



DukeMed

Alumni News, Winter 2021

Helping Kids
Cope During
the Pandemic

Dismantling
Racism

New
Curriculum
Puts the
Patient First



Challenge Accepted.

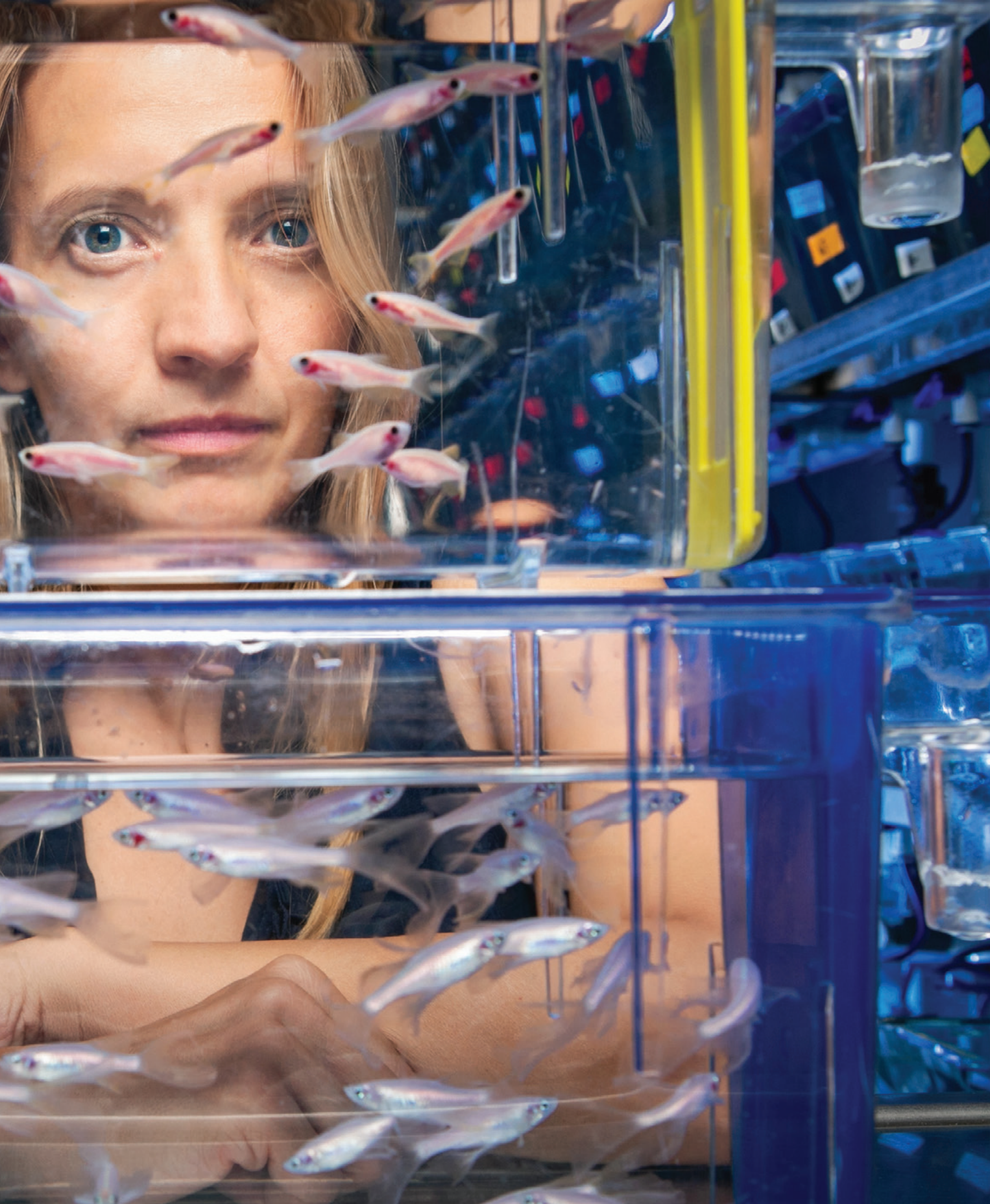
Duke launches an ambitious new effort
to elevate and sustain excellence in
science and technology

A SMALL FISH IN A BIG QUESTION

The questions pursued by Eva Naumann's research team are nearly as large and intricate as the brain itself: How does the entire brain transform sensory inputs into actions, and what neural pathways do these impulses travel?

➤ READ MORE
AT SOM MAGNIFY
bit.ly/DukeMedFish





MESSAGE FROM THE DEAN

Dear Friends,

I hope this message finds you and your family in good health and good spirits. This year at the School of Medicine, like last year, has been marked by extraordinary challenges and by many demonstrations of progress and success from our tireless and innovative faculty, staff, and students.

As you will read in this issue of *DukeMed Alumni News*, despite the constraints imposed by the lingering pandemic, 2021 has been an exceptional year for the Duke University School of Medicine. We have responded to the pandemic with new solutions, fresh approaches, and inventive ways to advance

our missions of patient care, education, and research in the face of evolving circumstances.

Our school and our faculty, staff, and students are consistently recognized for their excellence. This year, we ranked No. 3 nationally among medical schools for research — tying the highest ranking in our history — and seven of our departments ranked among the top 10. A steady procession of other prestigious honors, grants, and appointments, from the designation of Duke as an Alzheimer's

Disease Research Center to numerous high-profile individual awards, helped solidify 2021 as a year to remember — in a good way!

In education, our innovative new Patient First Medical School Curriculum — which integrates core biomedical instruction into a clinical context and provides students the opportunity for an immersion experience and integrative learning almost from the moment they arrive on campus — is in its first full year of implementation after a pilot run last academic year. Already our students are embracing the new curriculum and reaping the benefits of a more holistic approach to learning.

On the research front, we recently opened Duke Research and Discovery @RTP, an extraordinary new

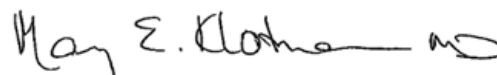
273,000-square-foot satellite campus in Research Triangle Park that will dramatically increase our research capacity. At the same time, the Duke Science & Technology (DST) initiative is succeeding in its aim of recruiting and retaining exceptional scientific leaders in areas where Duke is positioned to make transformative advances.

Over the past year, a broad-based School of Medicine antiracism initiative resulted in our Moments to Movements Strategic Plan, a remarkable roadmap for dismantling racism and advancing equity, diversity, and inclusion. We are well under way in implementing the plan's first-year goals.

Our friends and supporters have helped make 2021 a historic year as well. The Duke Endowment completed the largest gift in the history of Duke University, committing a total of \$100 million to support Duke Science and Technology. The School of Medicine received its largest-ever gift in support of need-based financial aid, an extraordinary commitment by our late friend **Dudley Rauch, AB'63**. Their generosity will help ease the financial burden for generations of medical students at Duke.

The enthusiasm, innovation, teamwork, and dedication to positive change throughout the School of Medicine are tangible and inspiring. As we continue in our response to COVID-19, our focus is squarely on fulfilling our missions: to educate the next generation of health care leaders, blaze new trails in research, provide world-class patient care, and care for the communities in which we live and serve.

You, our alumni and friends, are essential partners. Thank you for everything you do for the School of Medicine. I encourage you to remain engaged with the important work we are doing, and I look forward to the day when we can gather again in person.



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

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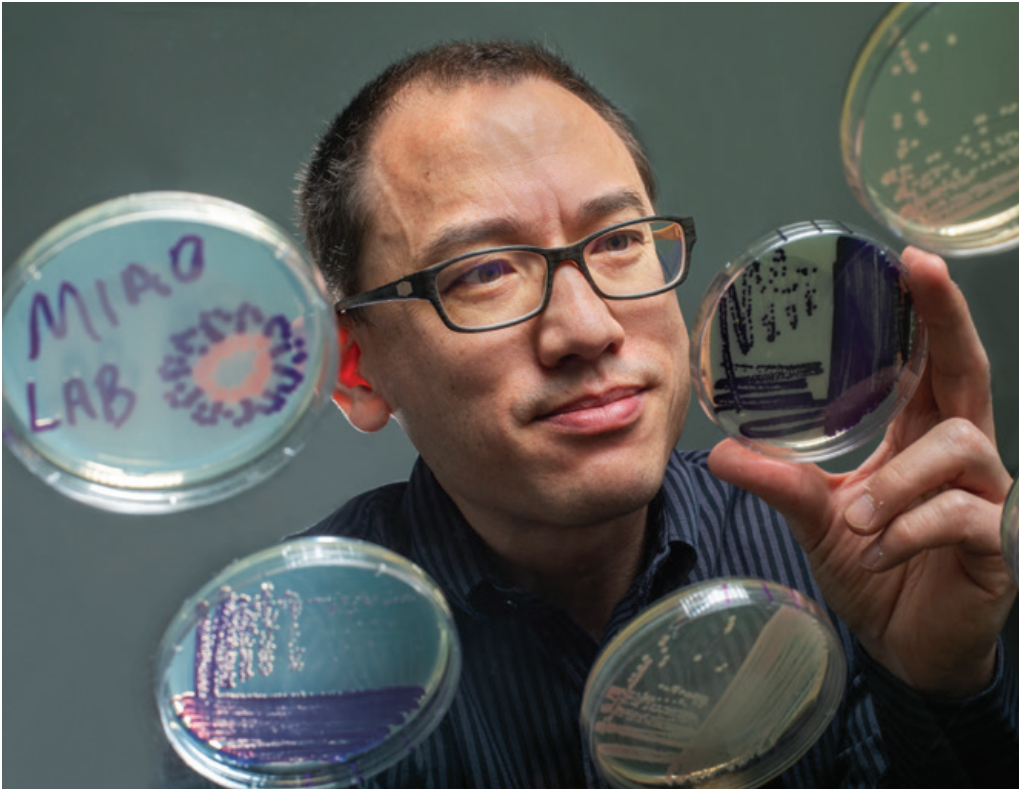


Your comments, ideas, and letters to the
editor are welcome.

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COVER STORY **Challenge Accepted.**

Duke launches an ambitious new effort to elevate and sustain excellence in science and technology.



JARED LAZARUS



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FEATURE

Dismantling Racism

The School of Medicine is turning its strategic plan into action to advance equity, diversity, and inclusion.

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ALUMNI SPOTLIGHT

On The Inside

Emily Wang, MD'03, explores how mass incarceration affects health both inside and outside the prison walls.



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FEATURE **Helping Kids Cope**

Children and adolescents have suffered from the stress and isolation imposed by the COVID-19 pandemic, but Duke experts offer strategies that adults can use to help them bounce back.



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ON THE COVER

Duke Science and Technology (DST) researcher Chantell Evans, PhD

PHOTO BY ROOSTER MEDIA

CHALLENGE ACCEPTED.

A bold new effort aims to harness the mechanisms of resilience

BY DAVE HART

What if we could control genes linked to cancer to prevent them from developing into tumors in the first place? How can we extend our brain's ability to forestall damage from Alzheimer's disease? Is it possible to develop a vaccine for everything?

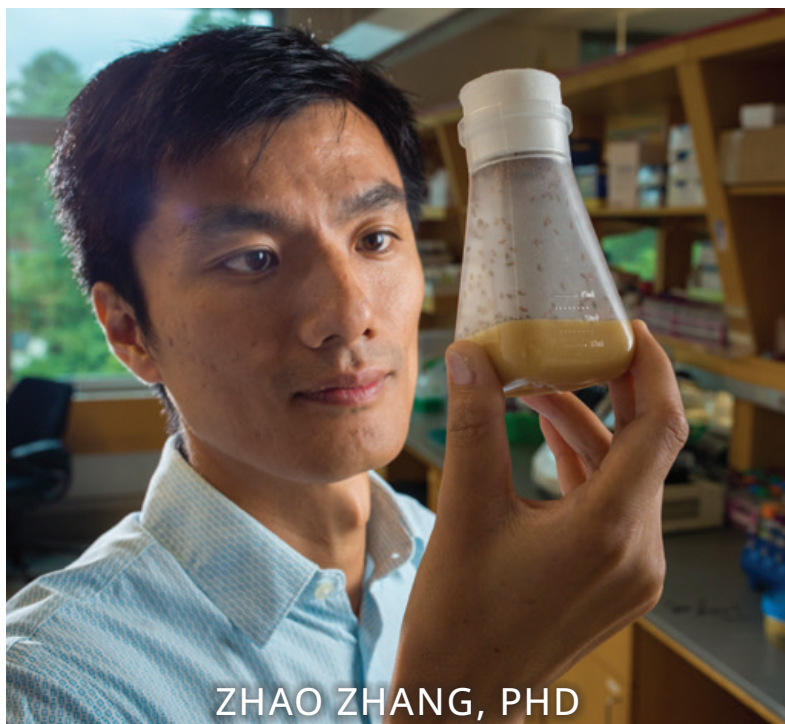
These are among the questions driving a new multidisciplinary research effort at Duke University School of Medicine aimed at understanding and harnessing the innate processes the human body uses to prevent and heal disease.

Resilience: Fortifying the Body and Brain is one of the pillars of **Duke Science and Technology (DST)**, a faculty-hiring and fundraising effort aimed at elevating and sustaining excellence in the sciences through investment in science and technology faculty, infrastructure, and research.

Launched with a \$100 million investment from The Duke Endowment, DST focuses on three broad thematic pillars: in addition to Body and Brain Resilience, the other two are **Computing**, involving fields such as artificial intelligence; and **Materials Science**, which seeks to engineer new materials, including biomaterials, to solve challenges in numerous areas.

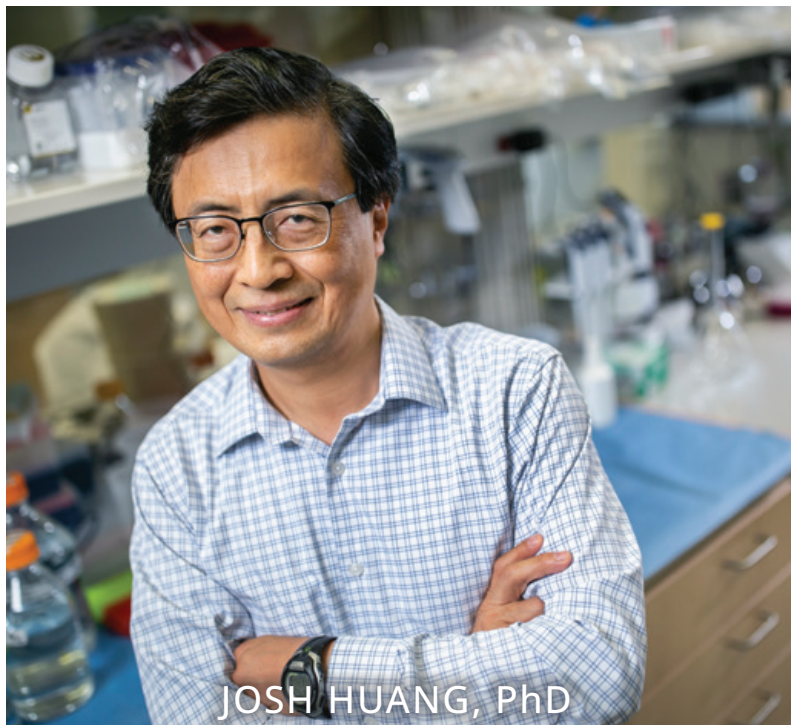
While the School of Medicine will touch on all three areas, its primary DST responsibility is to advance Body and Brain Resilience.

