with "honorary" membership into the Davison Club, the distinguished School of Medicine annual giving society.

Committee Chair Kelly Buchanan led the successful campaign along with committee members Valentine Esposito, Chris Calixte, James Helzberg, Jennifer Huang, Chloe Peters, Gireesh Reddy, and Sitharthan Sekar (pictured below with their advisory deans).



Please visit the [Graduating Class Gift Campaign website](https://medschool.duke.edu/about-us/giving/graduating-class-gift) to find additional information, including the *Class of 2019 Gift Honor Roll*: medschool.duke.edu/about-us/giving/graduating-class-gift.

diagnosis by supporting caregivers and patients in a social way," Whitson says.

PEARLS OF EXCELLENCE

Going forward, Whitson wants to grow the center's capacities in Alzheimer's disease research. "There is a lot of institutional interest and momentum right now in Alzheimer's disease, and we are perfectly positioned to really contribute to those efforts," she says.

Her five-year goal is to land a federally funded grant for an Alzheimer's Disease Research Center. One of the first steps in that direction will be to showcase existing data and programs, such as Duke's Joseph and Kathleen Bryan Alzheimer's Center, under one institutional umbrella.

"Duke has all these little pearls of [Alzheimer's] excellence, and my job is to string them into a necklace that meets the expectation and requirements of a federally funded center," she says.

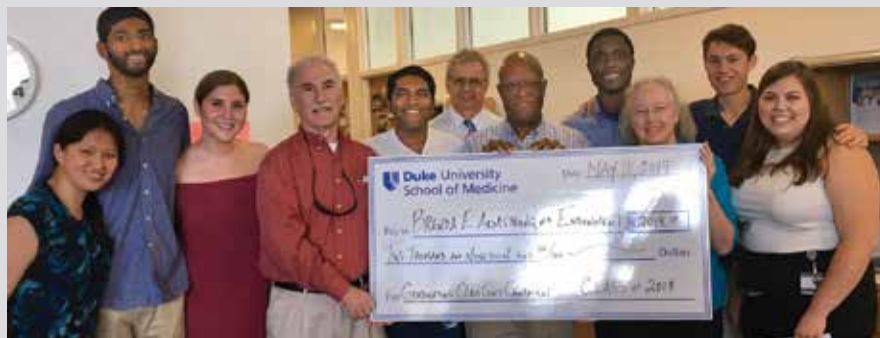
Another goal is to strengthen ties with the social sciences on the university side to continue to inform research into psychological and social stressors and resilience, as well as health policy. "A lot of the changes that will be important to health policy over the next 20 years will involve the aging population," she says. On this front, Whitson is anxious to collaborate with Duke's Margolis Center for Health Policy.

In fact, Whitson is enthusiastic about collaboration, period.

"We are always open for collaborative opportunities," she says. "So many of the diseases and outcomes that all of us study are age-related in some way or other—maybe the aging process affects the disease or maybe the outcomes that matter most change with age. There could be a new angle for your research that we could help with."

The center can also provide expertise in how to recruit and retain older adults in clinical trials, or how to incorporate questions related to aging into studies of younger people.

"There is a common misconception that if we study aging, we're only interested in late life," Whitson says. "But the problems that we see in late life frequently have their roots much earlier in life. The aging process begins from the moment you draw your first breath." ■



Giving Runs in the Family



MICHAEL PETERSON

A LOT OF ALUMNI SAY THEY BLEED DUKE BLUE. Few can say it as authoritatively as **Rebecca Trent Kirkland, BA'64, MD'68**. She is a scion of the university's founding family, the daughter of **Mary Duke Biddle Trent Semans, BA'39, HonD'83**.

Growing up, she learned that giving back is simply what one does. *"It's just a part of who you are,"* says Kirkland, professor emeritus of pediatrics at the Baylor College of Medicine in Texas.

Her husband, John L. Kirkland III, MD, whose parents were Duke alumni, shares her commitment to the university, and to philanthropy and service. The couple has given generously to Duke in numerous ways, and she has served as a trustee and many other capacities.

The Kirklands recently included a gift in their estate plan to establish a professorship in the Duke-Robert J. Margolis, MD, Center for Health Policy.

"We wanted to support something that would pull together a lot of areas within Duke," Rebecca says. *"We want to make a difference in improving health outcomes at a population level."*

Gift Planning

To learn more, please contact: **Joseph Tynan, JD**, senior executive director of gift and endowment planning at **919-385-3111**, or joseph.tynan@duke.edu, or **Anne Sherman, JD**, senior associate director of gift planning at **919-385-3187** or anne.sherman@duke.edu

The Passing of an Icon



James B. Wyngaarden, MD (1924-2019)

James B. Wyngaarden, MD, professor emeritus and former chair of the Duke Department of Medicine, as well as former director of the National Institutes of Health (NIH), was a towering figure in medicine. He was a pioneer in molecular medicine and an internationally recognized authority on the regulation of purine biosynthesis and the genetics of gout.

Wyngaarden passed away on June 14, 2019, in Durham, North Carolina, at the age of 94.

"Jim Wyngaarden was a giant among the greatest generation of leaders of American medicine of the 20th Century," says **Ralph Snyderman, MD, HS'65-'67**, chancellor emeritus of health affairs at Duke University.

Wyngaarden served as chair of the Duke Department of Medicine for 15 years before leaving in 1982 to become director of the NIH, where he served in that role until 1989. He returned to Duke as associate vice chancellor for health affairs from 1991 to 1994. Wyngaarden was a nationally respected advocate for the role of physician-scientists in clinical investigations.

"Jim was an icon at Duke and beyond," says **Mary Klotman, BS'76, MD'80, HS'80-'85**, dean of Duke University School of Medicine. "I had the honor of training under Jim, and he gave me and so many others a shining example of how to be a physician who is a leader, investigator, and educator."

As chair, Wyngaarden recruited, trained, and mentored more than 35 physicians who later became chairs of internal medicine departments, deans, and health system executives across the country. His recruits included Snyderman; rheumatologist William Kelley, MD; dermatologist Gerald Lazarus, MD; Nobel Laureate and James B. Duke Professor of Medicine Robert Lefkowitz, MD; and many others.

"Jim was a creator and model of the physician-scientist, and he had an

extraordinary ability to recruit the best people to Duke," says Snyderman.

For two decades, Wyngaarden and Kelley, former chief of rheumatology and immunology at Duke, edited textbooks that were major references in the fields of rheumatology and inborn errors of metabolism. In collaboration with former NIH director Donald Fredrickson, MD, and others, he edited *The Metabolic Basis of Inherited Disease*.

Wyngaarden earned his medical degree at the University of Michigan in 1948, trained in internal medicine at Massachusetts General Hospital, and did postdoctoral work at the Public Health Research Institute of the City of New York. After serving as research associate at the NIH from 1953 to 1956, he joined Duke University School of Medicine in 1956 as an associate professor and later became director of the Medical Research Training Program.

In their Words

Alumni remember James B. Wyngaarden:

"Jim Wyngaarden was my mentor, my professional idol, and the person I looked up to most in my student, resident, and professional life."

– Robert Margolis, MD

"As a sophomore undergraduate in the early 1970s, I met with Dr. Wyngaarden to discuss a research project I was submitting for my honors degree in biology and psychology. I will never forget his undivided attention in talking with me about steroid metabolism, and how for many years he followed my early career development."

– Paul Walter Zarutskie, MD

"Dr. Wyngaarden was truly a remarkable successor to Dr. Stead, and his tenure traversed much of the change from 'classic' to 'contemporary' medicine and medical education."

– Richard Karsh, MD

"Dr. Wyngaarden was a brilliant physician and a compassionate individual. I am very glad to have had the opportunity to learn from him."

– Richard A. Goldstein, MD

After serving as a visiting scientist at the Institut de Biologie-Physiocochemique in Paris, he became professor and chairman of the Department of Medicine and professor of biochemistry at the University of Pennsylvania. He returned to Duke in 1967 as chair of the Department of Medicine.

Wyngaarden was a member of many professional societies, including the National Academy of Sciences. He also was a member of the American Society for Clinical Investigation and a past president of the Association of American Physicians. He was a fellow of the Royal College of Physicians of London and was elected to the Royal Academy of Sciences of Sweden in 1987. He was a consultant for the President's Office of Science and Technology (1966-1972), a member of the President's Science Advisory Committee (1972-1973), and a member of the U.S. Atomic Energy Commission's Advisory Committee on Biology and Medicine.

In 1980, the American College of Physicians awarded him the John Phillips Memorial Award, and in 1991, the Association of American Physicians awarded him the Kober Medal. Duke University awarded Wyngaarden an honorary degree in 2006.

Wyngaarden is survived by his wife, Elizabeth; his children, **Jana, WC '72**, Marty, Lisa, and **James B. Jr., AB'82**; 18 grandchildren and 11 great-grandchildren.

BUILDING BRIDGES

Partnerships
that span
disciplines
spark new
ideas

From the day she took office as dean of Duke University School of Medicine in 2017, **Mary E. Klotman, BS'76, MD'80, HS'80-'85**, has advanced the idea of One Duke: the premise that the key to achieving great things lies in collaborations across Duke, regardless of title, unit, discipline, or any of the other labels that traditionally have compartmentalized the operations of a major academic medical institution.

It's more than a slogan. Klotman and other university and health system leaders have been working hard to bridge boundaries and foster a culture of creative collaboration.

Within the universe of Duke Health, that means building connections within and between the different entities that comprise it: a world-class medical school, a top nursing school, a leading clinical care provider, and the physician practice. The four units have collaborated but have traditionally operated largely separately.

Klotman is determined that, now more than ever, it's critical that all areas of Duke work as one. It's a philosophy shared by other Duke Health leaders including Chancellor Eugene Washington, Executive Vice President of the Duke University Health System William Fulkerson, School of Nursing Dean Marion Broome, Private Diagnostic Clinic (PDC) Board Chair Erik Paulson, and interim PDC President John Sampson.

"The old model is a dinosaur," says Klotman. "But if you flip that model and focus on building great partnerships, you can

leverage strengths that make the whole institution stronger."

By virtually every measure, she says—patient outcomes, research advances, efficiency, cost savings, and so on—partnering up offers big advantages.

"Our academic and clinical missions are linked, and to pretend they aren't linked makes no sense," Klotman says. "We have a jewel of a medical school and nursing school that the clinical enterprise can tap into, and a jewel of a clinical operation that the schools can tap into. If we don't take advantage of that, we miss a tremendous opportunity."

