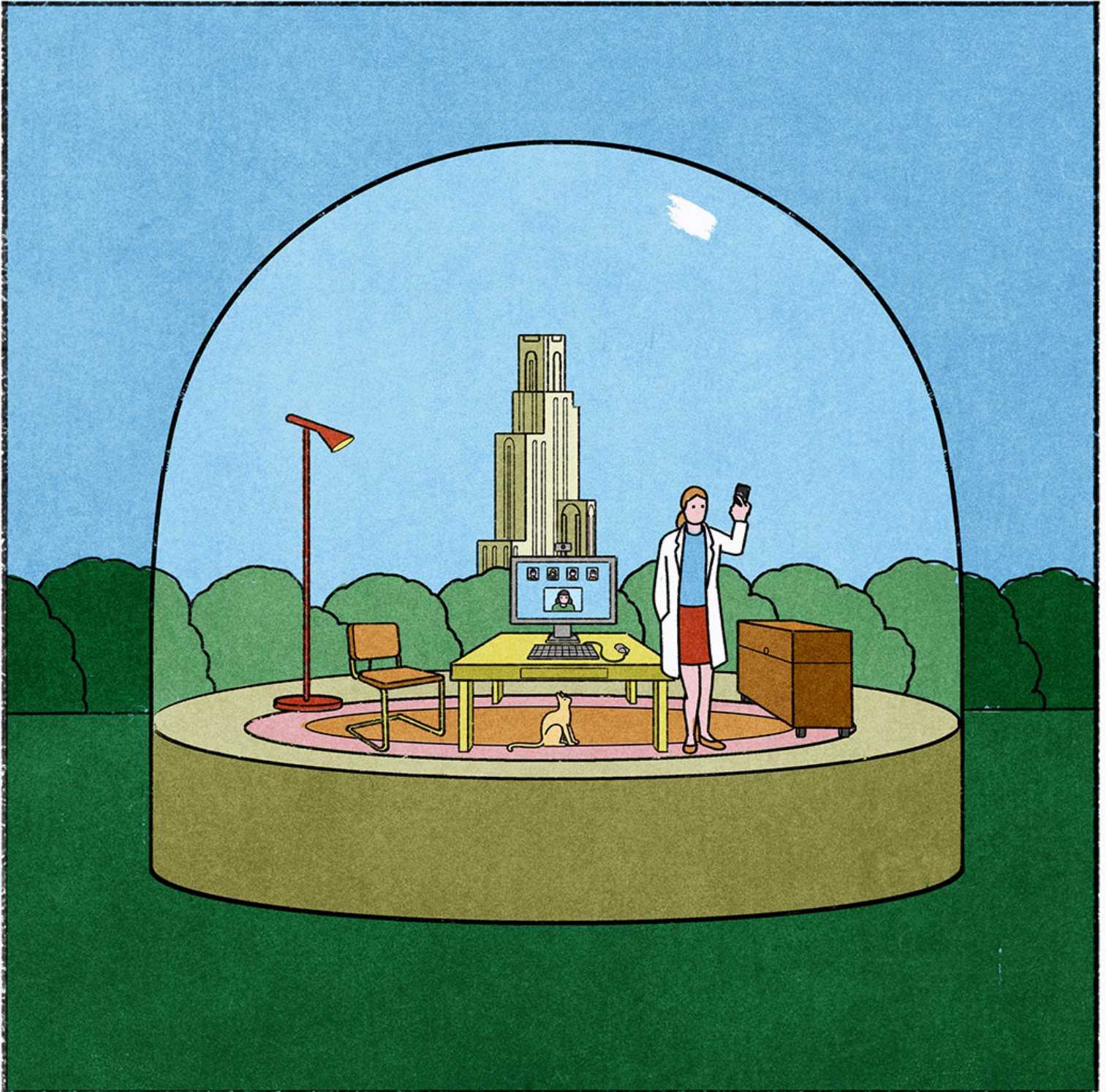


**Pitt Med adapts to a world that  
has suddenly gone remote.**



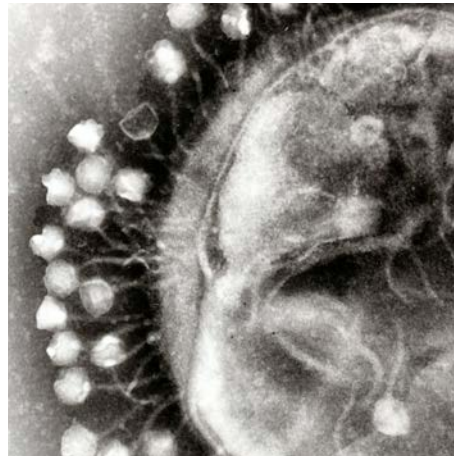
# p. 2

**On January 7, 2020, Anantha Shekhar, MD, PhD, a nationally recognized educator, researcher, and entrepreneur with major contributions in medicine and life sciences, was named senior vice chancellor for the health sciences and John and Gertrude Petersen Dean of the School of Medicine. Learn more about his background, his experiences, and what Pitt Med can expect.**

UNIVERSITY  
OF PITTSBURGH  
SCHOOL OF  
MEDICINE

Annual Report  
2020

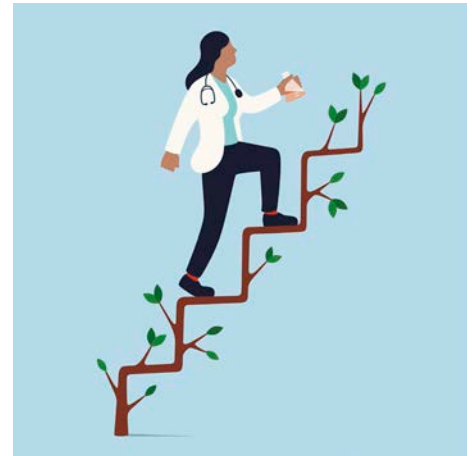
## p. 6



### NEWS

Notable honors and awards **pp. 6–7**; Pitt responds to COVID-19 **pp. 8–11**; Bettering community health; Innovation by the numbers **pp. 12–15**

## p. 16



### EDUCATION

Going remote **pp. 16–17**; Hippocratic evolution **pp. 18–19**; Curriculum advances **p. 20**; Who we are; Campus COVID-19 protocols **p. 21**; Med student outreach **pp. 22–23**; Mentoring and nurturing **pp. 24–25**