"Resilience" refers to the intrinsic mechanisms within the human body that prevent and repair damage and disease. Researchers within DST will seek to understand and harness



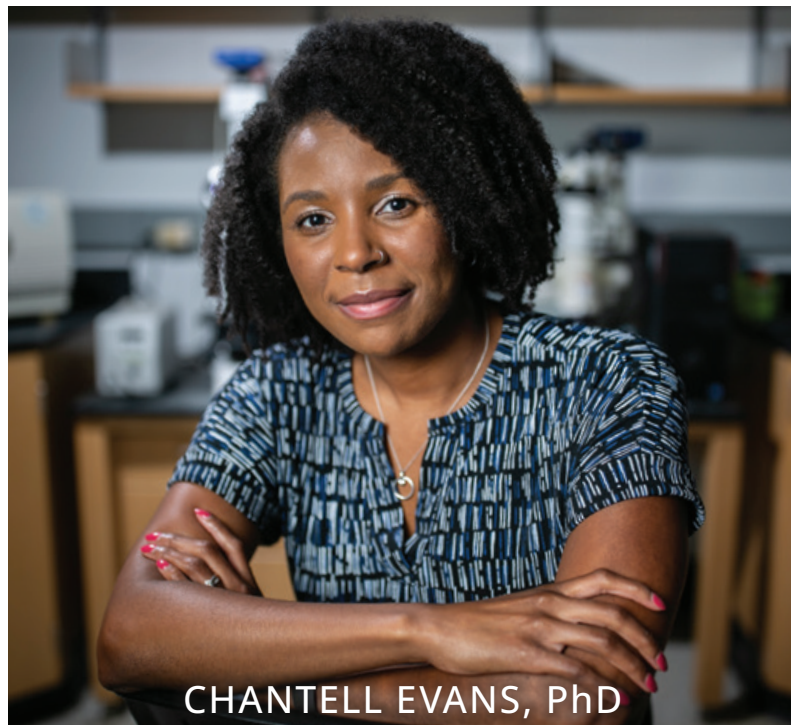
ZHAO ZHANG, PHD

JARED LAZARUS



JOSH HUANG, PhD

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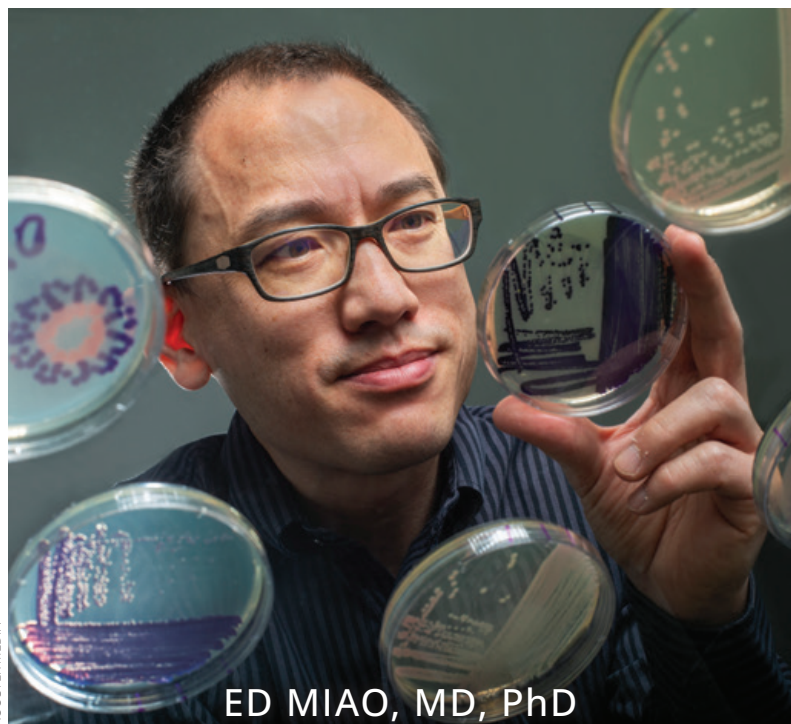
CHANTELL EVANS, PhD

ROOSTER MEDIA



CAROLYN COYNE, PhD

ROOSTER MEDIA



ED MIAO, MD, PhD

JARED LAZARUS

See video about DUKE SCIENCE AND TECHNOLOGY AT bit.ly/DMdst

these mechanisms to prevent and treat disease.

“Resilience is the ability of a living entity — a person, an organ, a cell — to rebound from adversity,” said School of Medicine Dean **Mary E. Klotman, MD**. “We need to learn what it is that allows some individuals to recover from heart attack, stroke, and so on, while others don’t. The same is true at the cellular level: Why do some cells survive adverse events, while others die? When we can isolate the factors that produce resilience, we can learn to enhance those factors and improve resilience.”

Body and Brain Resilience focuses on three primary areas where the Duke School of Medicine already has significant strengths: **brain, cancer, and the immune system**. Each of these areas is fundamental to health and ripe with potential for breakthroughs.

“Many of the most transformative advances in medicine over the coming years are going to occur in these fields, and Duke is positioned to play a leading role,” said **Colin S. Duckett, PhD**, vice dean for basic science. “Duke Science and Technology will build on the work of the superb scientists and programs we already have in these areas.”

Key to success will be recruiting additional exceptional scientists and securing philanthropic support to fund those hires and the school's research mission. Across the university, more than a dozen new faculty already have been recruited as Duke Science and Technology Scholars.

To date, five DST Scholars have their primary appointments in the School of Medicine, all recruited with funds from The Duke Endowment to advance faculty recruitment in the sciences.

“Our initial recruits are extraordinary in so many ways: not only in their science but in terms of what kind of scientists and people they are,” said Klotman. “We look for superb scientists who embrace being part of a community and who want to do their part to help lift that whole community.”

“Duke Science and Technology will build on the work of the superb scientists and programs we already have in these areas.”

COLIN S. DUCKETT

CAROLYN COYNE, PhD

Exploring how viruses evade the placental barrier

The human placenta performs a delicate balancing act: it must let beneficial nutrients pass from the mother to the developing fetus, but block harmful pathogens from making the same trip.

Most of the time, it succeeds. But certain pathogens have developed ways of evading the placental barrier and causing fetal illness.

Carolyn Coyne, PhD, investigates how the placenta has evolved to be such a fantastic protector but can also be vulnerable to pathogens such as cytomegalovirus and Zika virus that can bypass its protective barrier.

Coyne joined the Duke faculty in July 2021 as a professor in the Department of Molecular Genetics and Microbiology.

“What we’re really trying to do is identify the blockades that stop the virus from getting in, and we’ve done a really great job at that,” said Coyne. “But what’s been trickier to study is the detours that microorganisms like viruses and bacteria take to get in, or the methods by which, in some cases, they’re able to overcome the blockades.”

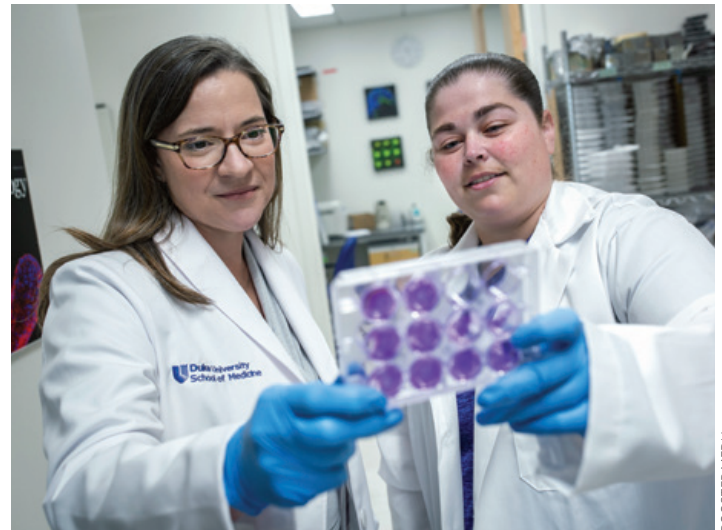
Coyne was drawn to Duke for its proximity to the Research Triangle Park and for the world-class scientists at Duke working in reproductive health, biology, and gastroenterology.

“Because we are a lab that studies lots of different things, one of the things that’s inherent to that type of science is the need to seek out other expertise,” said Coyne. “I remember that first morning on campus where it struck me that here are all of these amazing scientists with unique expertise within walking distance. Every person I met with ended our meeting saying, ‘Oh that would be really exciting, we should talk about this, maybe we could do this.’ That is the kind of environment as a scientist that you want to be in.”

— Lindsay Key

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CAROLYN COYNE



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To support research and learn more about Duke Science and Technology, visit dst.duke.edu or email scienceandtechnology@duke.edu.



ROOSTER MEDIA

CHANTELL EVANS, PhD

Examining the links between damaged mitochondria and brain diseases

Humans are born with all the nerve cells they will ever have, and in each of those nerve cells live about two million mitochondria — tiny power generators that keep the cell functioning properly. As mitochondria age or become dysfunctional, the cell systematically removes them and replaces them with newer models.

Neurobiologist Chantell Evans, PhD, wants to know more about this complex process. “How does the cell know how to maintain all of those mitochondria? How does it keep track of who is healthy, who’s damaged, who needs to be replaced, and how many new mitochondria need to be made?” she says.

Disruptions in the elaborate system can lead to nerve cell dysfunction and death, which contributes to neurodegenerative diseases such as Parkinson’s disease and Alzheimer’s disease.

Evans joined Duke’s Department of Cell Biology in September 2021 to continue her work investigating the pathways that contribute to mitochondrial maintenance in nerve cells, in hopes that understanding the pathways could help identify the missteps associated with neurodegeneration and lead to the development of preventative therapeutics for neurodegenerative diseases.

Evans said she came to Duke because of the emphasis the university places on diversity and the opportunity she has to make a difference.

“At some other institutions, there weren’t a lot of women of color in senior leadership roles,” she said. “To see a school that is valuing that and putting those people in senior roles said a lot about the institution. I also wanted to go somewhere where I felt that I was going to receive a lot of support and mentoring as a junior faculty member. I’m excited to start my lab here at Duke and look forward to future collaborations and discoveries.”

— Lindsay Key

“To see a school that is valuing that and putting those people [women of color] in senior roles said a lot about the institution.”

CHANTELL EVANS

ROOSTER MEDIA

JOSH HUANG, PhD

Shining a light on the traffic signals in the brain

Think of the inner circuitry of the brain as a traffic network. When nerve cells release a signal, the information speeds along various routes to its destination: another nerve cell elsewhere in the brain. Without strategically placed stoplights, information could accelerate out of control, which can cause seizures. Inhibitory nerve cells act as the traffic lights that keep the nervous system in balance and route information flow.

Neurobiologist Josh Huang, PhD, is especially interested in a particular type of inhibitory nerve cells called chandelier cells, which control large numbers of excitatory cells.

“They are thought to have a unique function, enacting a ‘veto’ power to large neural ensembles in brain circuitry,” said Huang, who joined the Duke faculty as a professor in the Department of Neurobiology in August 2020. “But currently they are still a mystery. One of our major successes is that we developed molecular genetic tools that allow us to visualize and manipulate this fascinating cell.”

Scientists have long hypothesized that chandelier cells are involved in epilepsy and schizophrenia. To understand exactly what role they play in brain function and disorders, Huang needs to be able to visualize and explore them in the human brain.

He is developing a new generation of programmable cell engineering technologies to monitor and edit the function of diverse cells across multiple species, including human. In October 2021, Huang received a National Institutes of Health Director’s Pioneer Award to further this research.

He says he has found an ideal environment at Duke.

“As a basic scientist, the attraction and the motivation to come to Duke is to have a better link to the broad biomedical and engineering research community, especially translational and clinical scientists,” said Huang.

— Lindsay Key



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ED MIAO, PHD

Moves and countermoves in the immune system

When certain immune cells in our bodies are invaded by a dangerous pathogen, they sacrifice themselves to vanquish the intruders.

Immunologist Ed Miao, MD, PhD, studies pyroptosis — a type of programmed cell death in which a cell, once compromised by an enemy pathogen, literally blows itself up to prevent the pathogen from spreading in the body.

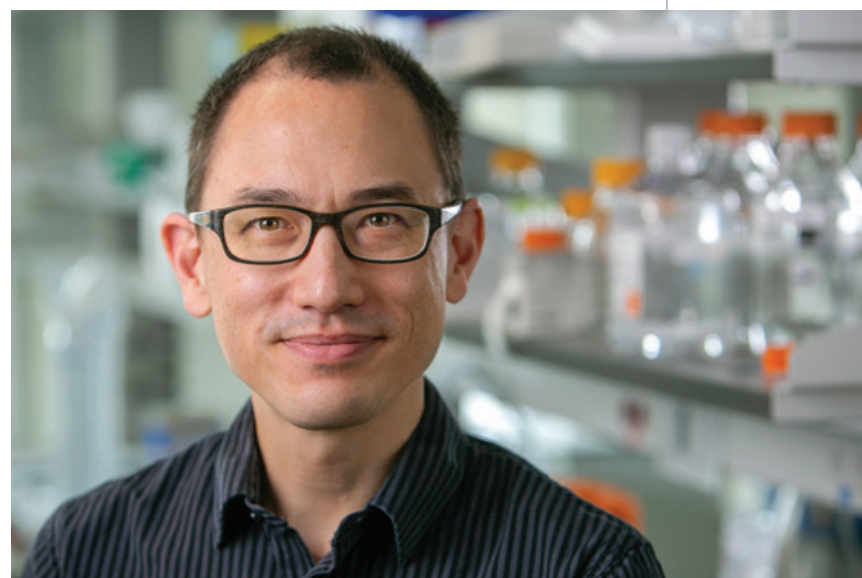
Pyroptosis is just one weapon in the immune system's perpetual battle against dangerous pathogens. If we can learn enough about each side's strengths and weaknesses, Miao says, we can use that knowledge to gain a critical advantage.

Once the body detects that a pathogen has compromised cells, Miao said, the immune system must decide how to respond. Infected immune cells kill themselves in various ways: by blowing themselves up (pyroptosis or necroptosis) or dividing themselves into smaller parts (apoptosis). How and why the immune system programs one flavor of death over another is one of the big mysteries remaining in the cell death field, said Miao.

Miao joined Duke's Department of Immunology in April 2020. Here, he hopes to continue to expand the repertoire of pathogens that he studies, in order to help the immune system learn how to shut them down. The COVID-19 pandemic, he said, "reminds us that infectious diseases have killed more people than any other cause in the history of the world."

"My goal is to understand the basics, to paint a full landscape of knowledge, that someday could inspire new treatments," said Miao. "That probably will be done by someone else decades down the road. What draws me to this area of science is that it's a very rich and complex field of study where we have so much still to learn."

— *Lindsay Key*



JARED LAZARUS

ZHAO ZHANG, PhD

Follow the jumping genes

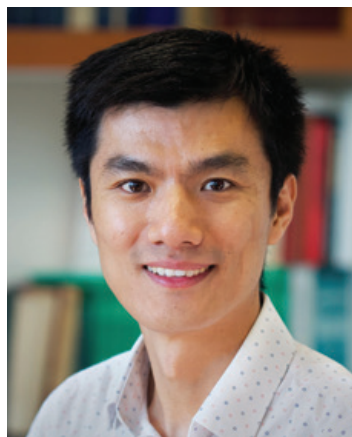
Zhao Zhang, PhD — ZZ to just about everyone — is a bit of a scientific outlier.