FORECASTING HEALTH

With weather satellites arrayed around the globe, we can forecast broad weather patterns days ahead, and we can also tell with astonishing precision whether a sudden thunderstorm or tornado will hit a particular neighborhood in a matter of hours or even minutes, giving residents time to seek shelter.

Adrian Hernandez, MD, vice dean for clinical research at Duke University School of Medicine, wants clinicians—and ultimately patients themselves—to be able to forecast individual health challenges with the same sort of accuracy and timeliness. That's the goal of the Learning Health Unit (LHU) system, a new cross-disciplinary initiative at Duke that Hernandez leads.

"Traditionally, health care has been reactive: somebody gets sick, they come in for care, and we help," says Hernandez. "We are evolving into a more proactive model, where we can



forecast patients' health risks and provide them with actionable information to guide them to better health. Then we can act before the storm arrives, to minimize its severity or prevent it altogether.”

The LHU system at Duke puts together teams of clinicians, clinical researchers, and data scientists within service areas—cardiovascular, for example—to use vast amounts of aggregated health data generated every day to make what is normally invisible to clinicians more visible, leading to new ways to forecast, forestall, and treat health problems.

One of many examples already underway or planned: A Heart Center team, in partnership with the Duke Institute for Healthcare Innovation, is analyzing electronic health record data to develop a new model to better predict cardiogenic shock, a serious and often fatal condition that is currently very difficult to anticipate. The LHU approach should lead to faster interventions and better outcomes.

The idea of embedding clinical research into clinical care has been around for a long time, says Hernandez. The advent of technology that gives clinicians and researchers access to vast amounts of health data has made it possible in real time now.

LHUs have so much potential to transform health care, Hernandez says, that the Institute of Medicine at one point predicted that 80 to 90 percent of health decisions would be based on Learning Health systems by 2020.

“As a field, we’re a long way from that,” Hernandez says. “But—at least here at Duke—we are moving in that direction.”

INSTITUTING INNOVATION

At the Duke Institute for Healthcare Innovation (DIHI), a collaborative initiative between the School of Medicine and the Duke University Health System, the goal is to foster innovative new approaches in four broad areas: improving patient outcomes, increasing access to health care, reducing costs, and enhancing the well-being and experience of faculty and clinical staff. In doing so, DIHI works closely with other schools and programs, including the School of Nursing, Pratt School of Engineering, Clinical and Translational Science Institute, and Duke Forge.

Every year, Duke Health leadership identifies several thematic areas of strategic importance and issues a request for proposals, inviting faculty, clinicians, staff, students, and trainees across Duke to submit ideas for identifying and solving problems within those areas. DIHI selects up to a

“If you flip that model and focus on building great partnerships, you can leverage strengths that make the whole institution stronger.”

MARY E. KLOTMAN

dozen from the scores of submissions and provides funding, innovation resources, and customized project advancement and implementation support to develop and test the selected ideas.

“The leadership sets the strategic theme, and our frontline clinicians and others identify specific problems and novel solutions,” says DIHI Director Suresh Balu, associate dean for innovation and partnership. “We have complete buy-in from both the clinical enterprise and the schools.”

In one recent example, hospital medicine specialist Cara O’Brien, MD, teamed up with machine learning experts, statisticians, data scientists, and implementation specialists to develop and deploy the first deep-learning model at Duke that predicts patients’ risks of sepsis, a life-threatening response to infection. The Sepsis Watch system has been so successful that it’s been implemented at all of the Duke hospitals, with plans to scale it into hospitals across the nation.

DIHI also holds an annual high-energy event called Innovation Jam. It’s a shark tank-style competition where anyone with an idea for a new invention or approach can pitch their proposal, and a panel of judges selects several ideas with market potential to jump-start with seed funding. Each Innovation Jam thus far has wound up generating at least one new company, Balu says.

Since its inception, DIHI has also been a training ground for students and trainees from the schools of medicine and nursing as well as other schools across campus. It provides an immersive experience in innovation and data science, including mobile health platforms and digital health app development.

“There is so much creativity and innovation throughout the whole Duke enterprise,” Balu says. “We encourage that and help the best ideas get a foothold.”

‘A COMPLETE WIN-WIN’

The Duke Clinical Leadership Program (DCLP) spans all areas of the Duke Health spectrum; its specialized training is available to applicants



Adrian Hernandez



Suresh Balu



Cary Ward

from the School of Medicine, School of Nursing, and all the Duke hospitals and regional clinics.

The DCLP was established in 2010 by then-Chancellor Victor Dzau, MD, and is operated by the School of Medicine's Office of Faculty with the support of the chancellor's office. Its six-month curriculum provides training to clinical faculty interested in developing skills that will position them for

leadership roles. Program fellows explore topics including strategy and health policy, funds flow and operations at Duke, negotiation, and managing personnel.

In addition to classwork, fellows participate in group projects designed to build teamwork and put their skills into practice. The projects are designed to generate actionable improvements in areas such as clinical rotations and electronic health record management.

administration was unheard-of.

"Now we have physicians and residents who come here because they know this pathway is available," she says. "Faculty learn how to be leaders in an academic medical center. It's a complete win-win."

The team projects have one important ancillary benefit: they spark partnerships—sometimes lasting ones—among people whose paths might otherwise never have crossed.

"People from very diverse areas work together," Ward says. "When the course is over, people often tell us they want the opportunity to keep working with some of their teammates. It's all about developing relationships that cross hospitals, departments, and divisions."

WAVE OF THE FUTURE

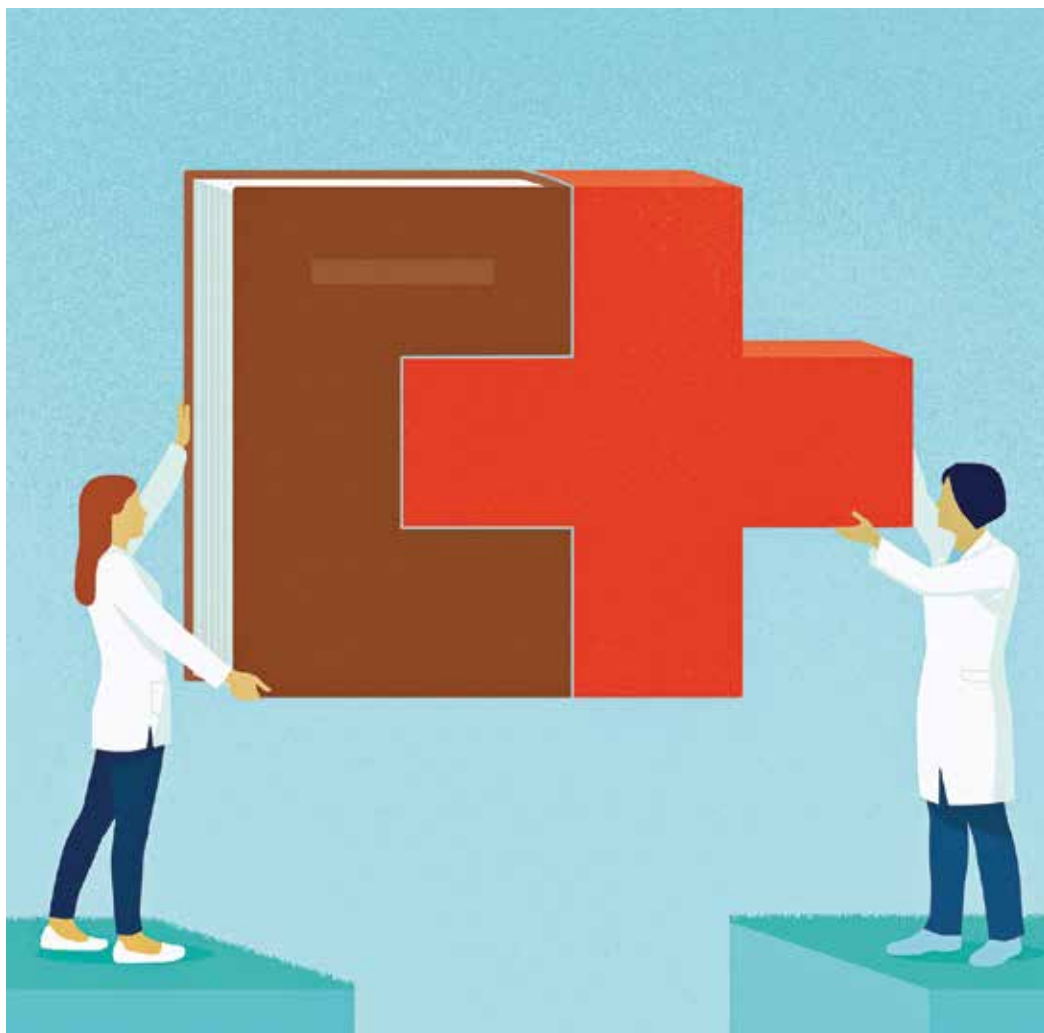
Building One Duke out of the disparate parts of an institution as large and multifaceted as this one isn't easy.

"You do it one program at a time," Klotman says. "Some are harder than others. Sometimes you have to break down some barriers and put together teams of people who don't traditionally work together. But if you get smart people together and try new things, good things happen. And then you build on your successes."

And the successes are happening, says DIHI's Balu.

"This is a new way of doing things," he says. "Health care is now a transdisciplinary space. The institutions that capitalize on that are going to lead the way. At many institutions, the medical school doesn't talk to the rest of the campus, and the rest of the campus doesn't talk to the health care delivery units. Here, we are enabling a new model that taps into every part of the institution to come up with the best solutions. This is the wave of the future, and Duke is out in front."

Even as they work to break down barriers to partnerships within Duke Health, Klotman and her team are actively engaging the broader Duke universe. "Imagine the potential of world-class engineers, data scientists, policy experts, and others across campus working side by side with Duke School of Medicine faculty," Klotman says. "That's the world we're building." ■




"Health care is now a transdisciplinary space. The institutions that capitalize on that are going to lead the way.

SURESH BALU

"Often, when leaders need something important done, they call on the same few people," says Cary Ward, MD, associate professor of medicine and faculty director of the program. "The point of this program is to develop new leaders. We're creating a pool of trained people that administrators can draw on when they need to fill important roles."