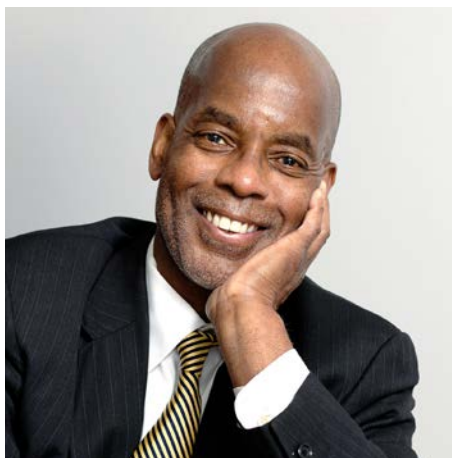
# p. 26



## RESEARCH

Exemplary exploration; Noteworthy advancements and grants **pp. 26–30**; NAS honoree's reflections **p. 31**; Regenerative startup **pp. 32–33**; Space age know-how; TB's new shot; Improving transplants **pp. 34–36**

# p. 37



## DONORS

Pay it forward **p. 38**; Family foundation remembers its patriarch **p. 43**; An inspiring, grateful reunion **p. 46**; List of donors **pp. 39–49**

pp. 50–52  
School of Medicine  
Administration,  
Departments,  
Institutes, and Leadership

p. 52  
Credits

p. 53  
Board of Visitors

---

On the cover

The pandemic may have isolated us physically, but the School of Medicine community has adapted by staying connected with the world virtually and by unflinchingly moving forward with research, learning, achievements, and benevolence.