While most of his bioscience colleagues around the world are studying the 23,000 protein-coding genes that make us human, the assistant professor of pharmacology and cancer biology is looking at the other part of the genome and asking what it does.

Specifically, Zhang's group is looking at the half of our genome that is made up of long, repetitive sequences of DNA called transposons, or "jumping genes."

Transposons jump around in the genome making changes and enabling evolution — but also illnesses, including cancer.

"The transposon is like a virus, an endogenous virus," Zhang explains. "They were viruses millions of years ago and they invaded our ancestors. But we've turned them into part of ourselves."



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ZHAO ZHANG

He's exploring how and why that happened and whether transposons might be used as tools against diseases.

Zhang came to Duke in 2019. Earlier this year, he was named a 2021 Pew Scholar in the Biomedical Sciences, an honor awarded to young investigators of outstanding promise.

At Duke he is expanding on research exploring a molecule called piRNA, which has a special ability to suppress transposons. He is also extending his investigation of transposons into other fields of inquiry, especially immunity. As relics of old infections, transposons play a role in educating the immune system about threats.

Zhang is hoping his research on transposons will yield insights into the immune system's role in cancer, perhaps helping him get a handle on why cancer immunotherapy fails for up to 80 percent of patients.

"I still consider myself a basic scientist," he says. "Of course, I would love to cure cancer tomorrow too!"

— *Karl Leif Bates*

New Curriculum Puts the Patient First

Duke University School of Medicine has long been lauded for its unique medical curriculum, which compresses core basic science instruction into the first year, allows students to care for patients during their second year — a full year earlier than their peers at other schools — and dedicates the entire third year to research or other projects of their choice.

That innovative approach has set a national standard for medical education and is frequently cited by students as one of the features that attracted them to Duke.

But what was often called the “new curriculum” isn’t so new anymore. In fact, in its basic outlines, it’s more than 50 years old.

Medical education leaders at Duke decided that it was time to take a fresh look. For the past four years, more than 70 faculty, staff, and students have been hard at work developing a *new new* curriculum.

“We began looking at our current curriculum and trying to see how well it fit with what we expect the physician to know in 2030,” said Edward Buckley, MD, vice dean of education, who, along with other medical education leaders, spearheaded this initiative. “We brought a group of educators, clinicians, basic scientists, and students together, and said, ‘Okay, what is the skill set that physicians will need in ten years?’”

The result, known as the **Patient First** curriculum, launched in August of 2021, after a pilot run last year, and will continue to be

By Lindsay Key

rolled out over the next three years.

“So far it’s a huge success,” said Buckley. “The students and faculty are really pleased with the approach and are excited about what’s coming next.”

The “patient first” phrase refers both to the new chronology of medical school — the revised first-year experience now includes a new Clinical Immersion course, which allows new students to learn patient care skills first, before they even begin their coursework — but also to the mindset that faculty educators hope to foster in students.

“Whether students choose to become a physician-scientist, a public health advocate, or a clinician in clinics and hospitals, they

“The ideal physician integrates all aspects of care at the bedside — they must consider the underlying biomedical principles, communicate compassionately, consider social context and drivers, balance ethics, consider health care costs, and appreciate the role of new technology.”

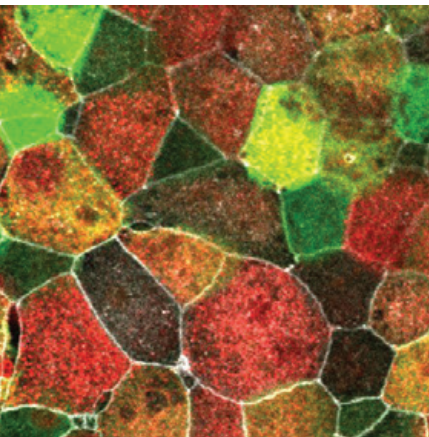
ADITEE NARAYAN

should think about patients first,” said Aditee Narayan, MD, MPH, associate dean of curricular affairs. “The ideal physician integrates all aspects of care at the bedside — they must consider the underlying biomedical principles, communicate compassionately, consider social context and drivers, balance ethics, consider health care costs, and appreciate the role of new technology. Teaching our students to do this from day one allows them four years of practice before they graduate, setting them up to be role models and change agents.”

Medical education leaders are quick to point out that the program will still have a strong emphasis in basic science and clinical research. Faculty leaders intend to keep these key elements of Duke’s existing curriculum — the research focus in the third year, for example, will remain a cornerstone — while developing and incorporating new and important facets.

“When I went to medical school, we sat in a classroom, we took notes,” said Buckley. “There was a sage on the stage who pontificated eloquently about a particular topic, and we sort of absorbed it. That’s not a good way for adults to learn. Adults learn better if they understand why they need to learn the particular information and if they can use that information relatively quickly. So we have developed a curriculum which tries to keep those principles in mind.”





Nick Heaton, PhD, is interested in the little things. Microscopic, in fact. The assistant professor of molecular genetics and microbiology joined Duke in 2015 to investigate RNA respiratory viruses, primarily influenza.

Then COVID hit.

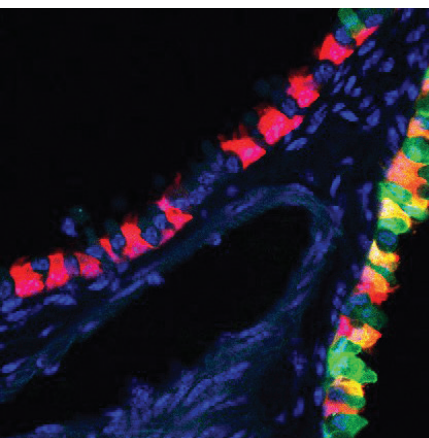
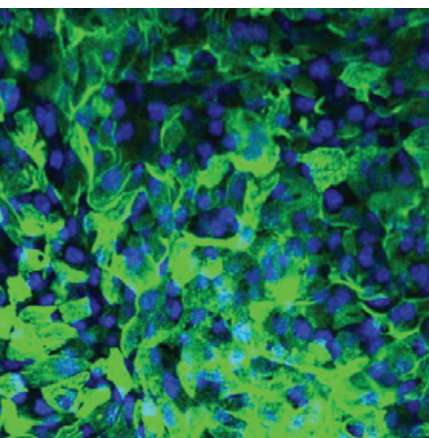
SARS-CoV-2, the virus that causes COVID-19, is also an RNA virus. RNA viruses have higher mutation

rates than DNA viruses and can be harder to treat. When the pandemic started, Heaton pivoted to focus on SARS-CoV-2. “When other people were shutting down their labs, we were ramping up,” Heaton said.

But with over 20,000 potential proteins a virus could use, needle, meet haystack. Heaton and colleagues have been using CRISPR, a powerful gene editing tool, to conduct high-throughput genetic

Using genetic ‘dimmer switches’ to combat COVID-19

By Alissa Kocer



From top: Primary lung cells infected with influenza B virus; lung cells stained with a fluorescent lectin; a lung section from transgenic mice with fluorescently labeled epithelial ciliated cells.

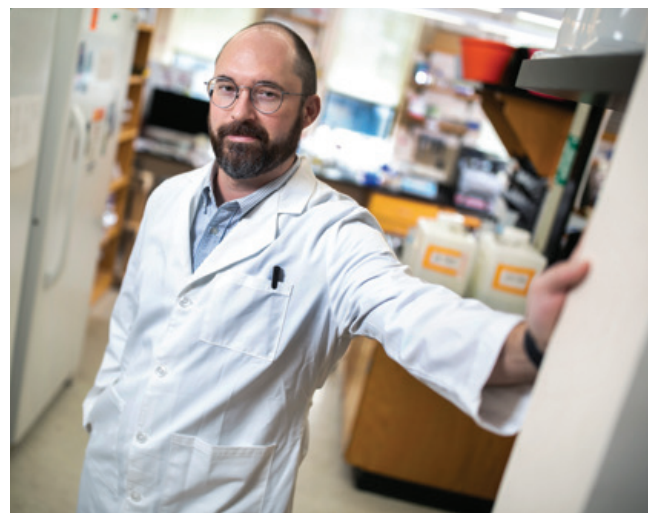
rates than DNA viruses and can be harder to treat. When the pandemic started, Heaton pivoted to focus on SARS-CoV-2. “When other people were shutting down their labs, we were ramping up,” Heaton said.

Since SARS-CoV-2 is a high biocontainment virus, he had to find space in a Biosafety Level 3 lab, which is designed to accommodate dangerous airborne pathogens, and don personal protective equipment jumpsuits to get his COVID-19 research up and running. As the pandemic has stretched on, he’s been able to gain a broader picture of how things work in different virus systems using SARS-CoV-2 as a model to compare and contrast to influenza.

Most of his work with coronavirus has been part of a host-directed therapeutics program funded by the Defense Advanced Research Projects Agency (DARPA). Host-directed therapeutics differ from standard direct-acting antivirals, which attack viral proteins to stop their function. “If viral proteins can’t function, the virus is dead,” Heaton said. “But viruses are experts at mutating, and those mutations can help them evade direct-acting antiviral drugs.”

Host-directed therapeutics, though, don’t target viral proteins; they target proteins in the host’s cells — either by blocking something the virus needs to replicate or turning on something in the cell that can fight the virus. “The virus will have a hard time mutating to escape because you’re not targeting it directly,” said Heaton. “You’re targeting what the virus is grabbing to take advantage of.”

Even more enticing, previous research has shown



Nick Heaton: “Viruses are experts at mutating, and those mutations can help them evade direct-acting antiviral drugs.”

screens to narrow the field of search. “We can use CRISPR-based technology to dial up or down all of the genes in the genome one at a time,” Heaton said.

Genes are like switches with a dimmer knob. You can turn them on or off, but you can also dial them up or down a little or a lot, controlling how much protein they express. “We can add a virus on the cells, and using these high-throughput screens, we can look for which cells are now resistant to infection or resistant to virus killing,” Heaton said.

They’ve found several proteins of interest, but looking at cells individually is like studying the ocean by looking at a glass of sea water. It doesn’t tell the whole story. An animal model provides a better understanding of what happens to these cells inside

ROOSTER/MEDIA

facts & figures

Learn more — much more — at the updated School of Medicine Facts & Figures website. bit.ly/dmFacts

1,438

Health Professions Students

563

Biomedical PhD Students

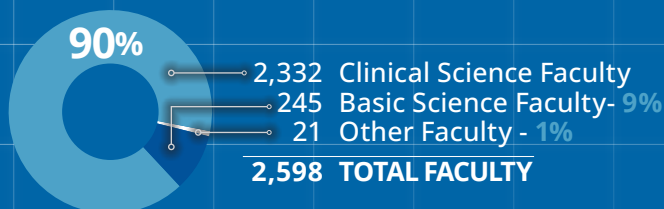
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Certificate Program Students

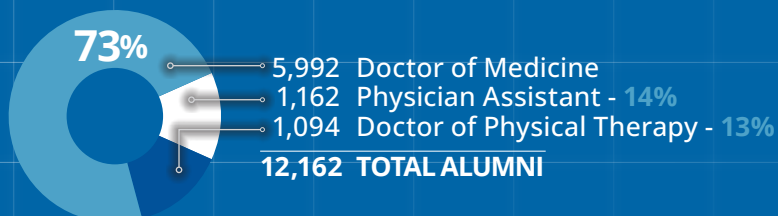
1,162

Graduate Medical Education Trainees - Residents and Fellows

FACULTY



ALUMNI



During Fiscal Year 2021, Duke had over **2,300** active clinical research studies, into which approximately **17,800** patients were enrolled.

3rd

Best Medical Schools for Research, U.S. News & World Report



Duke University Health System contributed

\$753 million

to benefit the community across North Carolina, including

\$133 million

in financial assistance for residents needing health care.

complex living systems.

So Heaton's lab is making genetically modified mice to start exploring the preliminary findings from the high-throughput CRISPR screens and prioritize potential candidates for host-directed therapeutics. They're looking for proteins that the virus needs but the host, at least temporarily, doesn't. From there, they can develop a therapeutic that can temporarily stop

a gene from producing that protein as one potential avenue for a host-directed therapeutic.

"If we can show that animals can grow, develop, and live happy, long lives without a particular protein in its body," Heaton said, "that's pretty strong evidence that a person can likely tolerate missing that protein for a week or two to combat a virus."

Heaton's long-term goals include gaining a

better understanding how viruses are using and being affected by proteins. From there, he hopes to collaborate with others to get these host-directed therapeutics into clinical trials.

"Host-directed antiviral therapeutics are an emerging area with tremendous promise," Heaton said. "Hopefully these types of early studies will help us gain some traction and make these kinds of approaches into reality."



KI

HELPING

DS

The stress and isolation of the pandemic may have a lasting toll on some children, but Duke experts say most will recover fully — and some might even emerge with new strengths

Everyone has suffered during the global pandemic — physically, economically, psychologically, or all of the above. Aside from those directly affected by COVID-19 infection, families with children at home have suffered perhaps more than most.

Parents had to figure out how to work from home or safely work outside the home, scrambling to find childcare and helping children with online school while under significant stress themselves. Children had to adapt to new ways of learning while absorbing parental stress and experiencing isolation. Families of color have endured even higher burdens of disease, death, and economic worries.

“The isolation from quarantine has led to

COPE

increases in depression, anxiety, and PTSD, and greater substance use and greater suicidal ideation and attempts,” says Ernestine Briggs-King, PhD, associate professor in psychiatry and behavioral science, and the director of research at Duke’s Center for Child and Family Health. “This is true of children and adolescents in general, and then we are seeing some alarming trends for children of color and other marginalized children and adolescents.”

Briggs-King suggests parents talk with their children, foster social connection with peers, and, if necessary, seek out mental health professionals. “When in doubt, reach out,” she says. (*See Resources, page 15*)

IN THE LONG RUN

While the mental health of children and adolescents trended downward during the pandemic, it’s not all doom and gloom. “Each individual had a different experience,” says Andrea Diaz Stransky, MD, assistant professor of psychiatry and behavioral sciences. Some children, including bullied children

By Mary-Russell Roberson

Illustrations by Joey Guidone

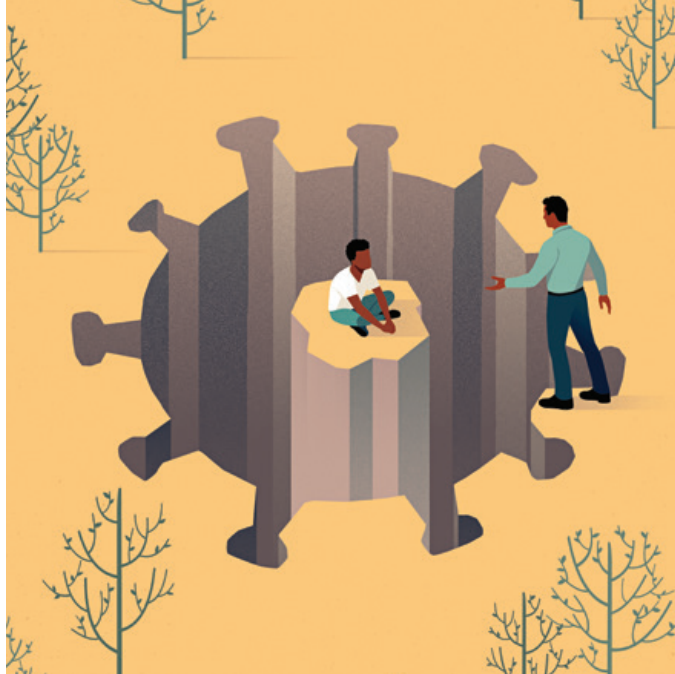
and some with social anxiety or learning differences, preferred online school. Many children benefited from increased attention from parents during lockdown. And now that schools are open again, many young people are starting to feel more like themselves.