A decade ago, says Klotman, this sort of dedicated pipeline from the clinic to



**A Duke
team brings
hope and
heart valves
to patients
running
out of time**

Duke surgeon Adam R. Williams
examines chest x-rays with
Honduran surgeon Hugo Orellana
and Marysol Valeriano, MD.

HEALING HEARTS IN HONDURAS

Imagine a doctor saying you need surgery to replace a heart valve, and if you don't get it you will die from heart failure within two years.

If you live in Honduras, once you get that diagnosis at a public hospital, the doctor will hand you a list of the items needed for the surgery: saline solution, sutures, gloves, an oxygenator, pain medication, and a heart valve. As the patient, it's your responsibility to find—

By David Pickel Photographs by Chris Hildreth



The Instituto Nacional Cardiopulmonar (INCP) in Tegucigalpa, Honduras. Patients who come to the INCP do not have the means to pay for a private hospital.

“This experience was so valuable to me is because it gave me a little window into working as a team.”

– FABIAN JIMENEZ CONTRERAS, DUKE MEDICAL STUDENT

was interviewing for a position as a resident at Duke. During his interview Murillo was asked to describe his medical career goals. His answer was succinct: “I’m a Honduran. I was born and raised there. So my goal is to get the best training there is, but then become an agent of change in my country for my people.”

—and buy—the items on that list. The cost of a mechanical heart valve alone is \$4,000 to \$7,000. The average Honduran’s salary is \$600 a year. The country is one of the poorest in the Americas.

In July 2019, a team from the Duke University Health System and Duke University School of Medicine flew from Durham to the capital city of Tegucigalpa, Honduras, to perform heart surgeries at Instituto Nacional Cardiopulmonar (INCP). The surgeries prolonged the lives of 11 patients who did not have the means to pay for heart valve surgery.

The team of 18 from Duke included cardiothoracic surgeons, physician assistants, surgical residents, perfusionists, a biomedical engineer, intensive care nurses, operating room nurses, thoracic surgery residents, cardiac anesthesiologists/intensivists, and a Duke University School of Medicine student.

The monumental effort to coordinate the personnel, medicine, equipment, approvals, and funding began more than a year before the trip when Honduran native Alejandro Murillo Berlioz, MD,



The day before his surgery, patient Juan Angel Zuniga is examined by Duke University School of Medicine second-year student Fabian Jimenez Contreras and Duke resident cardiac surgeon Jatin Anand.



Duke senior heart and transplant surgeon Carmelo A. Milano sorts through the heart valves and pacemakers that were donated by the manufacturers and brought to Honduras as carry-on baggage. Heart valves can cost between \$4,000 and \$7,000.

BS'18, jumped at the chance to travel with the team to Honduras. His travel was funded by a grant from the Charles T. Watt, MD, Travel Fellowship. Jimenez, who speaks Spanish fluently, was able to have lengthy pre-operative conversations with the patients. Jimenez determined what kind of family support the patients had and what their home lives were like. He discussed with them the choices of a mechanical heart versus a bioprosthetic, and talked about the risks involved in the surgery. Jimenez would end the conversations discussing each patient's post-op medications and follow-up care.

“One reason this experience was so valuable to me is because it gave me a little window into working as a team,” Jimenez says. “My

A few months later, Murillo matched with Duke and started his residency with the Integrated Thoracic Surgery Residency Program. Shortly after arriving in Durham, he received an email from Carmelo A. Milano, MD, Duke heart and heart transplant surgeon, chief of the Section of Adult Cardiac Surgery, surgical director for the Left Ventricular Assist Device (LVAD) Program, and professor of surgery. Milano welcomed Murillo to Duke and wrote, “You spoke about wanting to help Honduras. Let’s talk more about it.”

Twelve months later, the Duke team landed in Tegucigalpa ready to help patients and, more importantly, train Honduran surgeons and nurses how to best replace heart valves and care for recovering patients in a country where more than half the population lives in poverty.

“AN AMAZING EXPERIENCE”

Second-year medical student Fabian Jimenez Contreras,



While waiting for anesthesia before heart surgery, a Honduran patient receives a little extra care and comfort.

second year of medical school is going to be all about working in a team environment.”

The trip was eye opening, he says. “I will take the experience with me forever. It will help me immensely in my future training, and one day as a heart surgeon,” says Jimenez. “I don’t think I’ll ever forget the kind of work that we were able to do with limited resources. There are people out there that really need our help, and we can’t forget about them. The patients are such wonderful people. The patients were humble and extremely grateful to get the surgery. Many of them commented how we were saving their life. It was truly an amazing experience that I will take with me throughout my medical training.”

STREP AND RHEUMATIC HEART DISEASE

In many countries without developed health care systems, streptococcal infections are not



Honduran surgeon Hugo Orellana performs surgery with Duke’s Carmelo A. Milano while surgeon Adam R. Williams looks on behind them.



Duke perfusionist Courtney Thurman monitors the heart-lung machine that was sent to Honduras from Duke Health’s decommissioned inventory.

treated with antibiotics the way they would be for a child or young adult patient in the United States. If a strep infection is not treated, it can lead to rheumatic fever. In turn, rheumatic fever becomes rheumatic heart disease when antibodies working against the disease begin to “attack” the heart valves. Over months or years, the valves become hardened and do not function properly. Patients show symptoms of shortness of breath when the valves are compromised. As the disease progresses, the patient will experience shortness of breath even when doing simple tasks like tying their shoes.

Heart valve replacement surgery removes the diseased valve and replaces it with a mechanical or bioprosthetic valve. The surgeons recommend the kind of valve based on the age of the patient and other factors.

According to one of the lead heart surgeons on the Duke team, Adam R. Williams, MD, assistant professor in the Division of Cardiothoracic Surgery, once a patient becomes symptomatic he or she will need a replacement valve within two years or face the risk of premature death.

For the trip to Honduras, the Duke team



Following surgery, a patient is brought to the heart intensive care unit that the Duke team set up. Honduran nurse Waleska Flores, Duke's Myra Ellis, and Duke anesthesiologists J. Mauricio Del Rio and Joe DeBlasio monitor the patient with a translator.



Duke's Alejandro Murillo leads patient rounds in the early morning. The rounds were conducted in Spanish and English.

took a number of valves and pacemakers donated by manufacturers in the United States. The valves were packed in carry-on bags while other equipment—including a heart-lung machine—was sent ahead to Honduras earlier.

Once the team finished the surgeries in Honduras, medical equipment was left at the hospital. Hugo Orellana, MD, the chief of cardiothoracic and vascular surgery at Hospital Escuela, which includes the INCP, reported he now has 67 valves, along with annuloplasty rings, pacemakers, bicameral pacing boxes, and an upgraded heart-lung

“I’m a Honduran. I was born and raised there. So my goal is to get the best training there is, but then become an agent of change in my country for my people.”

– ALEJANDRO MURILLO BERLIOZ,
DUKE HEALTH RESIDENT

“I hope this becomes a long-term relationship between Duke University and Honduras, where we can continue to provide valve replacements for patients who otherwise would never have surgery.”

— ADAM R. WILLIAMS,
DUKE SURGEON

machine—all equipment he didn’t have before the Duke team arrived. The hospital in Tegucigalpa has a waiting list of over 100 patients who need valve replacements.

“We have improved Dr. Orellana’s knowledge and comfort with the procedure,” says Milano. “He’s just limited to how many replacements he does based on limited resources.”

A LONG-TERM RELATIONSHIP

Team leaders hope the July trip was just the beginning.

“I hope this becomes a long-term relationship between Duke University and Honduras, where we can continue to provide valve replacements for patients who otherwise would never have surgery,” says Williams.

Murillo is planning to use a research gap year to return to Honduras for six to eight months and develop a heart valve replacement program. He hopes he can arrange for a Duke team to visit Honduras twice a year, to do valve replacements and train Honduran surgeons.

“My dream would be for this to be a program by the time I finish training,” Murillo says. “So we’re talking about seven to eight years for it to be a program. If that happens, I can come to Honduras and do everything I’m trained to do. It would be a dream to come to



Patient Guadalupe Rodriguez receives encouragement from Honduran nurse Margarita Macías and Duke’s Myra Ellis.

Honduras and run it and help all these people.”

Dr. Jatin Anand, MD, a resident in cardiac surgery, says Murillo’s support will help establish a long-term collaboration between Duke and the Honduran hospital.

Anand adds that for the trip in July, “We have lots and lots of people,” who did not go to Honduras, “to thank for making the trip possible and for making it go as smoothly as it did.” People from a number of areas at Duke University Health System, Duke University School of Medicine, and the Private Diagnostic Clinic (PDC) supported the trip.

“TRANQUILO”

Although there were a few Spanish speakers on the team, some needed assistance communicating with the hospital staff, patients, and doctors.

“The Duke intensivist talked to us about helping the [Honduran] nurses learn how to more rapidly progress patients,” says senior ICU nurse Myra Ellis, MSN, RN, CCRN-CSC, who has worked at



Rodriguez is up and walking three days after her heart valve surgery with the help of Suamy Amaya and Francy Gómez. The Duke team worked with the Honduran nurses to get patients walking as soon as possible to prevent blood clots and respiratory problems.

“We have improved Dr. Orellana’s knowledge and comfort with the procedure.”

– CARMELO A. MILANO,
DUKE SURGEON

Duke for 25 years. “I would talk to the translator and tell them, ‘When the patient wakes up, they just need to know that they have to wake up and take deep breaths. We just have to coach them to be calm.’”

Ellis doesn’t speak the language. “But I did learn a great Spanish word, which was ‘tranquilo,’” she says. “It means tranquil or calm. It doesn’t even need translation.”

Neither did the gratitude the patients and their loved ones expressed to the team members and their Honduran colleagues.

“The patients would just thank everybody. The families did more of that. They were incredibly grateful,” says Ellis.

The trip did more than just save 11 patients. The object was to jump-start a cardiac care program that the Honduran teams will continue as they work to help more people in need.

“We shared a lot of our perioperative care that we do here at Duke with the local team there,” says Williams. “The goal was not just come down there and do surgery, but to create an environment where they can continue doing surgery in Honduras and continue caring for these patients.”

The Duke team got a lot out of it too.

“It was very exciting for the entire team to be able to go down and do something like this,” says Williams. “Going into the operations was exciting, and fortunately our surgeries went well and the patients feel better. At the end of the week, it was probably the most gratifying professional experience I’ve ever had.” ■



LAND AREA: **43,201 square miles**
(smaller than the state of Georgia)
POPULATION: **9.1 million** (2016)
NATIONAL PER CAPITA INCOME: **\$600 U.S.**



Homes on the hillside around Tegucigalpa.