Artist: Klaus Kremmerz

**“Anantha’s capacity to envision solutions, galvanize partnerships, and produce results is second to none, and his record of propelling both people and institutions to success is unparalleled.”**

Chancellor  
Patrick Gallagher

MEET: ANANTHA SHEKHAR, MD, PHD

## First Impression



he doctor, on his first shift as a psychiatric resident, walks into the room of a patient, who is a white, middle-aged, Midwestern woman. The patient, understandably, has no way of knowing the credentials of the doctor.

The journey to walking into that room for Anantha Shekhar included scoring among the top 1% of high school seniors on ASSET, a test taken by all of India’s high school students to help determine college placement. Two years later, he again scored among the very best in another placement test to gain admittance to St. John’s Medical College, the sole Catholic medical school in Asia, which admits only about 60 students from tens of thousands of applicants. Six years later, he received a coveted NIH-funded psychiatry fellowship and boarded an airplane for the first time to further his medical career at Indiana University.

The patient, unaware of how fortunate she is to be in Shekhar’s care, hears him say hello. She then looks him straight in the eye and replies:

“Pardon my French, but I don’t want any f\*cking [N-word] examining me.”

Her response was uttered in the early 1980s but has never been forgotten by Shekhar:

“I was stunned and had no idea what to do because I never really encountered racism until then. My attending didn’t do anything; he just kind of asked me to leave because the patient didn’t want me in the room. That’s when I realized that there is a subset of our society that has strong prejudices toward skin color and Blacks in particular.

“And that’s why, to this day, I feel so passionate that to have a just society we have to do things differently.”

In his leadership role at Pitt, he says he’s more than ready to leave his mark on all of the traditional benchmarks; and, he emphatically adds, he’s eager to remove—for both faculty and patients—any undercurrent of being an “other.” ●



## Who is Dr. Shekhar?

The lifelong journey of Anantha Shekhar, MD, PhD, began years ago in one of India's tiniest villages. His childhood education in a two-room schoolhouse morphed into a career in medicine that, by June 2020, brought him to Pittsburgh as the new senior vice chancellor for the health sciences and John and Gertrude Petersen Dean of the School of Medicine at the University of Pittsburgh, succeeding Arthur S. Levine, MD.

Dr. Shekhar's journey has encompassed scientific excellence, clinical prowess, successful entrepreneurship, and outstanding leadership—all accomplished without losing sight of inclusivity and compassion.

"Anantha's capacity to envision solutions, galvanize partnerships, and produce results is second to none, and his record of propelling both people and institutions to success is unparalleled," says Chancellor Patrick Gallagher.

Jeffrey Romoff, president and CEO of UPMC, concurs: "Dr. Shekhar's bold vision and collaborative spirit will further the successful partnership between UPMC and Pitt, enabling us to continue pushing the boundaries of academic medicine to the benefit of patients around the world."

Shekhar's credentials speak for themselves.

After completing a psychiatry residency in 1989 and a PhD in neuroscience in 1992, both at Indiana University, he remained on Indiana's faculty for nearly three decades before coming to Pitt. Highlights of his multiple leadership roles at Indiana include growing NIH funding 73% while overseeing Indiana's research during the past five years; cofounding several successful biotech companies; forming two commercial incubators; directing a highly productive laboratory; leading curriculum reform at Indiana's School of Medicine; and forming the Indiana Clinical and Translational Sciences Institute, the only statewide institution of its kind, which is a collaboration among Indiana, Purdue, and Notre Dame Universities to improve the region's health care.

Although arriving at Pitt during a pandemic, he's unfazed. "I'm optimistic that the world will be a better place in 2021, definitely by 2022," he says, "and I'm confident that Pittsburgh will be, just as it has always been, a prominent contributor."