“Children and adolescents are very flexible in many ways, so long as their developmental needs are met,” Diaz Stransky says.

It’s too soon to say what the long-term effects of the pandemic might be, but Duke experts expect outcomes will vary. Most children and adolescents will likely recover quickly. For some, the pandemic’s challenges may even spur new skills and strategies that will help them down the road.

“Much is being written about post-traumatic growth, where kids learn resilience by coping with challenges, finding meaning and important connections, and learning important self-care strategies,” says Christian Mauro, PhD, associate professor in psychiatry and behavioral sciences.

At the other end of the scale, some children and teens are at higher risk for lasting consequences, including those whose pandemic experiences involved significant loss and trauma, those previously coping with mental health issues, and those impacted by systemic racism and health inequities.



“If history is a guide, most kids will bounce back,” says Briggs-King. “But there will also be a critical subset that are headed for long-term suffering and illness if we can’t provide the basics that families need, including access to mental health and health care services, as well as stable and suitable housing, food security, and other resources.”

INFANTS AND NEW PARENTS
Babies learn about emotional connection and communication from their parents. That kind of learning happens best when the parents are mentally healthy. The pandemic put unprecedented stresses on pregnant and new mothers,

who have had to manage a life-changing transition without some of the support typically provided by family and community members.

“It’s been much more challenging for pregnant and postpartum mothers during the pandemic,” says Marla Wald, MD, associate professor of psychiatry and behavioral sciences, who treats pregnant patients and new parents.

“Postpartum depression in the general population is very common, and made more common during the pandemic, where access to services was suddenly limited. The pandemic isolation made women feel even more alone.” New mothers can shore up their mental health by prioritizing sleep, self-care time, and seeing friends. “One of the things women tend to forget when they are

“By all means, I would recommend and suggest they get the vaccine.”

EMMANUEL
WALTER JR.

DUKE STUDY AFFIRMS VACCINE’S SAFETY, EFFICACY FOR KIDS

The COVID-19 vaccine authorized by the U.S. Food and Drug Administration for children ages 5-11 is safe, effective, and the best way for parents to protect their kids from the insidious disease, a Duke doctor who led a trial examining the vaccine’s effectiveness said.

Emmanuel Walter Jr., MD, MPH, a pediatrician and chief medical officer at the Duke Human Vaccine Institute (DHVI), said government regulators’ approval of the Pfizer vaccine for use in young kids can be a true game-changer — if enough parents choose it for their children.

“My advice to parents is this is the best way to protect your child from serious illness and potentially death from COVID... Get them vaccinated,” Walter said. “It’s the best tool we have. By all means, I would recommend and suggest they get the vaccine.”

Walter led a trial at Duke examining the vaccine’s effects on youngsters, a study that evaluated several different doses. His study and others found the best results in that age group came from a 10-microgram dose, which is one-third of what adults receive. That is the dose the Food and Drug Administration approved for use in children 5-11 on October 29.

Walter said the approved dose should produce “a good, robust immune response” in most children across that age group, and that the vaccine’s safety in children is comparable to that seen in adults.

Just as with adults, Walter said, getting as

many children vaccinated as possible will help protect the entire population. With the current delta variant surge, he said, children account for approximately 25 percent of reported cases of COVID-19. And although most children experience milder symptoms than adults, he pointed out that some children do get very ill and even die from the disease — including some 160 deaths in the 5-11 age group.

“And that’s way more deaths than occur due to influenza in a typical year,” Walter said. “So if you put it in that perspective in terms of health, we really do need to get children vaccinated. It’s really to allow kids the freedom to be kids and do all the things comfortably that kids do: go to school, do sports activities, other after-school activities and recreational activities, and do the normal things kids want to do.”

— Eric Ferreri

Find a location for children’s vaccinations in North Carolina bit.ly/dmKidsVax

pregnant or postpartum is that they have to engage in self-care in order to be the best mom possible,” Wald says. If that’s not enough, Wald suggests reaching out to a trusted healthcare provider for guidance.

MAINTAINING ROUTINES

For children in daycare or preschool, the pandemic disrupted the structure of their day. “Young kids thrive on routines,” says Naomi Davis, PhD, assistant professor in psychiatry and behavioral sciences.

For many children, when daycares and preschools closed, screen time replaced in-person interactions and explorations.

“Young kids learn by interacting with people to learn about the world and emotions,” Davis says. “There is a pretty big impact on young kids if they get cut off from those kinds of opportunities in everyday life.” Children with developmental delays also lost many kinds of in-person support services.

Daycares and schools are open now, but outbreaks can still send kids home for a week or 10 days to quarantine.

Davis says parents can help their children by maintaining routines for mealtimes and bedtimes. Keeping those things stable makes it easier for kids to manage unexpected changes in other parts of their day.

A SENSE OF CONTROL

Structure is also important for kids in elementary school. “The big struggle for school-aged kids was the loss of structure and routines that give kids a sense of predictability and control,” Mauro says. “When you take that away, it can be unnerving and unsettling.”

When schools closed, kids also missed out on social interactions with peers, and in some cases, free meals and social services.

Mauro has seen higher rates of anxiety and depression in his young patients. In general, children who had mental health issues before the pandemic were more affected. He says parents can help their children by validating that uncertainty is hard, and

by reassuring them that some things are certain — such as the love and support of their family.

For most of his patients, going back to school is helping. But some are struggling with the adjustment to interacting in person. Mauro worries that the increase in screen time is contributing to the rise in sleep disturbance among children and may contribute to other problems down the line, such as obesity.

BUILDING RESILIENCE

For most adolescents, the pandemic put the brakes on the developmental task of seeking independence from parents and spending more time with peers. Diaz Stransky says some of her teenaged patients distanced themselves from their families virtually, in some cases even reversing their sleep schedules so they could interact with friends online at night and sleep during the day when their families were up and about.

Diaz Stransky says using social media to connect has pluses and minuses. Chatting with a friend online can be helpful, but doom-scrolling or fishing for “likes” can make things worse. “Ideally, finding ways for teens to safely interact even with one or two other peers is a more meaningful connection,” she says.

The good news? “The majority of teens are coping and are quite resilient,” Diaz Stransky says. “There are things we can do to build that resilience. Find ways to help them stay connected and find the support they need so they can thrive.”

She advises parents to talk regularly with their teens, even though, as she says, “It is part of their developmental task to think more independently, and this might mean they don’t always share everything with you.”

Her other tips for teens apply to everyone in the family: Maintain a routine. Get enough sleep. Exercise.

“Go for a run or go for a bike ride,” she says. “Be physically active on a regular basis. Staring at a screen all day is not healthy for anyone.”

WHEN — AND WHERE — TO GET HELP

How do you know if your child needs professional help? Talk to your child, but also look for unspoken clues. Changes in behavior, such as a marked change of mood, loss of motivation, extreme sadness, and changes in eating or sleeping patterns, can signal that it’s time to reach out for professional help: a pediatrician, a guidance counselor at school, a minister or rabbi, or a mental health hotline.

RESOURCES

For providers

North Carolina Psychiatry Access Line (NC PAL), a collaboration between the Duke Department of Psychiatry and Behavioral Sciences and the North Carolina Department of Health and Human Services, is a free telephone consultation and education program for professionals who provide health care to children, adolescents, young adults up to age 21, pregnant people, and those who have recently given birth. Health care providers can call **919-681-2909**, Monday through Friday, 8 a.m.-5 p.m.

Pause-Reset-Nourish handout to promote wellbeing: bit.ly/dmReset

Supporting Kids’ Mental Health During COVID-19, National Institute of Mental Health: bit.ly/DMkidshealth

For parents and families

The National Alliance on Mental Illness NAMI HelpLine at **800-950-NAMI (6264)**, Monday through Friday, 10 a.m.-10 p.m. Eastern Email info@nami.org In a crisis, text NAMI to **741741** for 24/7 for free confidential counseling.

Alliance Health (Durham, Wake, Cumberland, Johnston counties) 24-hour Access and Information line: **800-510-9132**

Suicide Hotlines 800-SUICIDE or **800-784-2433** or 800-273-Talk or **800-273-8255**

Taking Care of Yourself & Your Loved Ones, a Duke Psychiatry Webinar Series bit.ly/dmWebinar

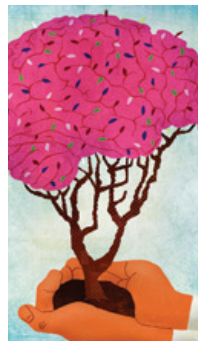
Duke, UNC Awarded Alzheimer's Research Center

Duke University and the University of North Carolina at Chapel Hill in September were awarded funds from the National Institutes of Health to establish a prestigious Alzheimer's Disease Research Center (ADRC), part of a federally funded national network of similar centers.

The research center, one of 33 nationwide, will focus on identifying age-related changes across the lifespan that impact the development, progression, and experience of Alzheimer's and related dementias. The center will also identify how factors that arise in early- and mid-life contribute to racial, ethnic, and geographic disparities in dementia.

NIH funding for the joint Duke/UNC center is expected to total \$14.8 million over the next five years. The Duke/UNC center is part of a unique collaboration between the two universities that began in 2019.

Heather Whitson, MD, MHS'09, HS'00-'06, professor of medicine and director of the Duke Center for the Study of Aging and Human Development, is one of the new center's co-principal investigators, along with Gwenn A. Garden, MD, PhD, professor and chair of the Department of Neurology at the UNC School of Medicine. Whitson and Garden said the NIH funding will enable teams from both institutions to engage local communities with new hypotheses about Alzheimer's disease.



Heather Whitson

School of Medicine Ranked Third in Nation

U.S. News & World Report (USNWR) currently ranks Duke University School of Medicine the nation's **No. 3** medical school for research — tying Duke's highest ranking ever — among 122 medical schools in the magazine's annual ranking of graduate programs. Duke was also ranked third in 2001.

Seven specialty programs in the School of Medicine placed in the top 10:

- ▶ Surgery **2nd**
- ▶ Anesthesiology **4th**
- ▶ Internal Medicine **5th**
- ▶ Radiology **6th**
- ▶ Pediatrics **7th**, tied
- ▶ Obstetrics and Gynecology **8th**
- ▶ Psychiatry **10th**

In a new *USNWR* ranking this year to measure how medical schools are performing on the diversity of graduates, Duke tied for **20th** nationally among 118 medical schools.

This year, the School of Medicine has also placed highly in other national assessments, including:

- ▶ **No. 3** among allopathic medical schools, by the Student Doctor Network;
- ▶ **No. 10** for funding from the National Institutes of Health, by the Blue Ridge Institute for Medical Research;
- ▶ **No. 16** internationally among medical schools, by QS World University Rankings.

Drug Developed at Duke Receives FDA Approval

The U.S. Food and Drug Administration in October approved a regenerative medicine based on **Louise Markert, MD, PhD's**, pioneering work as the only therapy for congenital athymia, a grouping of rare diseases, including complete DiGeorge Syndrome, that are characterized by the lack of a functioning thymus. Without the thymus, which trains the body's T-cells to fight pathogens, seemingly harmless infections can be fatal. Without treatment, infants with congenital athymia conditions typically die by the age of three.

The newly approved therapy, which Duke licensed to



Duke Performs First-in-U.S. Artificial Heart Implant

A surgical team at Duke University Hospital, led by **Jacob Schroder, MD, HS'01-'12**, and **Carmelo Milano, MD, HS'94-'95, HS'99**, successfully implanted a new-generation artificial heart in a 39-year-old man with heart failure, becoming the first center in North America to perform the procedure.

The artificial heart was developed by CARMAT and is approved for use in Europe. Last year, the company received U.S. Food and Drug Administration approval to begin studies in the U.S. to potentially enroll 10 patients with end-stage biventricular heart failure.

The artificial heart developed by CARMAT is an implantable prosthetic that includes biological valves derived from bovine tissue. It operates on an external power supply.



Louise Markert



Barton Haynes



ROOSTER MEDIA

Duke Opens RTP Research Campus

In June 2021, Duke opened Duke Research and Discovery @RTP, a research facility in Research Triangle Park devoted to the study of infectious disease.



273,000 square-foot facility

4 levels of wet labs, high-end equipment and biorepository space, and space to conduct clinical trials

60 state-of-the-art lab spaces for more than 14 principal investigators and their teams

Researchers working on vaccine development as well as scientists in the Departments of Surgery, Immunology, Pediatrics, and Medicine will occupy the new facility.

The expansion into RTP was precipitated by Duke's acquiring federal research grants and contracts totaling more than

\$600 million to fund vaccine development.

READ MORE bit.ly/dmRTP

Enzyvant Therapeutics for development in 2016, uses thymus tissue that undergoes a series of intricate processes and then is implanted in babies with athymia, where it selects T-cells to recognize and attack pathogens.

Markert has been conducting research that led to the new therapy for 30 years. In 1997, she and colleagues at Duke including **Barton Haynes, MD, HS'73-'75**, published a case study chronicling a first success in an infant with DiGeorge syndrome. That advance helped spur Duke's reputation as a leading center for treating children born with certain types of severe immunodeficiency.

Surgeons Perform Pediatric DCD Transplant

Surgeons at Duke University Hospital successfully performed a "donation after circulatory death" (DCD) heart transplant in a pediatric patient, demonstrating the potential expansion of eligible donor hearts for children with heart failure.

The transplant is the first for a pediatric patient in the U.S. involving a DCD transplant using the organ preservation technology

developed by Transmedics.

Joseph Turek, MD, PhD, HS'02-'10, chief of pediatric cardiac surgery, and Benjamin Bryner, MD, retrieved the donated organs. **Nick Andersen, MD, HS'08-'17**, and **Jacob Schroder, MD, HS'01-'12**, led the eight-hour surgery, which also included a team of four nurses.

Duke is a leader in DCD transplantation. In 2019, Duke surgeons performed the first adult DCD heart transplant in the United States and led the nation in DCD heart transplants as part of a clinical trial that contributed to the company's FDA application for approval.



A floor plan and directional signs in the hallway helped staff move 27 patients from the Duke Medicine Pavilion to the newly opened Duke Central Tower.

Patients Move Into New Bed Tower

The first group of patients moved into Duke Health's new Central Bed Tower in October. The new 11-floor, 480,000-square-foot tower includes new advanced surgical, diagnostic, and treatment rooms and 350 patient beds, upgrading but not expanding Duke University Hospital's existing bed count. The top five floors feature adult patient beds and will serve neurosciences, solid organ and bone



Denise Baker was one of 27 patients that were moved from the Duke Medicine Pavilion to the newly opened Duke Central Tower.

marrow transplant, oncology, and orthopaedics admissions. The lower four floors are dedicated to children's

inpatient services and are designed to provide flexible, family-centered space and a child-friendly environment.