Duke University Medical Center and the Duke Heart Center were the primary funding sources for the mission trip with **Tom Owens, MD, Joseph Rogers, MD, and Jill Engel, DNP**, serving as important administrators of the grant.

Duke team members:

- Claire Aksamit, PA
- Jatin Anand, MD
- Paul Armstrong, RN
- Fabian Jimenez Contreras, SOM student
- Luzviminda Cosalan-Munda, RN
- Joe Deblasio, RN
- J. Mauricio Del Rio, MD

- Sebastian Diaz, CCP
- Myra Ellis, RN
- Michelle Figuerres, RN
- Brian Gore, biomedical equipment technician
- Jörn Karhausen, MD
- Tiffney Locklear, surgical technologist
- Caitlin Lofaro, RN
- Carmelo Milano, MD
- Alejandro Murillo Berlioz, MD
- Courtney Thurman, CCP
- Adam R. Williams, MD

To follow the project and get updates, see Instagram **@dukehearthonduras** and Twitter **@dukeHHproject**.

Sponsors included:

- Abbott
- American School of Tegucigalpa
- CryoLife
- Honduran Ministry of Health
- Honduras at Instituto Nacional Cardiopulmonar, house staff
- Lady Lee Corporation
- Medtronic
- U.S. Army Bravo Medical Element – Honduras

Duke researchers think brain cells called astrocytes may hold the key to new treatments

By Angela Spivey

Photos by
Alex Boerner

MORE THAN 10 MILLION PEOPLE WORLDWIDE—about 1 percent of people over age 60—live with Parkinson’s disease. There are treatments that can help control symptoms, but there is no cure.

The hallmark of the disease is the death of certain brain cells—neurons that produce dopamine. Most Parkinson’s researchers have focused on studying these cells. But what if the disease starts elsewhere? What if it involves not only neurons but other cells that interact with neurons? In particular, what role is played by astrocytes, star-shaped cells that nurture and help form the connections, or synapses, between the neurons?

That’s the question a team of Duke researchers led by Cagla Eroglu, PhD, associate professor of cell biology and neurobiology, is exploring, thanks to a \$1 million grant from the Chan Zuckerberg Initiative.

Sitting in her office, Eroglu picks up an orange plastic object that resembles a piece of coral, its tentacles branching this way and that. “This is a model of a mouse astrocyte,” she

says. “It can interact with 100,000 synapses at the same time.” Astrocytes, she explains, infiltrate the brain, touching everything within their reach. They communicate with its synapses, regulating blood flow and metabolism.

Astrocytes—from the Greek “astron,” meaning “star”—have traditionally been thought of as support cells. But that thinking is changing. “Since astrocytes are in such close contact and continuously communicating with synapses, we are beginning to appreciate that they are also fundamentally involved in regulating brain function,” Eroglu says.

Collaborating with Albert La Spada, MD, PhD, Eroglu found that a certain gene known to be important in Parkinson’s is more highly expressed in astrocytes than in neurons. And when the researchers mutated that gene in astrocytes, they saw some intriguing changes. This still-unpublished work laid the foundation for their proposal to the Chan Zuckerberg Initiative, which is bringing together experimental scientists from divergent fields to take a fresh look at the causes of

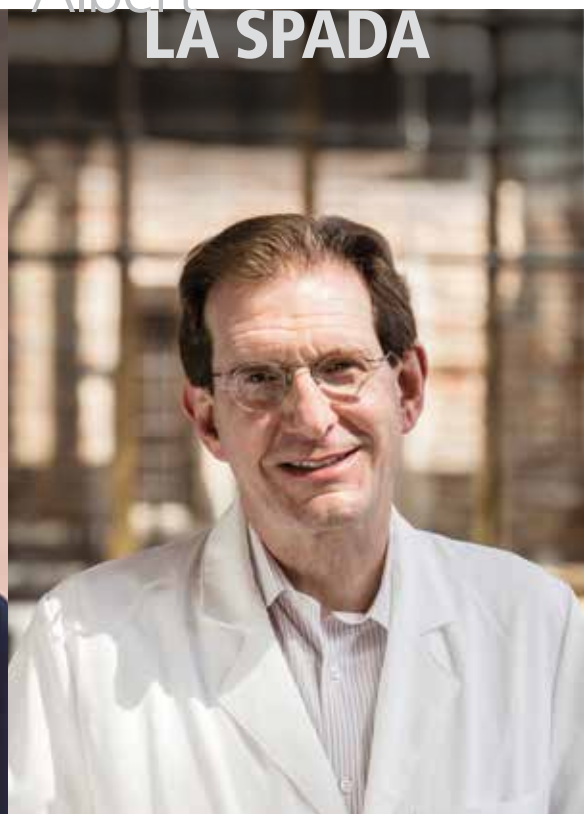
Nicole
CALAKOS



Cagla
EROGLU



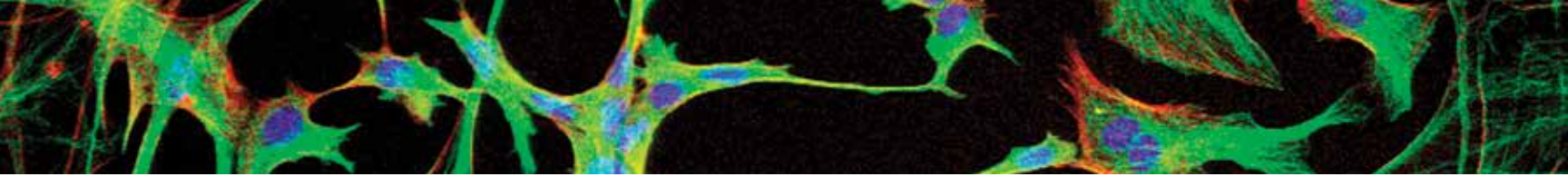
Albert
LA SPADA





PARKINSON'S DISEASE: The Stars in Our Brains

▶ Confocal light micrograph of astrocytes from the brain of a mouse. Fluorescent markers have been used to highlight structures in the cells.



neurodegenerative disorders.

“There are vanishingly few papers that have delved into how astrocytes are contributing to the Parkinson’s disease process,” says La Spada, professor of neurology and vice chair of research for the Department of Neurology. “This is an area that’s been under-studied, and I think that the results that we’re generating are suggesting that it deserves more attention.”

In addition to his long experience studying neurodegenerative diseases, La Spada brings expertise in growing astrocytes from induced pluripotent stem cells (iPSCs). That process starts by growing skin cells from a skin biopsy from a Parkinson’s patient. “Then we use what’s called a reprogramming protocol to basically revert them to stem cells that are pluripotent. Once you create the iPSCs, you could use them to make any cell you want—a muscle cell or a cardiac cell or a neuron or an astrocyte,” La Spada says. “The beauty of this is, it comes from the patient who has the disease of interest.”

His lab’s expertise will only grow because of the Chan Zuckerberg Initiative, which has formed focus groups for grantees around various areas, such as stem cell modeling, CRISPR gene-editing technology, bioinformatic analysis of data sets, and more. “We’re meeting other researchers from around the world who are doing really unique things. It’s a chance for us all to compare notes, and I think this will accelerate all of our endeavors,” La Spada says.

Rounding out the team is Nicole Calakos, MD, PhD, a scientist and clinician who treats patients with movement disorders, including Parkinson’s. Calakos says that when she first met Eroglu, she was

intrigued by her idea that since astrocytes are involved in sculpting the language of neurons, perhaps they play a role in the events that can lead to disease.

“Everybody has been fixated like a magnet on the idea that the problem is the neuron

that’s dying,” Calakos says. “Cagla said, ‘Hey, let’s think outside of the box of that dead cell. Let’s consider whether astrocytes are like the soil around a plant, providing the nutrition, and allowing it to form roots, and maybe that is what’s broken.’ Why aren’t we even thinking about this critical piece of the brain?”

Eroglu puts it this way: “Maybe the problem is loss of connections between neurons, even before they die.”

Calakos says that part of the reason she came to Duke was the close intermingling of physicians and bench scientists. “Because of how the community is at Duke, Cagla and I had been exchanging ideas and collaborating over the years,” she says. “The Chan Zuckerberg grant is an opportunity to get together as a formal team. I think it’s really forward-thinking of them to have teams of basic scientists and practicing physicians all talking to each other.”

The Chan Zuckerberg Initiative was launched in December 2015 by Mark Zuckerberg, founder and CEO of Facebook, and Priscilla Chan, a pediatrician and founder and CEO of The Primary School in East Palo Alto.

In addition to her clinical insight, Calakos brings expertise in electrophysiology—real-time recording and observation of electrical signals coming from brain cells. “We can listen to the language of synapses,” she says. “They speak in electrical currents, which we can measure.”

Eroglu believes that by learning all they can about how astrocytes support synaptic development and health in the normal brain, they may find ways to stop neurodegenerative diseases like Parkinson’s.

“We are seeing aging as a part of development,” Eroglu says. “If your house is built on a strong base, then it might last longer. Whereas, if you build it in another way, it may be there for a while, but gradually start to break down.

“This doesn’t mean that we are destined to have neurodegeneration and we can’t do anything. We may be more predisposed to get the disease, but we may not get it if we have done something else in our lives that helps strengthen our brain. I strongly believe that there will be ways to stop neurodegeneration. We will find a way to strengthen the brain connections. If we can figure out the weakest link, then we could concentrate on solving that.” ■

“I strongly believe that there will be ways to stop neurodegeneration. We will find a way to strengthen the brain connections.”

CAGLA EROGLU





Geraldine Dawson



Svati Shah



Johnna Frierson

Oluwadamilola
"Lola" Fayanju

Michael Boyce

DAWSON TO LEAD DIBS

Geraldine Dawson, PhD, a leading researcher of autism spectrum disorders, has been named director of the Duke Institute for Brain Sciences (DIBS).

Three associate directors will serve as part of the DIBS leadership team: Nicole Schramm-Sapyta, PhD; Alison Adcock, MD, PhD; and Leonard White, PhD.

The William Cleland Professor of Psychiatry and Behavioral Sciences in the Department of Psychiatry and Behavioral Sciences, Dawson will continue to lead the Duke Center on Autism and Brain Development. She also has appointments in pediatrics, psychology and neuroscience, the Sanford School's Center for Child and Family Policy, and the Duke Global Health Institute.

For the past two years, DIBS has been led by a faculty governance committee, chaired by Dawson in conjunction with Schramm-Sapyta, who served as chief operating officer.

A licensed practicing clinical psychologist and scientist, Dawson is past president of the International Society for Autism Research. Dawson co-led with **Scott Kollins, BA'92, PhD**, a successful effort to establish Duke as a National Institutes of Health Autism Center of Excellence. With **Joanne Kurtzberg, MD, HS'80-'83**, the Jerome S. Harris, MD, Chair of Pediatrics, Dawson is conducting clinical trials funded by the Marcus Foundation to evaluate cellular therapies for autism.

SHAH NAMED ASSOCIATE DEAN OF GENOMICS

Svati Shah, MD, HS'01-'05, has been named associate dean of genomics and director of the Duke Precision Genomics Collaboratory. The collaboratory is a new coordinating center that will serve as the nexus for genetics and genomics activities in the School of Medicine. As director, Shah will coordinate efforts among institutes, centers, and departments in all areas of genetics and genomics, ranging from fundamental basic science to clinical genomics and precision medicine.

Shah is a professor of medicine and serves as vice-chief of translational research and director of the Adult Cardiovascular Genetics Clinic in the Division of Cardiology in the Department of Medicine. She is a faculty member and co-director of translational research in the Duke Molecular Physiology Institute and is a faculty member in the Duke Clinical Research Institute. Her early research led to the identification of novel genetic variants and pathways leading to premature heart disease in families. Currently, her National Institutes of Health-funded translational lab studies metabolic and genetic pathways of cardiometabolic diseases, integrating diverse genomic, metabolomic, and proteomic techniques for identification of novel mechanisms of disease and biomarkers.

FRIERSON TO LEAD DIVERSITY AND INCLUSION OFFICE

Johnna Frierson, PhD, has been named assistant dean for graduate

and postdoctoral diversity and inclusion for Duke University School of Medicine.

Frierson will build and lead a new office that will expand and enhance the School of Medicine's diversity and inclusion initiatives for graduate students and postdoctoral appointees working in biomedical research. This new office unifies and integrates initiatives previously facilitated by the Biosciences Collaborative for Research Engagement and the School's Office of Biomedical Graduate Education. Frierson and her team will partner with basic science departmental faculty and leaders to cultivate a strong and supportive community for underrepresented PhD students and postdoctoral appointees, developing and implementing pertinent professional development activities and academic and wellness programs in collaboration with the school's Office of Diversity and Inclusion.

Frierson is the founding director of the Office of Diversity and Inclusion at the Pratt School of Engineering.

FAYANJU NAMED AN EMERGING LEADER SCHOLAR

The National Academy of Medicine has named Duke Forge Associate Director Oluwadamilola "Lola" Fayanju, MD, a 2019 Emerging Leader in Health and Medicine Scholar. The program, which includes early- and mid-career researchers who are active in cross-disciplinary projects in the health sciences and allied fields, is designed to provide collaborative opportunities that will advance sci-

ence, combat persistent challenges in health and medicine, and spark transformative change to improve health for all.

In addition to serving as Duke Forge's associate director for disparities and value in healthcare, Fayanju is an assistant professor of surgery and member of the Duke Cancer Institute, where she specializes in surgical oncology for patients with breast cancer, and is also the director of the Durham VA's Breast Clinic. Her research interests include the field of health services research, with a particular focus on addressing disparities in patient outcomes in breast cancer, and applying the principles of value-based care to improve care delivery for breast cancer patients.

BOYCE RECEIVES PRESIDENTIAL EARLY CAREER AWARD

Michael Boyce, PhD, assistant professor in the Department of Biochemistry, will receive a Presidential Early Career Award for Scientists and Engineers, presented to outstanding scientists and engineers who are beginning their independent research careers. The award is overseen by the White House Office of Science and Technology Policy in coordination with participating federal departments and agencies.

Boyce was among four Duke University faculty members who will receive the United States government's highest honor recognizing their early career research accomplishments and their promise for leadership in science and technology. Other Duke recipients and their



Joanna Downer



Geeta Swamy

agencies were: Nicolas Cassar, PhD, Nicholas School of the Environment, National Science Foundation; Lillian Pierce, PhD, Trinity College of Arts & Sciences, National Science Foundation; and Tracey Yap, PhD, School of Nursing, Department of Health and Human Services.

Boyce researches the role of protein glycosylation in mammalian cell signaling and physiology.

DOWNER NAMED A RISING STAR BY NORDP

Joanna Downer, PhD, associate dean for research development in the School of Medicine, has been named a 2019 Rising Star by the National Organization of Research Development Professionals (NORDP). The organization recognizes up to three members annually who have made outstanding volunteer contributions and show great potential for future contributions to the organization and the research development profession.

Downer became a member of NORDP in 2010 and has served as co-chair of the Professional Development Committee since 2016. She led or contributed to significant enhancements to NORDP's webinar program, including development of a research development webinar topic framework, standard evaluation, presenter instructions, and hosting scripts. She now spearheads development and delivery of a growing number of webinars, organizes logistics, and works to

continuously improve webinar content and process.

At Duke, Downer has been in the School of Medicine's Dean's Office since January 2006. She founded the school's research development office in 2009, which is dedicated to facilitating large multi-investigator grant applications.

FACULTY NAMED DISTINGUISHED PROFESSORS

Nine faculty members in the School of Medicine were awarded distinguished professorships by Duke University last May. Distinguished professorships are awarded to the most distinguished faculty who have demonstrated extraordinary scholarship in advancing science and improving human health.

The School of Medicine's new distinguished professors are:

- Howard Wayne Francis, MD, Richard Hall Chaney Sr. Professor of Otolaryngology. Francis is a professor in the Department of Surgery and interim chair of the Division of Head and Neck Surgery & Communication Sciences.
- Eun-Sil (Shelley) Hwang, MD, Mary and Deryl Hart Professor of Surgery. Hwang is a professor of surgery and radiology in the School of Medicine, and also serves as vice chair of research and chief of breast surgery in the Department of Surgery and co-leader of women's cancer in the Duke Cancer Institute.
- Victor L. Perez, MD, Stephen and Frances Foster Professor of Ocular Immunology and Inflammation. Perez is a professor in the

Department of Ophthalmology and director of Duke Eye Center's newly launched Ocular Immunology Center.

- Felipe A. Medeiros, MD, PhD, Joseph A.C. Wadsworth Professor of Ophthalmology. Medeiros is a professor in the Department of Ophthalmology, vice chair for technology, and director of the department's Clinical Research Unit.
- Evan Kharasch, MD, PhD, Merel H. and Armide Harmel Professor of Anesthesiology. Kharasch is a professor in the Department of Anesthesiology and vice chair for innovation and director of academic entrepreneurship for the department.
- **L. Ebony Boulware, MD'95**, Eleanor Easley Professor of Medicine. Boulware is a professor in the Department of Medicine, chief of the Division of General Internal Medicine, and vice dean for translational science and associate vice chancellor for translational research in the School of Medicine, as well as director of the Clinical and Translational Science Institute at Duke.
- **William J. Steinbach, MD, HS'01-'04**, Samuel L. Katz Professor of Pediatrics. Steinbach is a professor in the Department of Pediatrics and the Department of Molecular Genetics and Microbiology, chief of the Division of Pediatric Infectious Diseases, and director of the Duke Pediatric Immunocompromised Host Program.
- Geraldine Dawson, PhD, William Cleland Professor of Psychiatry and Behavioral Sciences. Dawson is a professor in the Departments

of Psychiatry and Behavioral Sciences, Pediatrics, and Psychology and Neuroscience, founding director of the Duke Center for Autism and Brain Development, associate director of the Marcus Center for Cellular Cures, and chair of the Duke Institute for Brain Sciences.

- **Stuart Johnston Knechtle, MD, HS'82-'89**, William R. Kenan, Jr. Professor of Transplant Surgery. Knechtle previously served as the Mary and Deryl Hart Professor of Surgery before his appointment as the William R. Kenan Jr. Professor in the Department of Surgery.

SWAMY HONORED BY ELAM

Geeta Swamy, MD, associate vice president for research and vice dean for scientific integrity and associate professor of obstetrics and gynecology, was selected as a member of the 2019-2020 class of fellows for the Hedwig van Ameringen Executive Leadership in Academic Medicine (ELAM) Program at Drexel University College of Medicine. ELAM is a prestigious year-long fellowship aimed at expanding the national pool of qualified women candidates for leadership in academic medicine, dentistry, public health, and pharmacy. Swamy works with leaders across the Duke campus to provide a consistent vision for scientific integrity standards and expectations and drives efforts to ensure the advancement of scientific integrity. Swamy specializes in perinatal infection and maternal immunization.



Debara L. Tucci



Jane S. Richardson



Sue Jinks-Robertson

NIH TABS TUCCI TO LEAD INSTITUTE ON DEAFNESS

National Institutes of Health (NIH) Director Francis S. Collins, MD, PhD, selected Debara L. Tucci, MD, to lead the National Institute on Deafness and Other Communication Disorders (NIDCD) as its new director.

Tucci was professor of surgery and director of the cochlear implant program in the Department of Head and Neck Surgery & Communication Sciences at Duke University School of Medicine. She joined the NIH on September 3.

In her new role, Tucci oversees NIDCD's annual budget of approximately \$459 million and leads the institute's research and training programs in hearing, balance, taste, smell, voice, speech, and language.

Tucci joined the faculty of Duke University School of Medicine in 1993 and co-founded the Duke Hearing Center.

RICHARDSON RECEIVES HOLLAENDER AWARD

Jane S. Richardson, professor of biochemistry and James B. Duke Professor of Medicine in the School of Medicine, received the Alexander Hollaender Award in Biophysics from the National Academy of Sciences at its 156th annual meeting last April.

The award, which is offered every three years and comes with a \$20,000 prize, was given to Richardson for her pioneering work into the understanding of protein structures. She was one of 18 scientists honored at the event.

Richardson recently celebrated 50 years at Duke and has made countless contributions to increasing understanding of biological macromolecular structures. She has participated in the discovery of multiple biologically important structures, and she is perhaps best known for her creation of ribbon diagrams—the “language” used to illustrate protein structures—and more recently the MolProbity system for improving structure accuracy.