Duke-led Teams To Explore Parkinson's

Researchers at Duke University School of Medicine have been selected to lead two inter-institution team grants totaling \$18 million to investigate Parkinson's disease.

The awards from the Aligning Science Across Parkinson's (ASAP) initiative position Duke as a national leader in understanding the origins and development of this devastating movement disorder.

Duke's coordinating lead investigators for the two research projects are Nicole Calakos, MD, PhD, Lincoln Financial Group Distinguished Professor of Neurobiology and Neurology; and Rodger Liddle, MD, professor of medicine.

Parkinson's disease is a progressive neurodegenerative disease causing tremors, rigidity, slowed movement, and other symptoms. Close to one million people in the United States have Parkinson's disease.

Calakos' team project will examine how the vulnerability of dopamine neurons is influenced by the connections they make with neighboring cells in the brain. Dopamine neurons die as Parkinson's progresses and are a major cause of the slowed movements and other symptoms associated with the condition.

Liddle's project will investigate the role that specialized cells in the gut known as enteroendocrine cells play in the origins of Parkinson's disease.



A closer look at the people of the Duke University School of Medicine and their inspiring stories
magnify.duke.edu

Colin Smith's 'Why' Is Social Justice

Helping people — whether it be at a makeshift COVID-19 field hospital in New York City or through the Healthcare for the Homeless volunteer psychiatric center in Durham — is what drives the work of internal medicine-psychiatry resident Colin Smith, MD.

Sonali Biswas' Quest to Serve

Medical student Sonali Biswas is studying surgical anatomy at Duke with the ultimate goal of helping patients feel better about and gain better use of their bodies.





Rauch Family Foundation Makes Historic Gift for Financial Aid

A family foundation established by the late **Dudley Rauch, AB'63**, last June pledged \$30 million to establish an endowment for need-based financial aid for medical students in the Duke University School of Medicine.

The gift by the Rauch Family Foundation is the single largest commitment for financial aid ever made to the School of Medicine.

Rauch, an alumnus with deep ties to Duke, established the first all-inclusive scholarship in the School of Medicine in 2013. Rauch died in July of 2018, but the Rauch Family Foundation continued discussions he had begun with Duke officials about making a transformational gift for financial aid.

School of Medicine **Dean Mary E. Klotman** said the Rauch Family Foundation's generosity will ease the financial burden on generations of medical students at Duke. The gift will help open the path to a career in medicine to more students from diverse backgrounds and enhance Duke's ability to compete for the highest caliber of incoming students.

\$100 Million Gift Advances Science and Technology

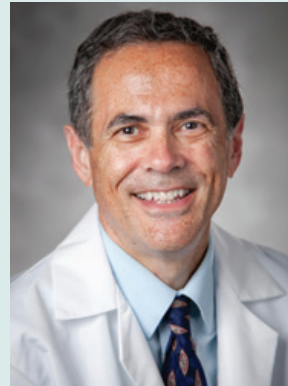
The Duke Endowment of Charlotte, North Carolina, last summer supported Duke University's efforts to expand its faculty in computation, materials science, and the resilience of the body and brain by completing the second phase of a \$100 million investment.

This is the largest award Duke University has ever received.

The funds form the base of Duke Science and Technology, a faculty-hiring and fundraising effort designed to elevate excellence in the sciences at Duke. (See Story, page 4) They will be used to accelerate and expand the recruitment of new faculty in science, medicine, technology, engineering, and mathematics.

The first \$50 million of The Duke Endowment's historic commitment to support Duke Science and Technology was announced in 2019.

In the two years since the university announced the first half of this \$100 million award, the Duke Endowment's investment has been used to recruit and retain some of the country's leading scholar-scientists in a range of disciplines. Duke Science and Technology is an investment in science and technology faculty, infrastructure, and research that leads to global impact.



Foundation Gift Honors Neil Spector

The Bay Area Lyme Foundation this year provided a grant of more than \$2 million to support Lyme disease research at Duke University School of Medicine in honor of the late Neil L. Spector, MD, a leading cancer researcher at Duke who died in 2020.

Spector was the Sandra Coates Associate Professor in the Department of Medicine, an associate professor of pharmacology and cancer biology, and a member of the Duke Cancer Institute. In 2015 he published a memoir, *Gone in a Heartbeat: A Physician's Search for True Healing*, which chronicled his long battle with Lyme disease, which went undiagnosed and untreated for years.

The Bay Area Lyme Foundation's grant will fund research that Spector started with Timothy Haystead, PhD, professor in the Department of Pharmacology and Cancer Biology, which aims to develop an effective treatment for Lyme disease.

\$1.5 million Gift Supports ALS Research

The lives of three men were honored this year through a \$1.5 million gift to establish the Stewart, Hughes, and Wendt ALS Research Endowment. The endowment supports amyotrophic lateral sclerosis (ALS) research at Duke and acknowledges D. Loy Stewart, Larry V. Hughes, and George C. Wendt, three individuals who died of the disease.

ALS is currently incurable, and so far, no treatment that can stop or slow the progression of the disease has been found. Average life expectancy for patients after diagnosis is two to five years.

Richard Bedlack, MD, PhD, director of the Duke ALS Clinic, said the endowment will help further Duke's efforts to unlock the secrets of ALS and develop new therapies that can slow and perhaps even reverse the disease's progression.

Bequest Supports Alzheimer's Research

A planned gift of \$2.5 million by Jeanne Caldwell, a retired school teacher who lived in Charlotte, North Carolina, will support Alzheimer's disease research at Duke.

Caldwell died in 2019, and her gift established the Mary Elizabeth Schrum Caldwell Research Fund, named in honor of her mother, who had Alzheimer's disease. Caldwell cared for her mother for 11 years before her death in 2015.

The fund supports the work of researchers at Duke seeking to understand the processes of Alzheimer's disease and ultimately develop effective therapeutic interventions.

MAKING A DIFFERENCE



ARAM BOGHOSIAN

Carol Deane, a longtime donor and former chair of the School of Medicine Board of Visitors, supports the school for a very simple reason: because it will make a difference. “I believe some of the next breakthroughs that will change outcomes for the better are going to come at Duke,” she says. “Anything I can do to help that happen sooner or better is worth doing.”

Earlier this year, Deane made a major gift to establish a distinguished professorship within the School of Medicine. “I was brought up to believe that if you can give back, you should,” she says. “It doesn’t have to be a large amount: small donations can make a big difference too. Help to the extent that you can.”

To learn more about how to support the School of Medicine, please contact **Sarah Nicholson**, assistant vice president for Development and Alumni Affairs, at sarah.nicholson@duke.edu.

You can make a gift online at gifts.duke.edu/dmaa.

School Launches Plan to Dismantle Racism

Since launching its Moments to Movement initiative in June 2020, Duke University School of Medicine has begun work to better understand the root causes and harms of racism and to develop strategies to reduce racial inequity. In June 2021, the school presented a strategic plan called “Dismantling Racism and Advancing Equity, Diversity and Inclusion in the School of Medicine.”

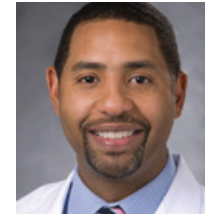
The anti-racism strategic plan is the culmination of the work of hundreds of individuals from across the school who participated in committees representing each of the school’s four main constituencies: health professions students, graduate students and postdocs, faculty, and staff.

Over the next five years, school leaders will implement a broad range of strategies identified in the plan. It outlines five overarching goals that will drive the school’s mission to be an inclusive, equitable, and anti-racist medical school. Several priorities support these goals, which focus on ways to enhance culture, diversity, education, research, and leadership capacity and accountability throughout the school.

“This process was deep, broad, and it was incredibly intensive,” says **Dean Mary E. Klotman**. “The strategic plan is a living document that will evolve, but it gives us a guide for action. It’s going to take each of us to consider the actions

we can take as individuals, in our departments to support the school’s goals.”

Among the strategic plan’s many action items is the creation of a new leadership role: vice dean for diversity, equity, and inclusion. In November, **Kevin Thomas, MD, HS’99-’07**, associate professor of



Kevin Thomas

medicine, was named to fill this critical role. He will be responsible for overseeing the implementation of the strategic plan and ongoing development of additional diversity and inclusion efforts at the school. Thomas will partner with Duke University and Duke University Health System diversity and inclusion leaders to ensure strategies across campus are aligned and will serve as a key advisor to the dean of the School of Medicine.

Keeping in line with key elements of the strategic plan, several educational opportunities have been made available to faculty, staff, and students, such as the racial equity workshop series called Teaching & Leading Equity Now. In addition, an employee resource group, the ME² (Motivate, Mentor, Educate & Empower) Black Employee Resource Group recently launched. The group’s members aim to empower Black staff members in the School of Medicine, who often experience being overlooked and unheard, and to offer them resources for support and professional development.

School leaders will continually update the School of Medicine community on additional progress made toward the plan’s goals.

— *Bernadette Gillis*

OUR PRIORITIES

Cultivate an Inclusive, Equitable and Anti-Racist Environment

Nurture, Reward and Attract Outstanding Talent

Advance Education and Training to Support an Anti-Racist Workforce

Develop Anti-Racist, Equity-Centered and Community Engaged Research Practices

Ensure Sustainability by Strengthening Leadership Capacity and Organizational Accountability

READ THE FULL STRATEGIC PLAN AT medschool.duke.edu/M2M

Three win NIH High-Risk, High-Reward Awards

The National Institutes of Health has awarded grants to three Duke University School of Medicine faculty members through the Common Fund's High-Risk, High-Reward Research program. The program funds highly innovative and broadly impactful biomedical or behavioral research by exceptionally creative scientists.

Josh Huang, PhD, a professor of neurobiology, received a Pioneer Award. The Pioneer Award provides \$700,000 in direct costs per year for up to five years.

Tiarney Ritchwood, PhD, an assistant professor in the Department of Family Medicine and Community Health; and Clare Smith, PhD, an assistant professor of molecular genetics and microbiology, earned New Innovator Awards. New Innovator Awards provide \$1.5 million in direct costs split into two multi-year segments.

Zhang Named Pew Scholar

Zhao Zhang, PhD, assistant professor of pharmacology and cancer biology in the School of Medicine, has been named a **2021 Pew Scholar in the Biomedical Sciences**. The award provides four years of exploratory research funding to young investigators of outstanding promise as they investigate timely questions surrounding health and disease. Zhang is one of 22 scholars to receive the award this year.

Zhang came to Duke in 2019 as one of the first

faculty members to be recruited with funds from the Duke Science and Technology initiative.

Each Pew Scholar in the Biomedical Sciences receives \$75,000 per year for four years, a total of \$300,000. The 2021 class of scholars — all early-career junior faculty — were chosen from 198 applicants and nominated by leading academic institutions and researchers across the United States.

Nine SOM Faculty Earn Distinguished Professorships

Nine faculty members in the Duke University School of Medicine were awarded distinguished professorships in 2021. Distinguished professorships are awarded to faculty who have demonstrated extraordinary scholarship in advancing science and improving human health.

The 2021 recipients from the School of Medicine are:

Nanaline Duke Distinguished Professor – L. Ebony Boulware, MD'95, MPH

George and Geneva Boguslavsky Professor of Eye Research – Catherine Bowes Rickman, PhD

George Barth Geller Distinguished Professor of Pharmacology – Christopher Counter, PhD

Wilburt C. Davison Distinguished Professor of Pediatrics – Rasheed Gbadegesin, MD, MBBS

Duke Health Cardiology Professor – Adrian Hernandez, MD, MHS'06, HS'00-'04

James B. Duke Distin-



Josh Huang



Tiarney Ritchwood



Zhao Zhang



Maureen Cullins



Jacqueline Barnett



Marcus Taylor

gished Professor of Molecular Genetics and Microbiology – Sue Jinks-Robertson, PhD

Mary Bernheim Distinguished Professor of Medicine – Virginia Byers Kraus, MD'83, PhD'93, HS'83-'89

George Barth Geller Distinguished Professor of Cardiovascular Disease – Deborah Muoio, PhD

Gustavo Montana Distinguished Professor of Radiation Oncology – Fang-Fang Yin, PhD

Six Faculty Receive Strong Start Awards

Six School of Medicine faculty members have been selected to receive 2021 Physician-Scientist "Strong Start" awards. The awards program, funded with a gift from the Nanaline H. Duke Fund, supports promising early career physician-scientists at Duke as they develop independent research programs. Each recipient will receive \$75,000 annually for three years to support their research programs.

This year's recipients are:

Christine Eyler, BS'04, MD'12, PhD'10, Department of Radiation Oncology

Joseph S. Fernandez-Moure, MD, MS, Department of Surgery

Katy Liu, MD, PhD, HS'15-'18, Department of Ophthalmology

Stacey Maskarinec, MD, PhD, HS'14-'18, Department of Medicine

Robert McGarrah, MD, HS'12-'16, Department of Medicine

Kevin Southerland, BS'05, MD, HS'09-'18, Department of Surgery

Michelle Winn Awardees Named

The Duke University School of Medicine earlier this year announced the recipients of the **2021 Michelle P. Winn Awards**, which recognize exceptional achievement within the field of diversity and inclusion. The Winn award is named for the late Michelle P. Winn, MD, an associate professor of nephrology within the Department of Medicine.

Maureen Cullins, BA'76, AM, received the Michelle P. Winn Staff Award for her continued leadership, advocacy, and commitment to education as co-director of the Multicultural Resource Center.

Jacqueline Barnett, DHSC, MSHS, PA-C, received the Michelle P. Winn Faculty Award for her commitment to diversity and inclusive excellence.

Marcus Taylor, a second-year Doctor of Physical Therapy (DPT) student, received the Michelle P. Winn Student Award for his leadership and innovative approaches to foster inclusion.

Gabriela Maradiaga Panayotti, MD, and Viviana Martinez-Bianchi, MD, received the **Michelle P. Winn Team Award** for their contributions to the development of LATIN-19 (Latinx Advocacy Team & Interdisciplinary Network for COVID-19), as well as for other numerous contributions to diversity and inclusion.

Heitman Elected to National Academy

Joseph Heitman, MD, PhD, the James B. Duke Professor and Chair of the Department of Molecular Genetics and Microbiology in the Duke University School of Medicine, was elected a member of the National Academy of Sciences (NAS), one of the highest honors in the profession.

Heitman joins Rachel Kranton, PhD, the James B. Duke Distinguished Professor of Economics and Dean of Social Sciences in the Trinity College of Arts and Sciences, as Duke faculty members elected to the institution this year.

A Burroughs-Wellcome Scholar and Howard Hughes Medical Institute investigator, Heitman is a fellow of the American Academy of Microbiology, the American Society for Clinical Investigation, the Association of American Physicians, the American Association for the Advancement of Science, and the American Academy of Arts and Sciences. He joined Duke in 1992 and became chair of the Department of Molecular Genetics.

Three SOM Faculty Named to AAAS

Three Duke University School of Medicine senior faculty were named Fellows of the American Academy of Arts and Sciences (AAAS) in 2021. Founded in 1780, the Academy honors exceptional scholars, leaders, artists, and innovators and engages them in sharing knowledge and addressing challenges facing the world.