JINKS-ROBERTSON NAMED TO NATIONAL ACADEMY

Sue Jinks-Robertson, PhD, a professor in the Department of Molecular Genetics and Microbiology in the School of Medicine, has been elected to the National Academy of Sciences. Jinks-Robertson is co-vice chair of the department and director of the cell and molecular biology program at Duke. Her research focuses on the regulation of genetic stability and primarily uses budding yeast (*Saccharomyces cerevisiae*) as a model genetic system.

Another Duke University researcher, Susan Alberts, PhD, Robert F. Durden Professor of Biology, was also elected to the academy this year.

FOUR SOM STUDENTS HONORED AS SCHWEITZER FELLOWS

Four Duke University School of Medicine students are among the 2019-2020 class of North Carolina Albert Schweitzer Fellows. They and the other 24 graduate students in this year's class will spend the next year learning to effectively address the social factors that affect health and developing lifelong leadership skills.

Schweitzer Fellows from the School of Medicine are:

- Sachiko Oshima and Thomas Bunning, who are leading teams of medical and social work students who partner with underserved patients at the Duke Outpatient Clinic to achieve personal health goals and improve access to health care resources.
- Elisabeth Seyferth and Spencer Chang (Primary Care Leadership Track), who are partnering with patients of the rural Fremont Clinic to achieve their health goals with a focus on chronic disease management.

Schweitzer Fellows develop and implement service projects that address the root causes of health disparities in under-resourced communities while also fulfilling their academic responsibilities.

NEW AOA MEMBERS NAMED

A total of 19 medical students, three faculty, one resident, and one fellow were elected to the Duke University School of Medicine chapter of the Alpha Omega Alpha (ΑΩΑ) Medical Honor Society in 2019. The criteria include scholastic achievement, leadership capabilities, ethical standards, fairness in dealing with colleagues, demonstrated professionalism, achievement and/or potential for achievement in medicine, and a record of service to the school and community.

Inductees for the fall of 2019 included medical students Julia Black, Lyra Olson, Eleanor Semmes, Heather Frank, Amanda Lucier, Joshua Helmkamp, Stephen Kirchner, Rebecca Vernon, Helen Daifotis, and Shelby Harper.

Also selected were Drew Peterson, professor of surgery; Genevieve Fouda, associate professor of pediatrics; and **Georgia Beasley, BA'01, MD'08, HS'08-'15**, assistant professor of surgery.

Spring 2019 inductees include medical students Margaret Coates, Nicole Dalal, Dylan Eiger, Samuel Augustus Hofacker, Elizabeth Howell, Lindsey Olivere, Melissa Ross, Elizabeth Seyferth, and Victoria Wickenheisser.

Also selected were **Jon Andrews, MD'15**, resident in the Department of Anesthesiology; and **Dinushika Mohottige, BA'06, MD, HS'13-17**, fellow in the Department of Medicine.

PUTTING DATA AND TECH ON A FAST TRACK

A longtime advocate for the marriage of technology and data to advance health care, **Amy Abernethy, MD'94, HS'94-'01, PhD**, envisions a future in which the two are as ubiquitous and easy to use in the medical field as tongue depressors.

As the newly appointed principal deputy commissioner of the U.S. Food and Drug Administration (FDA)—the highest position at the FDA that is not a political appointment—Abernethy has a national platform in which to help advance personalized medicine.

“That has been my passion since I was a professor at Duke,” she says. “How do we streamline clinical results? How do we make sure the drug development process is as efficient as possible to get treatments into the hands of the patients who need them?”

Abernethy is an internationally recognized expert in clinical trials, cancer outcomes research, health policy, and patient-centered care. For more than a decade she has pioneered the development of technology platforms to spur advancements in cancer and care of people with chronic illness. She helps oversee the FDA's day-to-day functioning and directs special and high-priority cross-cutting initiatives that impact the FDA's regulation of drugs, medical devices, tobacco, and food. She focuses on areas such as precision medicine, digital health, and real-world evidence. As acting chief information officer, she oversees the agency's data and technical vision and execution.

One area she is keen to improve upon is the use of electronic health records to expedite clinical research. But she cautions that systems need to be built with patient care in mind—a capability she championed during her time in the health-tech industry before joining the FDA.

“We cannot build systems that make the lives of doctors and patients harder,” she says. “The systems need to be streamlined to make it easier for doctors to spend more face time with patients.”

From 2001 to 2015, she was a professor of



WILL NEWTON

“We showed that we could create very personalized care and push the research agenda along at the same time.”

AMY ABERNETHY

medicine at Duke University School of Medicine and led the Center for Learning Health Care and the Cancer Care Research Program. Her interest in data collection and analysis was ignited during that time while treating patients with advanced melanoma and seeing potentially helpful drugs hung up in the long development and approval process. She became determined to find ways to speed it up while maintaining the rigor needed for clinical research.

“Fourteen to seventeen years to get from promising medical treatment to doctors and patients is way too long,” she says. “How we generated the necessary data felt so broken.”

In 2005-2006, Abernethy was ahead of the times when she introduced tablet computers and a patient-reported outcomes survey, with questions relating to symptoms and quality of life, in the Duke cancer clinics.

“The idea was, can we continuously ask patients these questions and get reliable information for clinical trials and clinical care from these surveys plus their electronic health records?” she said. “We showed that we could create very personalized care and push the research agenda along at the same time.”

Abernethy received her medical degree from Duke, where she also completed her internship and internal medicine residency, serving as chief resident. She completed a hematology/oncology fellowship at Duke, then earned a PhD in evidence-based medicine and clinical informatics from Flinders University in Australia.

Prior to her appointment at the FDA, Abernethy was the chief medical officer, chief scientific officer, and senior vice president of oncology at Flatiron Health, a health tech startup company recently acquired by the drug

“My friends from medical school are friends for life. There’s something about having gone through it together as medical students and residents that is particularly poignant in one’s life.”

AMY ABERNETHY

company Roche. The firm’s business model uses de-identified data from patient health records to accelerate clinical research.

When Abernethy was appointed to the FDA, Duke University School of Medicine Dean **Mary E. Klotman, BS’76, MD’80, HS’80-’85**, said she was a great fit. “Dr. Abernethy has the experience, passion, and vision to make a meaningful impact at the FDA, and more importantly for patients,” Klotman said. “She is a great choice for deputy commissioner.”

Robert Califf, BS’73, MD’78, HS’78, ’80-’83, the Donald F. Fortin, MD, Professor of Cardiology and the vice chancellor for Health Data Science at Duke Health, who was FDA commissioner in 2016-2017, said, “I think it’s really good for the country. I’m really excited about it.”

Abernethy’s time at Duke prepared her for her current role. “I learned to ask big questions and that patients matter first,” she says. “I learned an incredible amount about leadership and how to work together. These are fundamentals of my day-to-day job.”

Abernethy and Steve—her husband of 25 years, who leads a company in Florida—continue to live in Cary, North Carolina, commuting home on weekends. They have a son, Cameron, who is a freshman at Davidson College, and a daughter, Casey, a high school senior at Cary Academy.

Abernethy says she’s looking forward to attending her 25th medical reunion at Duke this November.

“My friends from medical school are friends for life,” she says. “There’s something about having gone through it together as medical students and residents that is particularly poignant in one’s life.”

— By **Jim Rogalski**

1950s

William W. Johnston, MD’59, is professor emeritus of pathology and former chief of the Division of Cytopathology at Duke University School of Medicine. He and his partner, Charles R. West, have created a bequest that will fund an endowed full professorship of pathology as well as several fellowships, and Duke has created the Johnston-West Endowed Chair of Pathology. They live in Hillsborough, North Carolina.

Melvin “Mel” Litch Jr., MD’59, retired from ophthalmology practice in 2013 after spending the final 10 years of his career as a clinical assistant professor at the Hamilton Eye Institute in the Department of Ophthalmology at the University of Tennessee in Memphis. His wife, Debbie, has a background in the arts and for the past 15 years has served as executive producer of Theatre Memphis, one of the oldest community theaters in the United States. They live in Germantown, Tennessee.

Andrew Wallace, BS’57, MD’59, HS’59-’61, ’63-’64, is retired after a career that included terms as chief of cardiology at Duke University School of Medicine (1969-’79), chief operating officer at Duke University Hospital (1979-’89), and dean of the Geisel School of Medicine at Dartmouth. He lives in Chapel Hill and has three children: Andrew, Michael, and **Kathleen, AB’89**.

1960s

Richard L. Reece, BS’56, MD’60, is a retired pathologist and author who has written 14 books, some 4,000 *Medinnovation and Health Reform* blog posts, and 3,600 tweets. He lives in Old Lyme, Connecticut, with Loretta, his wife of 56 years. They have two sons: Spencer, an Episcopal priest and acclaimed poet; and Carter, manager of an exercise facility in New York City.

Robert K. Yowell, MD’61, HS’64-’69, is associate professor emeritus of obstetrics and gynecology. He and his wife, **Barbara, RN’62**, have just finished their sixth move in Durham, downsizing from 4,000 square feet to 2,000. They have three children, all Duke graduates: **Robert Yowell II, BA’88; Sally Yowell Barbour, BA’90; and Charles Yowell, BS’92, MD’00, HS’00-’06**; and 11 grandchildren. Robert is active with the Davison Club (charter centurion), Duke Medical Alumni Council (past president, 1991), Blue Devil Club (past president, 1976), Iron Dukes (charter lifetime member), Durham Rotary (46 years), Durham Sports Club, and other activities. Barbara stays busy with the Durham grandchildren, church, garden and bridge clubs, the School of Nursing board, and Duke Fitness.

Creighton B. Wright, BA’61, MD’65, HS’65-’66, completed his term with the Great Rivers Affiliate of the American Heart Association and joined the board of the Maxfield Education and Research Foundation. He is

medical director of the Physician’s Assistant Program at Mount Saint Joseph University. He and his wife, Carolyn, live in Covington, Kentucky, and he reports that they are “blessed to have 11 talented grandchildren, who are doing very well.”

Benton Levin, MD’69, is retired from his career as a pediatrician and now volunteers at St. Jude Children’s Research Hospital and lives in Memphis, Tennessee.

1970s

Phyllis Carolyn Leppert, MD’73, PhD, HS’74-’76, is president of the Campion Fund/Phyllis and Mark Leppert Foundation for Fertility Research and professor emeritus of obstetrics and gynecology at Duke University School of Medicine. She is retired from teaching but is still working to develop treatment of uterine fibroids, with a patent for treatment via injection of purified clostridium histolyticum directly into fibroid tissue. In March 2019 she presented results of a Phase I clinical trial at the Society for Reproductive Investigation in Paris. She lives in Salt Lake City.

William Rosser “Bill” Berry, MD’74, HS’74-’78, recently moved with his wife, Julia, from Raleigh to a country setting near Wake Forest, North Carolina, where they raise chickens (and soon goats) and have a 22-acre fishing lake and a large vegetable garden. He still works full-time as an oncologist, for the past five years in a community setting for Duke. He specializes in prostate cancer and is heavily involved in clinical trials. He and Julia have five children between them. Their first grandchild was born last April, and another was due in August.

Walt Curl, MD’74, retired in 2012 and serves part-time in clinical practice at Asheville Orthopaedic Associates in Asheville, North Carolina. He volunteers with Habitat for Humanity and serves as a board member in the Feagin Medical Leadership Program at Duke University Medical Center. He and his wife, Kay, live in Biltmore Lakes, North Carolina, and have two sons and three grandchildren.

Mark Tager, BS’70, MD’74, helps clinicians enhance their cash-pay revenue and modify their business model to find more joy and fulfillment in medicine. He lives in San Diego. He and his wife have been married for 34 years; their secret, he says, is that “I travel 60 percent of the time and she gets to have the clicker.”

George W. Rutherford, MD’79, is the Salvatore Pablo Lucia Professor at the University of California San Francisco (UCSF) and holds appointments in epidemiology, preventive medicine, pediatrics, and history at UCSF and in epidemiology at the School of Public Health at the University of California Berkeley. He is also a senior scientist in the Institute for Global Health Sciences, where he leads the Global Strategic Information group.

CLASS NOTES & HOUSE STAFF

He is the head of the Division of Infectious Diseases and Global Epidemiology in the Department of Epidemiology and Biostatistics at UCSF. He has been married for 34 years to Mary Workman Rutherford, a pediatrician and longtime director of the Department of Emergency Medicine at UCSF Benioff Children's Hospital Oakland. They have six children and two granddaughters.

1980s

Paul A. Hatcher, MD'84, is an associate professor in urology and urologic surgery at the University of Tennessee Medical Center. He maintains an academic urology service with a growing urology residency program and is president of his surgical practice group. He and his wife, **Tina, MBA'82**, live in Knoxville, Tennessee, and have two sons.



Joseph Howard, BS'82, MD'86, is a pediatrician at Child Health Associates just outside Worcester, Massachusetts. Last summer, he embarked on a long-held dream of riding his bicycle across America. He left from Astoria, Oregon, on June 24 and planned to arrive in Portsmouth, New Hampshire, on August 12. This dream had its roots in his days as a medical student at Duke, when he and **John Barton, MD '86**;

Bobby Lyon, MD '86; and **Rick Rosemond, MD '86**, took a multi-day bike trip in Florida in 1985. He and his wife, Betty, have two daughters: Kate and Sarah.

1990s

Tom Catena, MD'92, the subject of the film *The Heart of Nuba*, joined director Kenneth A. Carlson onstage to accept the Most Valuable Documentary Award at the Cinema for Peace Awards in Berlin, Germany, last February. The film documents Catena's work serving a population of one million people at Mother of Mercy Hospital in the war-torn Nuba Mountains of Sudan. Cinema for Peace aims to raise awareness of the social relevance of film. Catena was awarded the 2014 Humanitarian Award by the Duke Medical Alumni Association and the 2016 Service to a Local Community Award by the Duke Alumni Association.

Jeff G. Thompson, MD'94, is an orthopaedic surgeon in private practice at Valley Bone & Joint Clinic in Grand Forks, North Dakota. He and his wife, Maria, live in Grand Forks and have four children: Andrew, Annika, Luke, and Noah.

2000s

Robert G. Micheletti, MD'08, is assistant professor of dermatology and medicine at the Perelman School of Medicine at the University of Pennsylvania. He and his wife, Dorothy Leung, live in Philadelphia and have two children: Andrew, 7, and Elisa, 4. **Sarah Pradka Lucas, MD'09**, and **Don**

Lucas, MD'09, have made their permanent home in San Diego, California, where Don is a pediatric surgeon at Naval Medical Center San Diego and Sarah is a vascular surgeon at La Jolla Vein Care. Prior to moving to San Diego, Don completed his pediatric surgery fellowship at Le Bonheur and St. Jude hospitals in Memphis, Tennessee, while Sarah was in general vascular surgery practice for two years at the Memphis Veterans Affairs hospital. They have two children: Jack, 3; and Claire, who was born in January 2019.

2010s

Anna M. Brown Laucis, BS'11, MD'16, won an award to travel to Canada last spring to give a presentation on radiation oncology resident wellness, based on an abstract she submitted.

HOUSE STAFF NOTES

1960s

Wayne B. Venters, MD, HS'68-'72, is retired from active practice in orthopaedics and now teaches musculoskeletal medicine to internal medicine residents and holds orthopaedic clinics monthly. He is on the teaching staff at the Elson S. Floyd College of Medicine and lives in Spokane, Washington.

1970s

William M. Thompson, MD, HS'72-'75, retired from the Department of Veterans Affairs after 23 years and went back to the University of New Mexico as a full-time

professor of radiology. This is his 49th year in radiology. He lives in Albuquerque, New Mexico, where, he says, "Life is good in the Land of Enchantment."

Dennis Clements, MD, PhD, HS'73-'76, '86-'87, '87-'88, is a senior advisor for the Duke Global Health Institute and professor in the Departments of Pediatrics, Community and Family Medicine, Nursing, and Global Health at Duke University School of Medicine. As director of undergraduate studies at the Duke Global Health Institute, he has created and teaches basic and advanced courses in entrepreneurial problem solving in global health. He also started an interdisciplinary course for medical and nursing students in 2000 on exploring medicine in other cultures, which is now being moved to the new Center for Interprofessional Education and Care. He and his wife, **Martha Ann Keels, BA'79, DDS**, live in Chapel Hill, North Carolina, and have seven grandchildren in the San Francisco Bay area.

1980s

Robert E. Schaaf, MD, HS'81, was awarded the Silver Medal for distinguished and extraordinary service from the North Carolina Radiological Society, a statewide professional organization and chapter of the American College of Radiology. The Silver Medal is the chapter's highest honor and has been awarded to only a dozen radiologists in the past several decades. Schaaf is former president and managing partner at Wake Radiology UNC REX Healthcare.





REVEALING THE SECRETS OF RARE DISEASES

Living with a rare disease is a challenging journey for patients and their families. These diseases are frequently hard to diagnose, can be life threatening, and often have no cure. And rare diseases are more common than you might think. The National Institutes of Health estimates that there are 7,000 rare diseases that affect from 25 to 30 million people in the United States today.

“Rare diseases are not rare,” says **Grace Terrell, MD’89, HS’89-’90**, president and CEO of Envision Genomics, an Alabama-based company that helps clinicians diagnose rare diseases through the integration of genomic data into clinical care. “Many people in the world live with them, but the problem is that health care systems all over the world, not just in the U.S., are designed for treating common problems and providing ‘one size fits all’ therapies and care.”

Terrell focuses on applying precision medicine technology—whole genome sequencing and genetic data analysis—to help patients find accurate diagnoses and allow physicians to tailor personalized treatment plans for their patients.

The road to diagnosis is often long and rocky. Using traditional medical protocols, Terrell says, it takes on average eight years to diagnose a rare disease. Many patients go from doctor to doctor, take test after test, receive inappropriate medicines, and go through unnecessary surgeries.

“By using new genetic medicine techniques, we are able to make a diagnosis faster and improve patient care by eliminating the ‘diagnosis odyssey’ that causes a lot of suffering for patients,” she says.

About 50 percent of the patients with rare diseases in the U.S. are children, and Terrell says that without a diagnosis 20 percent of them would die by the time they are five years old. “Having the ability to diagnose early can lead to a better management of the disease,” she says.

Terrell was not the typical School of Medicine student. Growing up on a small farm near Siler City, North Carolina, she dreamed of being a writer, and at one point she even considered becoming a racehorse jockey.

In college, she majored in English and religion. Going to medical school was not on her radar until she met her then-fiancé’s parents, both Duke University School of Medicine alumni: **Thomas Eugene Terrell, MD’53, HS’53-’55**, and **Eldora Terrell, MD’53, HS’53-’55**.

“By using new genetic medicine techniques, we are able to make a diagnosis faster and improve patient care by eliminating the ‘diagnosis odyssey’ that causes a lot of suffering for patients.”

GRACE TERRELL

“Eldora and Eugene were a great inspiration for me, and that changed my direction,” says Terrell. She took classes in science to qualify for medical school and chose to go to Duke. “At Duke, I was exposed for the first time to how science could be transformative for patients,” she says. “That was an exciting time for me.”

Terrell completed an internship in pathology at Duke and a residency in internal medicine at North Carolina Baptist Hospital in Winston-Salem. Then she practiced medicine with her in-laws in High Point. In 1995, Terrell and seven other physicians founded Cornerstone Health Care, a multi-specialty medical practice, which is now part of the Wake Forest Baptist Health System. In 2013, she launched CHES Health Enablement Solutions, a population health management company, and served as its CEO until LabCorp and Wake Forest Baptist Health acquired it in 2016. Along with her business endeavors, she still practices internal medicine one week a month at Wake Forest Baptist Health.

This fall Terrell will celebrate her 30th School of Medicine reunion. She is amazed by how far medicine has advanced since her time at Duke in the early days of the AIDS crisis. “One of the greatest stories of my generation is turning a frightening epidemic that was an assured death into a chronic disease that we might be able to eliminate one day,” she says. “Being at Duke at the very beginning of that, when all of it could seem hopeless, and seeing where we are now, shows the power of medicine.”

Terrell envisions that precision medicine will transform the lives of patients with rare diseases and cancer. Soon, she says, physicians will use artificial intelligence to analyze and integrate genomic data to better diagnose diseases and provide accurate treatments. “We will be able to give the right type and the right amount of chemotherapy to the right patient,” she says. “The future is already here.”

— By Aliza Inbari

OBITUARIES

John Clifford Ayers Jr., AB'50, MD'54, HS'54-'55, P'83, died May 22, 2019. He was 89. He was raised on a farm in Horry County, South Carolina. After graduating from Duke University and Duke University School of Medicine, he spent 14 years in private practice in Cave City, Kentucky, and then moved to New Bern, North Carolina, where he practiced for 46 years. He served as adjunct clinical faculty at Duke University School of Medicine and at East Carolina University's Brody School of Medicine. He cherished his work as a physician and was privileged to care for patients until his retirement at age 87 from CarolinaEast Internal Medicine. While he loved to travel, especially to the Yorkshire Dales of England and the coast of Maine, he most enjoyed sitting on his own back patio watching the flowers grow, listening to the birds sing, and raising a glass with friends and family.