This year's School of

Medicine members are:

L. Ebony Boulware, MD'95, MPH, Nanaline Duke Distinguished Professor of Medicine, chief of the Division of General Internal Medicine in the Department of Medicine, vice dean for translational science, and director of the Duke Clinical and Translational Science Institute.

Sue Jinks-Robertson, PhD, Mary Bernheim Distinguished Professor, vice-chair and professor in the Department of Molecular Genetics and Microbiology in the School of Medicine.

Mary E. Klotman BS'76, MD'80, HS'80-'85, dean of the Duke University School of Medicine, vice-chancellor of health affairs at Duke University, and R.J. Reynolds Distinguished Professor of Medicine.

They join **Anne D. Yoder, PhD'92**, Braxton Craven Distinguished Professor of Evolutionary Biology in the Trinity College of Arts and Sciences, as this year's AAAS Fellows elected from Duke.

Two Scientists Named HHMI Investigators

Kafui Dzirasa, MD'09, PhD'07, HS'10-'16, the K. Ranga Rama Krishnan Associate Professor in the Department of Psychiatry and Behavioral Sciences, and **Cagla Eroglu, PhD**, associate professor in the Department of Cell Biology, have been named Howard Hughes Medical Institute (HHMI) investigators. HHMI provides its researchers with long-term flexible funding that gives them the freedom to explore and, if necessary, change direction.

Dzirasa and Eroglu are two of 33 new investigators named this year by the institute, which selects recipients



Gabriela Maradiaga Panayotti



Viviana Martinez-Bianchi



Kafui Dzirasa



Cagla Eroglu



Kevin Thomas

based on their potential to make transformative discoveries over time. Each new investigator receives roughly \$9 million over a seven-year term, which is renewable pending a successful scientific review.

Dzirasa is a psychiatrist and engineer examining the role of brain electricity in mental health disorders. Eroglu studies how sprawling star-shaped brain cells known as astrocytes help construct the circuitry of the brain.

Thomas Named Vice Dean For Diversity

Kevin Thomas, MD, HS'99-'07, associate professor of medicine, has been named Duke University School of Medicine's first vice dean for diversity, equity and inclusion. Thomas most recently served as assistant dean for underrepresented faculty development for the School of Medicine and as director of faculty diversity and health disparities research for Duke Clinical Research Institute.

Thomas will lead the School's Office of Diversity and Inclusion and will serve as a key advisor and partner to the dean to advance the school's goal of cultivating an inclusive, welcoming, respectful, and supportive working and learning environment. He and his team will collaborate with staff, faculty, and students across the school to implement the School of Medicine's Moments to Movement Strategic Plan to Dismantle Racism and Advance Equity, Diversity and Inclusion and to develop and implement a broad range of policies and programs rooted in equity that foster a greater sense of belonging, engagement, and achievement among all members of the School of

Medicine and the larger Duke Health community.

Thomas has developed and led a number of programs that facilitate academic achievement and promotion of underrepresented racial and ethnic faculty in the School of Medicine, including the School's Academic Development, Advocacy, Networking Coaching, and Education in Underrepresented Populations (ADVANCE-UP) faculty development program. In 2016, he was the inaugural recipient of the School's Michelle P. Winn Inclusive Excellence Award, which recognizes individuals who have made significant contributions to diversity and inclusion.

Dzirasa Elected to NAM

Kafui Dzirasa, MD'09, PhD'07, HS'10-'16, the K. Ranga Rama Krishnan Associate Professor in the Department of Psychiatry and Behavioral Sciences, has been elected to the prestigious National Academy of Medicine (NAM). Election to NAM is considered one of the highest honors in the fields of health and medicine and recognizes individuals who have demonstrated outstanding professional achievement and commitment to service.

Dzirasa was selected to NAM in recognition of his seminal contributions to the neuroscience of emotion and mental illness; for pioneering methods for massively parallel neural recordings and analysis thereof in mice; and for contributions to society through science policy and advocacy, a commitment to mentoring, and support for efforts to build a diverse and inclusive scientific workforce, according to the Academy.

Team Identifies New Antibody For COVID-19 and Variants

A research collaboration between scientists at Duke University and the University of North Carolina at Chapel Hill has identified and tested an antibody that limits the severity of infections from a variety of coronaviruses, including those that cause COVID-19 as well as the original SARS illness.

The antibody was identified by a team at the Duke Human Vaccine Institute (DHVI) and tested in animal models at UNC-Chapel Hill. Researchers published their findings Nov. 2 in the journal *Science Translational Medicine*.

“This antibody has the potential to be a therapeutic for the current epidemic,” said co-senior author **Barton Haynes, MD, HS’73-’75**, director of DHVI. “It could also be available for future outbreaks, if or when other coronaviruses jump from their natural animal hosts to humans.”

Haynes and colleagues at DHVI isolated the antibody by analyzing the blood from a patient who had been infected with the original SARS-CoV-1 virus, which caused the SARS outbreak in the early 2000s, and from a current COVID-19 patient.

They identified more than 1,700 antibodies, which the immune system produces to bind at specific sites on specific viruses to block the pathogen from infecting cells. The researchers focused on antibodies that target these sites because of their potential to be highly effective across different lineages of a virus.

Of the 1,700 antibodies from the two individuals, the Duke researchers found 50 antibodies that had the ability to bind to both the SARS-CoV-1 virus as well as SARS-CoV-2, which causes COVID-19.

Further analysis found that one of those cross-binding antibodies was especially potent — able to bind to a multitude of animal coronaviruses in addition to the two human-infecting pathogens.



Barton Haynes



Tomi Akinyemiju

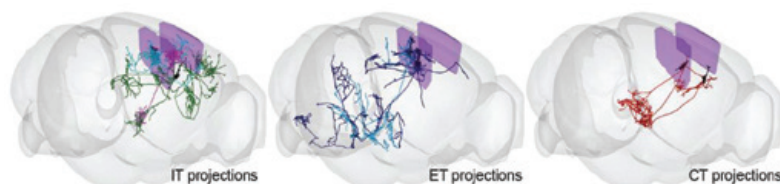
Equal Access to Care Erases Lung Cancer Disparities

Although Black lung cancer patients are more likely to die from their disease than white patients, they have better outcomes than whites when treated with immunotherapies that are now considered the best standard of care.

This disconnect indicates that barriers to care are a key driver behind the racial disparities in lung cancer survival rates.

The study, by a team of researchers led by Tomi Akinyemiju, PhD, an associate professor in the Department of Population Health Sciences at the Duke University School of Medicine, used the National Cancer Database to identify more than 3,000 patients with advanced lung cancer who were diagnosed between 2015-16 and treated with immunotherapies.

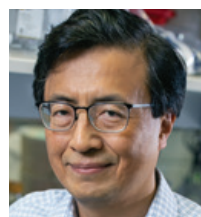
The researchers found that the death rate among Black patients who were treated with immunotherapy was 15% lower than for whites. The finding confirms prior research suggesting that racial disparities in survival are mitigated if patients receive equal treatment.



Duke Neuroscientist Co-Leads Brain Mapping Effort

Josh Huang, PhD, a professor of neurobiology at Duke University School of Medicine, is among the leaders of an international consortium engaged in a massive National Institutes of Health-funded project to map the brain. Huang is one of 13 corresponding authors, and one of three principal manuscript editors on the flagship paper, in a special collection of 17 new papers that appeared in October in the journal *Nature*. He is also lead author on two other articles of the package.

The papers describe research done by the BRAIN Initiative Cell Consensus



Josh Huang



Susan D. Emmett

Network, a consortium of more than 250 neuroscientists, that describes in unprecedented detail the structure — cell by cell — of the motor cortex in mouse, marmoset monkey, and human brains. The effort has also produced a comprehensive cellular-level wiring diagram of the mouse primary motor cortex.

The researchers have examined millions of neurons and other kinds of cells in the motor cortex and sorted them into hierarchical categories. The mapping so far is characterizing each of the different kinds of cells in the motor cortex and estimating how many of each type there are and where they are located. Their connectivity, the complexity that drives the brain’s abilities, is also starting to be mapped.

Huang, who came from Cold Spring Harbor Laboratory to Duke in 2020 as a Duke Science and Technology Scholar, has developed many of the genetic engineering tools to study the brain’s circuitry.

Project Will Explore Rural Health Disparities

The National Institutes of Health (NIH) has awarded Susan D. Emmett, MD, MPH, associate professor of head and neck surgery & communication sciences at Duke University School of Medicine, a grant through the NIH Common Fund’s Transformative Research to Address Health Disparities and Advance Health Equity initiative. The projected \$5.5 million award over five years will support a project led by Emmett to establish and evaluate a novel model of care for children in underserved schools in rural Appalachia.

The Duke award is one of 11 grants awarded to support the work of exceptionally creative researchers across the United States totaling \$58 million over five years, pending availability of funds. Emmett and her collaborator, Matthew Bush, MD, PhD, professor of otolaryngology, head and neck surgery at the University of Kentucky, are developing a new model of school-based, telehealth-driven preventive care for rural and socioeconomically disadvantaged children.

“...it makes a medical education attainable for people who might not otherwise be able to pursue one.”

Philip Eichenholz

NOTHING FANCY

LYNDA GONZALEZ

When **Philip Eichenholz, AB’78, MD’83**, enrolled at Duke University School of Medicine, attending a top medical school was within financial reach without too much of a stretch.

Four decades on, things have changed. As health care and technology have become more complex, the cost of medical education has ballooned: nationally, average medical student loan debt is over \$215,000.

That’s why Eichenholz supports the Davison Club and the scholarship fund that helps School of Medicine

students cover the cost of attendance.

“Giving for students isn’t anything fancy,” says Eichenholz, CEO for anesthesia at Sound Physicians, a national multi-specialty medical organization. “It doesn’t get your name on any buildings. But it makes a medical education attainable for people who might not otherwise be able to pursue one. When people ask me where I went to medical school and I say ‘Duke,’ it gives me a certain instant validity. If I can help some other people have the same opportunity, I’m happy to do that.”



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

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

Distinguished Alumna

Amy P. Abernethy, MD'94, HS'94-'01, PhD

Amy P. Abernethy, MD'94, HS'94-'01, PhD, is the president of the Clinical Studies Platform at Alphabet's Verily, which uses technology to better understand health and to prevent, detect, and manage disease. She is an internationally known oncologist, health data expert, and digital health leader. Her more than 500 publications span real-world data and evidence, clinical trials, patient-reported outcomes, clinical informatics, health policy, and patient-centered care. She was principal deputy commissioner and acting chief information officer of the U.S. Food and Drug Administration (FDA), serving from February 2019 to April 2021. She initiated multiple critical efforts during her tenure, including FDA's technology and data modernization action plans and the administration's efforts to leverage real-world data and evidence to address critical questions during the COVID-19 pandemic.

Abernethy was chief medical officer and chief scientific officer

**EDUCATION:**

University of Pennsylvania; Duke University School of Medicine; Flinders University

TRAINING: Duke

University School of Medicine

CURRENT TITLE:

President, Clinical Studies Platforms, Alphabet's Verily

at Flatiron Health from July 2014 to January 2019. Before joining Flatiron, she was a professor of medicine at Duke University School of Medicine and directed the Center for Learning Health Care in the Duke Clinical Research Institute and the Duke Cancer Care Research Program in the Duke Cancer Institute. For more than 20 years, she has pioneered the development of technology platforms to spur novel advancements in clinical care, including the development of systems by which linked clinical data can support tracking cancer care, drug development, personalized medicine, and scientific discovery. She has been an appointee to multiple National Academy of Medicine committees and has served as chair of the Health Data Research UK International Advisory Board, president of the American Academy of Hospice and Palliative Medicine, and on the Board of the Personalized Medicine Coalition.

Distinguished Faculty

Priya S. Kishnani, MD, HS'91-'95

Priya S. Kishnani, MD, HS'91-'95, is the Chen Family Distinguished Professor of Pediatrics, chief of the Division of Medical Genetics, a professor in the Department of Molecular Genetics and Microbiology, core faculty member of the Duke Innovation and Entrepreneurship Initiatives, and member of the Duke Clinical Research Institute.

Throughout her career, Kishnani has conducted groundbreaking basic and clinical research in the fields of glycogen storage disease genetics and therapeutics. She has demonstrated sustained achievements and leadership in research at Duke University School of Medicine in her role as the international principal investigator and the Food and Drug Administration (FDA) liaison in pivotal clinical trials, where she was critical in study design, development of endpoints, and identification of risk factors. Kishnani's landmark discoveries led to the advent of enzyme replacement therapy in Pompe disease. She was able to take the lessons learned from the bench and translate them to the bedside. As the lead principal investigator, she designed and

**EDUCATION:**

University of Bombay; Jai Hind College

TRAINING: Duke

University School of Medicine

CURRENT TITLE:

Chen Family Distinguished Professor of Pediatrics, Duke University School of Medicine

conducted multicenter and multinational clinical trials of Myozyme, which resulted in FDA and European Medicines Agency's approval of the first-ever therapy for Pompe disease.

Kishnani developed the immune tolerance induction protocol for the prevention of the development of antibody responses and management of entrenched antibody response to therapeutic agents, and she is a pioneer in the development of novel approaches to improve cognitive function in Down syndrome. She established Duke as a Center of Excellence in rare diseases research and patient care. Duke is internationally recognized in many rare diseases, in particular as a leader in the field of glycogen storage diseases and lysosomal storage diseases.

Kishnani has lectured throughout the world, served on executive committees of the National Institute of Child Health and Human Development, the North Carolina Genetics Advisory Committee, the National Glycogen Storage Disease Association, and the Duke Department of Pediatrics, and received awards for research, mentorship, teaching, and clinical expertise.

The Physician's Role in a Pandemic

The Duke Medical Alumni Council supports the missions of the Duke University School of Medicine.

As physicians, scientists, educators, health administrators, and leaders in communities across the country and the world, we hope all our fellow alumni will join

us in supporting the school's values of:

- Excellence in education, research, and patient care
- Respect for and inclusion of people from all backgrounds
- Commitment to service, solving real-world problems
- Sense of urgency in transforming discoveries into improved human health
- Professionalism and integrity demonstrated in all

aspects of performance and effort

Expertise matters. Sharing evidence-based and scientifically reliable information with the public during a global health crisis aligns with Duke University School of Medicine's values. We affirm our fundamental respect for science and the importance of data-driven decision making, and we believe in the time-honored process by which scientific discovery is translated into medical advances. We renew our

Distinguished Alumnus

David H. Adams, BS'79, MD'83

David H. Adams is the Marie-Josée and Henry R. Kravis Professor and chair of the Department of Cardiovascular Surgery at the Icahn School of Medicine at Mount Sinai and cardiac surgeon-in-chief of the Mount Sinai Health System. Recognized by peers as one of the top mitral valve surgeons in the world, he established the Mitral Valve Repair Reference Center at the Mount Sinai Hospital, where he and his team have pioneered new techniques of valve repair while setting benchmarks for valve repair rates and quality.

Adams' achievements include inventing what are now standard of care valve annuloplasty rings that are used globally in both mitral and tricuspid valve repair procedures. He served as the national co-principal investigator of one of the two major FDA pivotal trials that helped usher in the era of transcatheter aortic valve replace-



EDUCATION: Duke University; Duke University School of Medicine

TRAINING: Brigham and Women's Hospital/Children's Hospital, Harvard Medical School; Harefield Hospital

CURRENT TITLES: Marie-Josée and Henry R. Kravis Professor and chair, Department of Cardiovascular Surgery, Icahn School of Medicine at Mount Sinai; cardiac surgeon-in-chief, Mount Sinai Health System

ment. He established the Mitral Foundation, a leading educational resource for surgeons in the U.S. and around the world for teaching state-of-the-art techniques and promoting best practice standards. He is also a dedicated international teacher, and has operated on more than 300 patients in over 10 countries during educational courses and mission activities.