Carl Louis Croft, MD'62, died June 21, 2019. He was 85. He attended the United States Military Academy at West Point and served in the Army Missile Defense Command. He completed an internship at The Presidio in San Francisco and served as a physician and the Army football team doctor at West Point. After completing a residency at the University of Florida, he joined the Jewett Orthopaedic Clinic in Winter Park, Florida, where he was a surgeon for 30 years. In 1973, he performed the first arthroscopic knee surgery in the southeastern United States, and he designed techniques for knee ligament reconstruction that are still used. He was a member of many professional organizations, a founding member of the American Society of Sports Medicine, and a clinical professor for health related affairs at the University of Central Florida. He was an active volunteer and benefactor for numerous civic and community groups.

Howard W. Jones III, MD'68, died March 9, 2019. He was 76. He was a professor and former chair of the Department of Obstetrics and Gynecology at Vanderbilt University Medical Center. He served his residency at the University of Colorado Medical Center in Denver and completed a fellowship at MD Anderson Hospital and Tumor Institute in Houston. He was a major in the U.S. Army and chief of gynecologic oncology at William Beaumont Army Medical Center in El Paso, Texas. He joined Vanderbilt in 1980 and was a leader there for almost four decades. A renowned researcher on gynecologic cancer, he helped develop various techniques for cervical cancer screening. He authored numerous scientific articles and co-edited several medical textbooks. He was a member of many national and international societies. The American Cancer Society awarded him the St. George National Award for service in 1996.

Michael Dean Parker, MD'68, died June 24, 2019. He was 77. Born in Muncie, Indiana, he graduated Phi Beta Kappa from Florida State University and graduated Alpha Omega Alpha from Duke University School of Medicine. He was board certified

in rheumatology and radiology and served on the faculty of the University of North Carolina School of Medicine and Bowman Gray School of Medicine at Wake Forest University before moving to Greensboro, North Carolina, where he practiced radiology until retirement and taught physiology and physics as an adjunct professor at UNC Greensboro. His research into antinuclear antibodies led to more accurate diagnoses of several autoimmune diseases, and his 1985 *Introduction to Radiology* textbook was used in medical schools throughout the country. He was a major in the U.S. Air Force, where he served as a teaching physician at Keesler Air Force Base and assisted in caring for U.S. prisoners returning from Vietnam.

Lisle Wayne II, MD, HS'70-'73, died March 3, 2019. He was 83. He earned his undergraduate degree at Texas A&M University and received his MD at the University of Tennessee Medical School. He completed an internship at Jackson Memorial Hospital in Miami, Florida, and a general surgery residency in Memphis before completing a plastic surgery residency at Duke. He was commissioned as a major in the U.S. Air Force during the Vietnam War and was chief of surgery at Randolph Field Air Force Base in San Antonio, Texas. He practiced at the Trover Clinic in Madisonville, Kentucky, and then joined Evansville Plastic Surgical Associates in Evansville, Indiana, where he practiced for 34 years. He was a member of the Indiana State Medical Association, the Southeastern Society of Plastic and Reconstructive Surgeons, the Aesthetic Society of Plastic Surgery, and the American Society of Plastic Surgeons.

FACULTY

William Garrett Jr., MD'76, PhD'76, died May 4, 2019. He was 70. He was a professor in the Department of Orthopaedic Surgery. A Phi Beta Kappa graduate from the University of North Carolina at Chapel Hill, he earned MD and PhD degrees at Duke and was elected president of Alpha Omega Alpha Honor Medical Society. As a specialist in sports medicine, he served as the medical director of the U.S. Soccer Federation and team physician for the U.S. Men and Women's National soccer teams, and was team physician for many of Duke University's sports teams. He received numerous awards for his contributions, including the unique distinction of earning the Outstanding Teacher Award from both the residents of the Duke Orthopaedic Surgery Program and the residents of the University of North Carolina Department of Orthopaedics. He served as president of the American Orthopaedic Society for Sports Medicine and the Herodicus Society.

Wolfgang K. (Bill) Joklik, DPhil, died July 7, 2019. He was 93. He was chair emeritus of the former Duke University Department of Microbiology and Immunology (now the Department of Molecular Genetics and Microbiology) and James B. Duke Professor Emeritus of Molecular Genetics

and Microbiology. He chaired the department for 25 years, guiding its growth and leading it to top-three national ranking. He was a renowned virologist whose research laid the groundwork for the development of vaccines and antiviral agents. He published more than 250 research papers and reviews. He co-founded the Duke Comprehensive Cancer Center and was the first chair of the Cancer Center Planning Committee. In 2013, the Duke Medical Alumni Association awarded him the William G. Anlyan, MD, Lifetime Achievement Award. He founded the American Society for Virology and served as its founding president, and he was elected to both the National Academy of Sciences and the Institute of Medicine.

Michael Reedy, MD, died June 18, 2019. He was 84. He was professor emeritus in the Department of Cell Biology. He spent 47 years at Duke and was considered a world leader in muscle structure. His lab studied how muscles work by combining biochemistry, physiology, and the analysis of macromolecular structures. His research teams pioneered rapid freezing of muscle to give 1-ms snapshots of actively contracting muscle with electron microscopy, and later developed real-time live-action X-ray movies of contracting muscle. He had the distinction of maintaining a single NIH R01 grant to study muscle throughout his long career, continuously funded for 44 years until his retirement in 2015. He attended the University of Washington and the University of Washington Medical School. After medical school he completed a postdoctoral fellowship at the MRC Laboratory of Molecular Biology in Cambridge, England. He was on the faculty at UCLA for three years before joining the Duke faculty in 1969.

PHILANTHROPY

Edward "Art" Palumbo, AB'49, died June 20, 2019. He was 91. He was a philanthropist and member of the Duke Pinnacle Society, which recognizes donors whose giving exceeds \$1 million. Born in New Jersey, he came to Duke in the footsteps of his older brother, **Leonard Palumbo Jr., AB'42, MD'44, HS'44-'50**, and had a successful career in residential construction in Chicago. His support for Duke University included the establishment of the Leonard Palumbo Faculty Achievement Award in the School of Medicine in honor of his brother, a member of the Duke obstetrics and gynecology faculty from 1950-1952. He also established the Palumbo Family Medical Scholarship Fund and made a generous bequest to the Department of Pediatrics. In 2006, Duke University renamed the McGovern Davison Children's Health Center the Arena-Palumbo Research and Education Center in his honor. He will be recognized posthumously with the Duke Medical Alumni Association's Honorary Alumnus Award on November 7, 2019.

VOICES OF DUKE HEALTH



Voices of Duke Health is a pilot innovation project that invites Duke Health providers, staff, students, trainees, patients, and visitors to have one-on-one conversations about what is meaningful in their lives, work, and relationships.

Voices of Duke Health is an initiative of the Department of Medicine and the Duke Health

Office for Patient Safety and Clinical Quality. Tune in at: sites.duke.edu/listening/podcast/

Episode 1: Introduction to the Voices project

Episode 2: The Hardest Conversations

Episode 3: The Vulnerability Gap

Episode 4: The Rollercoaster

Episode 5: The Stress Ball

Episode 6: The Cancer Distress Coach

Episode 7: The Patient Voice

Episode 8: The Happiest Person I Know

Episode 9: The Butterfly Effect

Episode 10: The Gauntlet

Episode 11: The First Years

Episode 12: The Residents

Episode 13: The Puzzle Pieces

Episode 14: The Lollipop Moments

Episode 15: The Physician Patient

Bonus episode: Nancy Andrews, MD, PhD

DATES OF INTEREST

Oct. 12 Duke University Homecoming

Duke Football vs. Georgia Tech, Wallace Wade Stadium

Oct. 14-17 Inaugural School of Medicine Research Week

11:30 AM, Trent Semans Center for Health Education, Sixth Floor
medschool.duke.edu/research/research-week

Oct. 15 Robert J. Lefkowitz, MD, Distinguished Lecture with Karl Deisseroth, MD, PhD

12:00 NOON, Trent Semans Center for Health Education, Great Hall

Oct. 22 Stephen & Frances Foster Distinguished Lecture with Victor Perez, MD

5:00 PM, Duke Eye Center, Albert Eye Research Institute Auditorium

Oct. 22 School of Medicine and School of Nursing Regional Event

"From AI to Z: How Research and Innovation are Changing Health Care"
Cornell Club, New York City

Oct. 25-27 Duke University Families Weekend

Duke Football vs. University of North Carolina

Nov. 7-10 Medical Alumni Weekend

Golden Blue Devils Luncheon, Washington Duke
Duke Football vs. Notre Dame, Wallace Wade Stadium
See details on page 4

Nov. 8 MEDx Distinguished Lecture

2:00 PM, Trent Semans Center for Health Education, Great Hall

For more details and other events please visit:

medschool.duke.edu/about-us/calendar

SOM Magnify

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

magnify.duke.edu



Harvey Cohen Says Yes

Harvey Jay Cohen, MD, never planned to go into geriatrics. But when opportunity presented itself, he seized it and never looked back.



How Do Whales Fight Cancer?

A scholar in Duke's Marine Medicine Program breaks new ground in the search for an answer.



First Encounters with the Inner Brain

First-year medical students get up close and personal with the most complex organ in the body.

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CHRIS HILDRETH

Advisory dean Delbert R. Wigfall, MD, takes his traditional group selfie with part of the new class of students.



Bence Zolyomi and Camille Pierre open their stethoscope boxes.

WHITE COAT CEREMONY 2019

On August 2, 2019 the members of the Class of 2022 received their white coats at a ceremony at the Bryan Center.

The Duke Medical Alumni Association presented each incoming student with a personalized stethoscope during the White Coat Ceremony. Alumni were invited to participate in this special occasion by showing support for our students with a gift to the Medical Annual Fund. The students are grateful for this meaningful and long-lasting gift and appreciate the generosity of our alumni.

Gifts to the Medical Annual Fund support scholarships, innovative research, faculty support, curriculum enhancements, new technologies, and more. To participate, please visit medicalannualfund.duke.edu.