Adams co-authored *Carpentier's Reconstructive Valve Surgery*, the largest-selling valve textbook in the world, and co-edited the reference text *Cardiac Surgery in the Adult*. He is an associate editor of the *Journal of the American College of Cardiology*. In 2019, he served as the 99th president of the American Association of Thoracic Surgery, the world's oldest and most prestigious society dedicated to cardiothoracic surgery.

Distinguished Faculty

Neil R. MacIntyre, MD

Neil R. MacIntyre, MD, is a professor of medicine in the Department of Medicine at Duke University School of Medicine and former vice-chair of clinical services in the Department of Medicine. He is one of a handful of physicians internationally recognized as an expert in respiratory life support and mechanical ventilation, and his expertise most recently has informed improvements in ventilation strategies for COVID-19 patients with acute respiratory distress syndrome.

As the longtime medical director of the Duke Pulmonary Function Laboratory, he has also been at the forefront of important technical innovations and global standardization of pulmonary function testing. In 1985, he founded the internationally recognized Duke Pulmonary Rehabilitation Program and has been its medical director from inception.

He is a principal investigator (PI) or co-PI on more than 37 multi-center clinical trials, including the National Heart, Lung, and Blood Institute-National Institutes of Health-funded Acute Respiratory Distress Syndrome Network trials for evaluating aspects of respiratory failure, and the National Emphysema Treatment Trial for evaluating surgery for patients with emphy-



EDUCATION: University of San Francisco; Weill Cornell Medical College

TRAINING: Cornell Medical Center-New York Hospital; University of San Francisco

CURRENT TITLE: Professor of Medicine, Duke University School of Medicine

sema and long-term oxygen treatment for patients with chronic obstructive pulmonary disease.

MacIntyre is medical director of the Duke Respiratory Care Services Department at Duke University Hospital and has been at the forefront of assuring evidence-based practice in Duke critical care units. The department has been recognized for its innovative excellence in the development of evidence-based care algorithms that have been models for many institutions around the nation.

MacIntyre has mentored numerous students, residents, fellows, respiratory therapists, and junior colleagues clinically and academically. He was selected as a Giant in Chest Medicine in 2016 and awarded the College Medal in 2020 by the American College of Chest Physicians. Other honors and awards include the Duke University School of Medicine Senior Pulmonary Faculty Teaching Award, the American Association of Cardiovascular and Pulmonary Rehabilitation's Thomas Petty Distinguished Pulmonary Scholar, the American Association of Respiratory Care Jimmy Young Medal, and the American Respiratory Care Foundation's Forrest Bird Lifetime Scientific Achievement Award.

commitment to professional ethics and the tenets of the Hippocratic Oath, which call upon us to "do no harm." These values have come into sharp focus during the COVID-19 pandemic. In this regard, we believe it is important to acknowledge the overwhelming scientific evidence that affirms the currently approved COVID-19 vaccines as public health breakthroughs that are preventing morbidity and saving millions of lives.

As we learned at Duke, physicians are called

upon to uphold the highest level of professional integrity and to ensure the guidance we provide to our patients and communities is based on sound biomedical science. We have an important role to play in modeling and supporting public health efforts that help mitigate the negative impacts of the pandemic.

We are proud of the leadership that the School of Medicine has shown in the nearly 100 years since it was established, and this has been especially true during the COVID-19 pandemic.

Locally, nationally, and globally, Duke has been at the forefront of advancing the clinical science behind mRNA vaccines and the continuing work to develop a pan-coronavirus vaccine.

Please join us in supporting the Duke Health mission to discover, develop, and deliver a healthier tomorrow.

— *The Duke Medical Alumni Council Executive Committee*

1960s

Marshall Redding, AB'58, MD'66, is semi-retired in the Gibsonville-Burlington area of North Carolina and continues to teach and lecture as time permits. A longtime ophthalmologist, he has been instrumental in the introduction of many innovative procedures previously unavailable in southeastern Virginia and northeastern North Carolina, including phacoemulsification and intraocular lenses. He has served as an assistant professor at the Eastern Virginia School of Medicine and as president of the North Carolina State Medical Society and North Carolina Society of Ophthalmology.

1970s

Nancy Stead Atwood, AB'66, MD'70, lives in Gainesville, Georgia, where she moved with her spouse, Alan Atwood, in 1989 and established a private practice in 1991.

1980s

Rick Brasington, MD'80, had a wonderful career as a clinician-educator at the Washington University School of Medicine in St. Louis, where he served as fellowship program director and trained more than 60 rheumatologists. He was recognized by the American College of Rheumatology as Distinguished Fellowship Program Director and Master of the American College of Rheumatology, and he received Washington University School of Medicine's highest teaching award. He has made a planned gift to establish a scholarship at Duke University School of Medicine in gratitude for the "exceptional preparation for my academic clinical career" he received at Duke.

Margaret E. Parker, BS'76, MD'80, and her spouse, Attila Farkas, celebrated 35 years of wedded bliss. Both are retired and live in Greenville, South Carolina. She worked as a developmental pediatrician, and Attila had an advertising specialty business.

Marilyn C. Pike, AB'73, PhD'79, MD'85, moved from Boston to Raleigh, North Carolina, to get away from the traffic, cold and snow. She continues to run clinical trials on some interesting candidate drugs for lupus.

1990s

Phillip M. Boiselle, MD'90, was appointed dean and professor of medicine at Quinnipiac University's Frank H. Netter MD School of Medicine. He is also the William and Barbara Weldon Dean's Chair of Medicine. He previously served as professor and dean of the Charles E. Schmidt College of Medicine at Florida Atlantic University. He is an international expert on thoracic imaging and was director of thoracic imaging at Beth Israel Deaconess Medical Center/Harvard Medical School as well as associate dean for academic and clinical affairs, professor of radiology, and a Rabkin Fellow in Medical Education at Harvard Medical School.



Katy Lynch, MD'96, reports that she is "now an outdoors creature, enjoying marvelous adventures with my kids, grandkids, and sibs." When she's not traveling, she's hiking, pulling invasive weeds, and watching the wildlife and flowers in her yard. "My practicing classmates have my deep admiration and respect for their work," she says, "especially their contributions over the last year and a half."

Lisa Young, MD'97, was named the recipient of the 2021 Norman J. Siegel Outstanding Science Award by the American Pediatric Society for her contributions to pediatric science. She is the chief of the Division of Pulmonology at the Children's Hospital of Philadelphia. Her research addresses fundamental mechanisms of genetic and developmental lung diseases in children.

2000s

Janet Jenkin, BME'96, MD'00, works in a single-specialty pediatric group in Orlando, Florida, where she does outpatient pediatrics and clinical informatics. She lives with her two sons, Luke and Matthew, and a miniature dachshund, Schnitzel.

Adam Bass, MD'02, a leading physician-scientist in the field of cancer genomics and gastrointestinal cancer, joined the Herbert Irving Comprehensive Cancer Center (HICCC) at Columbia University and New York-Presbyterian as the founding director of the Center for Precision Cancer Medicine and director of gastrointestinal oncology. He also serves on the faculty of the Columbia University Vagelos College of Physicians and Surgeons as professor of medicine in the Division of Hematology and Oncology. He was previously associate professor of medicine at Harvard Medical School and at the Dana-Farber Cancer Institute and a physician at Brigham and Women's Hospital.

2010s

Leslie Chang, MD'18, was one of 16 medical students chosen for the 2021 Medical Program of the Fellowships at Auschwitz for the Study of Professional Ethics (FASPE). She is a third-year internal medicine resident at Massachusetts General Hospital in Boston and plans on staying there next year as a hospitalist. She joins a diverse group of 70 FASPE fellows who were chosen through a competitive process that drew applicants from across the U.S. and the world.

HOUSE STAFF

Gary W. Procop, MD, HS'92-'96, was selected as chief executive officer of the American Board of Pathology (ABPath), effective January 1, 2022. In this role, he will oversee all aspects of the ABPath's initial and continuing certification programs and guide the organization through its successful ongoing program improvements.

CONTINUED ON PAGE 31

On The Inside

Emily Wang, MD'03, spent her first two years at Duke University School of Medicine planning to specialize in HIV treatment and research. But during her third year, she couldn't stop thinking about conversations she had had with a friend who had worked in prison education while an undergraduate at Harvard. The stories he told her made glaringly clear the racial disparities in rates of incarceration and the death penalty.

She started writing to prisons asking to volunteer. A warden at a women's prison in Raleigh, North Carolina, responded, and one day soon afterward she found herself, for the first time in her life, stepping inside a prison.

The experience changed her forever. Wang now directs the SEICHE Center for Health and Justice, a collaboration between the Yale School of Medicine and Yale Law School that encompasses clinical care, research, policy work, and education to address the health impacts of mass incarceration.

She points out some startling facts. Half of all individuals in the United States have at least one immediate family member who is incarcerated. Living in a community with high rates of incarceration is associated with lower life expectancy, at a population level.

"Policies that constitute mass incarceration — from over-policing, and stop-and-frisk, all the way to the death penalty — have impacted our overall population health," says Wang, a professor in the Yale School of Medicine. "And COVID probably is the best examination of that."

In 2020, Wang co-chaired a committee of the National Academy of Sciences that published a consensus report, *Decarcerating Correctional Facilities during COVID-19: Advancing Health, Equity, and Safety*. It details how decarceration — releases and changes to arrest policies — can reduce the transmission of COVID-19 inside prisons and jails and protect public safety and health.

Following Centers for Disease Control guidelines for reducing the spread of COVID-19 inside prisons is nearly impossible, Wang says. People sleep two to a cell. Overcrowding is common. Many prisons don't have enough masks.

Wang and colleagues at the SEICHE center used data from a large urban jail to evaluate other strategies: decreasing the jail population with releases and reduced arrests, having people sleep in single cells, and conducting asymptomatic testing.

At the beginning of the study, the reproduction rate of the virus was 8: every person infected with COVID-19 would, on average, infect 8 others. After 83 days with the new measures, the rate was down to 1.

At the heart of the SEICHE center are clinical care and other programs provided by the Transitions Clinic Network, which provides a primary care home for people recently released from prison in 14 states. Wang and a colleague started the first Transitions Clinic Program in San Francisco because, as an intern, she saw people just released from prison ending up in the emergency department for no good reason.

"Just released from a correctional facility, was on dialysis for three years, but no dialysis appointment," Wang says. "Or a person comes home, they have their insulin, but they have never administered it. They don't know how. There was always a correctional officer that took them to the window, the nurse checked the glucose."



YALE SCHOOL OF MEDICINE

"Policies that constitute mass incarceration... have impacted our overall population health."

EMILY WANG

"I thought, this is fixable. And the onus is on physicians to make this transition go better," she says.

In the Transitions Clinic Network, a person who was previously incarcerated works alongside each primary care team as a community health worker. "They are attending to the social and health care needs of the patient, but also rebuilding trust in a health care system that has all but abandoned them, inside prison and outside," Wang says.

Wang's path changed course the day she first set foot inside that prison in Raleigh. She and some of her medical student friends soon began an educational program for new prisoners designed to spark discussion about the decisions young women have to make to be well and stay safe.

Wang remembers that the whole group ended each session in tears. "I saw young women just like myself that, because of the structures, the policies, the ways that our communities are deeply segregated, had had a life course that was totally different from mine," she says. Seemingly small decisions, like dating the wrong guy, or circumstances out of their control, like not being able to afford bail, had landed them in jail.

The pace of medical school, Wang says, can feel like a treadmill you can't get off. But Duke allowed her to "create a little space" for her ideas, and it gave her a group of inspiring friends. "By bringing together the right people, something happened that was deeply special to me."

— Angela Spivey



LES TODD

Navigating an Evolving Profession

In a lot of ways, **Susan Blackwell (Crawford), MHS, PA-C'89**, and the physician assistant profession have grown up together. They were born at roughly the same time, matured in parallel and proximity, and for more than three decades they've been inextricably linked.

Blackwell grew up on her family's farm in Caswell County north of Durham. The PA profession was born just to the south, at Duke, founded in 1965 by cardiologist Eugene A. Stead, Jr., MD, former chair of the Department of Medicine in the Duke University School of Medicine.

At the time, nurses and primary care physicians were in short supply, and Stead established a program to create a new position "to fill a gap between physician and nurse." People in this new field, he said, would be trained in numerous areas of the medical profession. "We have chosen to call these individuals 'physician-assistant,'" Stead wrote.

The program he created at Duke remains the best in the nation, perennially ranked No. 1 by *U.S. News & World Report*. Blackwell entered the program in 1987, graduated two years later, and has been a practicing PA at Duke ever since. This year — her 32nd on the job — the program honored her as the 2021 Distinguished PA Alumnus of the Year.

When she graduated in 1989, the Duke PA Program and the profession itself were gaining momentum. PAs were practicing in all

specialties, and the profession — initially intended for men — had rapidly caught on with women.

But the field was still a long way from what it is today.

"I can tell you a lot of stories about the way that PA practice has changed in the last 35 years," reflects Blackwell. "My profession has had to work pretty hard toward being recognized."

In the beginning, she notes, there was "a learning curve" as physicians, nurses, nurse practitioners, and physician assistants had to adjust their roles and expectations within the team. Patients also had to adapt. Blackwell remembers patients asking her when she was going to finish medical school and become a doctor. Now, most patients have grown accustomed to appointments with PAs and are familiar with the team approach.

"As a PA, I can bill, I can write orders, I can write prescriptions. I can do pretty much whatever is in the scope of my supervising physician as long as I work with him," says Blackwell.

"I love being in the room with patients and their families. Those bonds, those relationships you make — not just as patients, but as people — are so important. I still love that."

SUSAN BLACKWELL

"The idea is that we (as PAs) have an independent practice. It allows the faculty, the MDs, to see more new patients, do more in their research, and write clinical trials. As PAs, we provide a lot of extra boots on the ground."

When Blackwell graduated, many of the open positions for PAs were in primary care, but Blackwell set her sights on oncology. There weren't any PA openings at Duke in the Division of Oncology at the time, however, so Blackwell accepted an available position in the Division of Gastroenterology.

About six months in, Blackwell heard "through the grapevine" that then-Chair of the Department of Medicine **Joseph Greenfield, MD, HS'57-'59**, was bringing thoracic medical oncologist **Jeffrey Crawford, MD, HS'77-'78, HS'82**, from the Durham Veterans Administration Medical Center, to Duke to start a thoracic oncology program.

Crawford needed a PA, and Blackwell joined him and colleagues including **Walter Wolfe, MD, HS'64-'72**, and **Robin Vollmer, AB'63, MD'67, HS'72-'73**, in establishing the Thoracic Oncology Program at Duke. She's been practicing in the Duke Cancer Institute's (DCI) Thoracic Oncology Clinic ever since, treating with skill and compassion hundreds of patients with lung cancer while also helping advance the PA profession, particularly in oncology. She is the team lead for the medical oncology physician assistants and nurse practitioners in four of 11 DCI Disease Groups — Sarcoma, Thoracic, Head & Neck, and Melanoma — and she has co-authored papers in high-impact journals like *Cancer Control* and the *Journal of Thoracic Oncology*.

Now a veteran of the PA profession, she mentors Duke PA Program students who've chosen oncology as one of their electives. Blackwell says she has an "open door for anybody who has a question" about the work of a physician assistant, from new recruits to transplants.

And three decades in, she still loves the thing that drew her to become a PA in the first place.

"It's all about patient care," she says. "I love being in the room with patients and their families. Those bonds, those relationships you make — not just as patients, but as people — are so important. I still love that."

— Julie Poucher Harbin

CONTINUED FROM PAGE 28

John Whyte, MD, MPH, HS'93-'96, is chief medical officer at WebMD and was named to the prestigious *Medical, Marketing & Media* 2020 Health Influencer 50. He has been a prominent voice providing information during the COVID-19 pandemic.

Benjamin Rattray, MD, HS'09-'13, practices neonatal medicine in Greensboro, North Carolina, and has published a book of patient stories from newborn critical care. *All is New*, released by Wipf & Stock in September 2021, provides a window into the world of neonatal intensive care, sharing patient stories and the author's reflections on life and medicine. Rattray is associate medical director of neonatal intensive care at Cone Health and the founder of a physician writing project led by faculty from the University of North Carolina Greensboro MFA program.



We've missed you! Where are you today?

Have you taken on a new job (or retired from one)? Won an award? Written a book? Your fellow DukeMed alumni want to hear about it! Please email updates and photos for Class Notes to dukemed@duke.edu

ABOVE PHOTO: White Coat Ceremony, August 2011. If you're in the photo send us a recent photo and let us know what you're doing these days.

OBITUARIES

Paul Auerbach, AB'73, MD'77, died on June 24, 2021. He was 70. The Redlich Family Professor Emeritus in the Department of Emergency Medicine at the Stanford University School of Medicine, he was one of the founders of wilderness medicine. He helped create the Wilderness Medical Society, and he created the Stanford Emergency Medicine Program for Emergency Response, which provides aid and care in disaster sites around the world. He was a member of the U.S. Council on Foreign Relations, served on the National Medical Committee for the National Ski Patrol System, and was an award-winning member of the Divers Alert Network.

Elizabeth Renwick Baker, BS'71, MD'75, HS'75-'79, died on August 30, 2021. She was 71. She was an assistant professor of obstetrics and gynecology and reproductive endocrinology and infertility at Penn State's Hershey Medical Center and served as an associate professor at the University of South Carolina School of Medicine. She was involved in many professional organizations, including the American Fertility Society and the American College of Ob/Gyn, and served as president of the Duke Medical Alumni Association.



David "Dave" Allan Bobak, MD, HS'80-'83, died on September 11, 2021. He was 66. He was a physician-scientist specializing in infectious diseases

for over 30 years. He did fellowship training at the National Institutes of Health in Allergy and Infectious Diseases and was a physician researcher and faculty member at University of Virginia School of Medicine. He served on the clinical faculty at Case Western Reserve University School of Medicine and was an attending physician at University Hospitals of Cleveland.

Earl Winfrey Brian Jr., MD'66, died on November 2, 2020. He was 78. He was drafted by the U.S. Army in 1967 and served in Vietnam, where he attained the rank of major and earned the Bronze Star, the Silver Star, and the Air Medal for Valor, becoming the most decorated physician of the conflict. He was a neurosurgeon at the University of Southern California School of Medicine and was the youngest director of Health and Human Services in California's history. He was a venture capitalist from 1982-2017 and served as chairman of the Duke Hospital Advisory Board.

John Williamson Brown, MD'61, HS'61, HS'65-'66, died on February 17, 2021. He was 84. He served in the U.S. Navy from 1962-1965. He joined Palmetto Surgical Associates in Columbia, South Carolina, and began the Open Heart Program at Richland Memorial Hospital. He worked in private practice in Newberry, South Carolina, and at Newberry County Memorial Hospital. In 2011, he was awarded the Order of the Palmetto, the highest civilian honor in the State of South Carolina.

George Richard Cousar Jr., MD'60, died on September 15, 2021. He was 87. He served as a physician and captain in the U.S. Army for two years and was a resident in ophthalmology at Duke University School of Medicine. He was a fellow in the American College of Surgeons and the American Academy of Ophthalmology. He had a private practice in Greenville, South Carolina, for 46 years and served as president of the medical staff at Greenville Memorial Hospital.

Mark Binder Edelstein, MD, PhD, HS'77-'80, died on January 4, 2021. He was 71. He received his MD/PhD from Washington University in St. Louis and did a postdoctorate at the Radiobiologic Institute in The Netherlands. He worked as a physician for four years in The Netherlands before joining the medical staff at the Detroit VA Medical Center, where he remained for 27 years, serving as chief of medicine for more than a decade. He was a professor of medicine at the Wayne State University School of Medicine.



William W. Fore, T'57, M'60, H'64, died on January 23, 2021. He was 84. He was a practicing endocrinologist and held administrative and faculty positions at Jefferson Medical College, The Johns Hopkins School of Medicine, and East Carolina School of Medicine. He was senior vice president of Medical Affairs at First-Health of the Carolinas in Pinehurst, North Carolina. He joined the Joint Commission as a surveyor in its ambulatory services division and volunteered at the ABCCM Medical Ministry providing medical care for the uninsured.



Henry Bernhard Freye, MD'59, HS'62-'63, died on May 1, 2021. He was 90. He served in the U.S. Army. He founded Shoreline Allergy and Asthma Associates and served on the clinical faculty of Brown Medical School for 25 years. He was co-director of the allergy training program at Rhode Island Hospital, chief of pediatrics at Westerly Hospital, and served at Lawrence Memorial Hospital and Children's Hospital of California. He was president of the Rhode Island chapter of the American Academy of Pediatrics, The Washington County Medical Society, Rhode Island Society of Allergy, and the New England Society of Allergy.



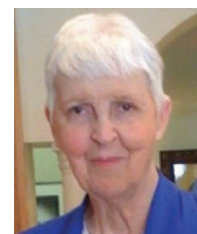
Joseph Greenfield, MD, HS'57-'59, died on October 4, 2020. He was 89. He was the James B. Duke Distinguished Professor of Medicine and chair of the Department of Medicine at Duke University School of Medicine from 1983 to 1995. He served in other leadership positions including chief of cardiology at the Durham Veteran's Administration Hospital, chief of the Division of Cardiology at Duke University Medical Center, and director of the ECG service at Duke and at the VA Hospital. A pioneer in cardiovascular medicine, he started the Greenfield Scholars Program. The Department of Medicine established the **Joseph Greenfield Research Mentorship Award** in his honor. His many accolades included the Distinguished Science Award from the American College of Cardiology, Duke's Eugene A. Stead Award, and the MERIT Award from the National Heart, Lung and Blood Institute.



Charles B. Hammond, MD'61, HS'61-'64, HS'66-'69, died on February 1, 2021. He was 84. He was the Edwin Crowell Hamblen Distinguished Professor of Reproductive Biology and Family Planning and chairman emeritus of the Department of Obstetrics and Gynecology at Duke University School of Medicine. A nationally recognized expert in menopause and hormone replacement therapy, he founded the Southeast Regional Trophoblastic Disease Center. He earned many honors, served as president of numerous professional organizations, and was a member of the National Academies of Sciences, Engineering, and Medicine, and a fellow of the Royal College of Obstetricians and Gynaecologists.



Nancy R. Haslett, MD'63, died on November 14, 2020. She was 83. She was clinical professor of psychiatry, assistant professor of neurology, and held several positions in the Developmental Disability Center for Children at the LSU School of Medicine. She was clinical director and the chief executive officer of the New Orleans Adolescent Hospital, clinical associate professor of psychiatry and neurology at the Tulane University School of Medicine, and adjunct clinical professor at Xavier University. She was the medical director of the Jefferson Parish Human Services Authority and served at hospitals and clinics including Children's Hospital, Southeast Louisiana State Hospital, River Oaks Hospital, and Coliseum House.



Richard L. McCann, MD, HS'74-'83, died on February 5, 2021. He was a professor of surgery in the Section of Surgical Disciplines at Duke University School of Medicine. He began his nearly five-decade career at Duke University in the 1970s. During his surgical training at Duke, he spent three years as a cardiovascular research fellow in addition to his general surgery training before being named an assistant professor in 1983. He was a superb surgeon who pioneered complex aortic surgery. He mentored a generation of residents and fellows, and in 2016 he was honored as a Duke Surgery Master Surgeon.



Earl Nelson Metz, MD'61, HS'62-'66, died on January 2, 2021. He was 85. He served as a captain in the U.S. Army Research Laboratories at Edgewood Arsenal, Maryland. He was a professor of medicine at Ohio State University and held the Charles A. Doan Chair of Medicine. He was vice chair of the Department of Medicine and associate director of clinical affairs for the Arthur G. James Cancer Hospital and Research Institute. In 2002, he was invited to give the Eugene A. Stead Jr., MD, Lecture at Duke. At the OSU Medical Center, the Distinguished Physician Award bears his name.



Michael Mumma, AB'79, MD'83, died on July 8, 2021. He was 64. In 1989, he began a 33-year career practicing interventional cardiology in Sarasota, Florida. He also served as principal investigator in many new treatment trials through the Sarasota Memorial Hospital (SMH) Clinical Research Center. In 2021, he received the lifetime achievement award from SMH for his lasting contributions to the practice of medicine and significant impact to patient care at SMH and in the community.

Charles Michael Ramsdell, MD, HS'71-'72, died on August 31, 2021. He was 82. He attained the rank of lieutenant commander in the U.S. Navy. He served at the VA Naval Hospital in Portsmouth, Virginia, and worked at Quadrangle Internal Medicine P.A. in Greenville, North Carolina. He was a physician in internal medicine and rheumatology. He was an assistant professor of medicine and an associate professor of medicine at the Brody School of Medicine at East Carolina University. He received numerous honors, including the Senior Medical Residents Teaching Award and the Faculty Teaching Award, and was the first certified rheumatologist east of Raleigh.

Dina Randazzo, DO, HS'13-'14, died on February 20, 2021. She was 45. She was an assistant professor of neurosurgery and neurology at Duke University School of Medicine and a respected and admired neuro-oncologist in the Preston Robert Tisch Brain Tumor Center. She was the principal investigator on numerous publications aimed at understanding and treating glioblastoma, an aggressive form of cancer of the brain and spine. She was adored by her patients and used her expertise in complementary therapies to provide a holistic approach to caring for them. She was a beloved teacher and mentor.



Robert J. Schwartzman, MD, HS'65-'67, died on August 4, 2021. He was 81. He was a renowned neurologist and emeritus professor who cared for former President Gerald Ford after his stroke. He chaired departments of neurology at Thomas Jefferson University, Hahnemann University School of Medicine, and Drexel University College of Medicine. He was a pioneer in numerous neurological issues and trained more than 350 residents. He was associate professor of neurology at the University of Miami and professor of neurology, chief of the Division of Neurology, and program director at the University of Texas Health Science Center in San Antonio.

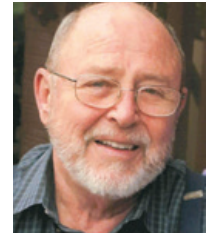
Palmer Friend Shelburne, MD, HS'55-'56, died on July 21, 2021. He was 91. He served in the U.S. Navy at Camp Lejeune. After a residency at Massachusetts Memorial Hospitals and a fellowship in cardiology at Duke, he launched a 30-year medical career. He was the president of the Greensboro Academy of Medicine, a lifetime member of the North Carolina Heart Association, and a fellow of the American College of Cardiology and the Council on Clinical Cardiology of the American Heart Association. After retirement, he volunteered for 20 years with Habitat for Humanity.



Donald Silver, AB'50, MD'55, HS'55-'56, HS'58-'64, died on January 27, 2021. He was 91. He served at Davis Monthan Air Force base in Tucson, Arizona. He joined Duke as an assistant professor of surgery in 1964 and later became associate professor of surgery, director of the Surgical Vascular Clinic, and co-director of the Thromboembolic Unit. He was the W. Alton Jones Distinguished Professor and Chairman of the Department of Surgery at the University of Missouri Medical Center and surgeon in chief of University Hospital and Clinics. Upon retirement, he was named the W. Alton Jones Distinguished Professor and Chairman Emeritus.



Thomas D. Vance, T'53, MD'56, HS'67-'70, died on May 27, 2019. He was 87. A retired radiologist, he most recently practiced at Watauga Medical Center and Blowing Rock Hospital. He was the first full-time radiologist in the North Carolina High Country, covering multiple counties and hospitals. He was the founder of Watauga Radiological Services.



Robin Tutt Vollmer, AB'63, MD'67, HS'72-'73, died on June 8, 2021. He was 80. He served in the U.S. Army from 1969-1971, attaining the rank of major. He had an extraordinary career at Duke and the Durham Veterans Affairs Medical Center. He served as Chief of Surgical Pathology at the VA for his entire career there. He had a profound impact on Duke trainees on rotations at the VA and won two Fetter teaching awards in the Duke Department of Pathology. In addition to his work as a practicing pathologist and educator, he published over 210 scholarly articles.

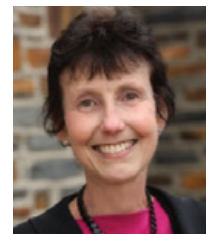


FACULTY

William Maixner, MD, died on November 2, 2020. He was 68. The Joannes H. Karis, MD, Professor of Anesthesiology at Duke University School of Medicine, he was a world-renowned pioneer in pain research. He developed and led the Center for Translational Pain Medicine and was instrumental in developing Duke Innovative Pain Therapies. He was president of the American Pain Society and served on the Health and Human Services Interagency Pain Research Coordinating Committee and the NIH's Pain Consortium. His accolades included the New York College of Dentistry Distinguished Scientist Award and the Wilbert E. Fordyce Clinical Investigator Award from the American Pain Society.



Dawn Provenzale, MD, died on April 20, 2021. She was 65. She was a professor of medicine in the Division of Gastroenterology and director of the Cooperative Studies Program Epidemiology Center at the Durham Veterans Affairs Medical Center. A highly respected scholar, physician-scientist, and mentor, she was an influential clinical researcher. She received the Duke University School of Medicine Research Mentoring Award for Clinical Science Research, and the Duke Division of Gastroenterology established the Dawn Provenzale Mentorship Award in Gastroenterology in her honor. She served many leadership roles, including chair of the National Comprehensive Cancer Network Guideline Committee for Colorectal Cancer Screening.




Danielle Richardson, MD, MPH, died on September 24, 2021. She joined Duke in 2016. She was a medical instructor in the Department of Medicine, Division of General Internal Medicine; nocturnist associate medical director at Duke Regional Hospital; and an adjunct associate in the Department of Family Medicine and Community Health. A highly regarded physician, teacher, and mentor, she was dedicated to improving patient care. She worked with her colleagues to implement a hospital-wide emergency response training team consisting of physicians, nurse educators, floor, and ICU nurses.





DUKE PHYSICIAN ASSISTANT PROGRAM GRADUATION

Graduate Katherine Peltz poses with her 6-month-old niece, Haven Kate, for a photograph following the Physician Assistant graduation ceremony held at Duke Chapel.

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GRADUATION
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