## Why Pittsburgh?

**In-person at Alan Magee Scaife Hall: Dr. Shekhar, sitting in his School of Medicine office—and keeping a social distance—discussed off the cuff the past, present, and future.**

**Do you sometimes think back and wonder how a young boy growing up in a tiny village in India is now responsible for 6,000 faculty and staff and 5,000 students?**

**AS:** [chuckles] I sometimes wonder how is it possible that this has all happened. Life takes you on all sorts of journeys. Many professional people, my teachers, colleagues were all wonderful to me along the way.

**So how did the journey begin?**

**AS:** It started with my parents, who were very committed to me being educated. Fortunately, I enjoyed school—liked reading, liked learning, was always very curious.

**You certainly excelled in school, which enabled you to pursue your interest in a medical career. Why psychiatry in particular?**

**AS:** My closest friend, we grew up together from primary school, and I were both interested in health and medicine. When we were first-year students at college, I found him one evening as dusk was settling in, bumping into pillars in our dorm. I was taken aback and had him get medical attention the next day. It turns out he had a massive brain tumor that had begun to compress his optic nerve. He passed away about four months after that [pause]. What happened to him made me want to better understand the brain. The more I learned about the brain in medical school, the more it really fascinated me. I wanted to get more training and education, which is why I pursued a psychiatry residency and a PhD in neuroscience at Indiana University.

**You had quite an impressive run in your nearly 40 years as a post-graduate trainee and longtime faculty member at Indiana before coming to Pitt. What are some of the things that stand out to you during your time there?**

**AS:** Well, it's where I first met my wife [Gina Laithe, MD] while we were both part of the IU residency [smiles; they now have two grown children]. I'm also proud of helping lead the Precision Health Initiative, where we brought together researchers from Indiana, Purdue, and Notre Dame to improve treatments and find cures for some of the state's and nation's most dreaded diseases. The initiative had an estimated statewide economic impact of nearly \$200 million in just four years, and

we hired more than 100 scientists and created four companies and recruitment of another one to Indiana.

**Very impressive. With all of your success there, why come to Pitt?**

**AS:** What I could do in Indiana, like with the Precision Health Initiative, I can do three times faster and three times bigger with Pitt. There's tremendous skill here. Pitt has its own engineering school, plus we have Carnegie Mellon University next door. Creating an ecosystem of collaborations here will increase the number of patents issued. Then we will increase the number of commercial entities using a patent to build a product and, ultimately, improve health care.

Another attraction of Pitt is having UPMC as a partner, not only as a health care provider but as an insurer—half of its business is actually insurance. So it makes fiscal sense to train our physicians of the future on the importance and impact of addressing social determinants. Take a chronic diabetic for example. The care is focused on clinics and hospitals. We aren't paying attention to all the prevention and management measures. We have no coverage for their nutritional status. Exercise. Personal care. Social aspects of their disease. Instead, we are constantly prescribing expensive medications for them. Bringing them in for expensive tests. And then, once necessary, they have expensive surgery. It's a medical model and a disease and a treatment model, not a lifestyle and prevention model. By focusing more on health care excellence, the savings that occur for UPMC's insurance plan can then be put to good use for medical advancements while we're also keeping our patients healthier.

**Sounds like a meaningful goal. Have you had a chance to formulate other goals for the health sciences at Pitt and the School of Medicine in particular?**

**AS:** Yes, I have several goals that I think are attainable by 2025. Educational, research, clinical, and translational excellence go without saying. I expect us to be considered among the top 10 in the nation in each of those areas. I also want us to be a national leader in commercialization and product development. I want to make precision medicine part of routine clinical care. To do so, we need to have large data sets from patients, which includes various genetic as well as health utilization data, so we can better understand patterns in order to predict outcomes—it can all be tailored to individual patients and their genetics and their disease. We'll need, of course, lots of data and sophisticated computing and data analysis capabilities. Pitt and UPMC probably make Pittsburgh the best place where this can happen because of the size, the complexity of the health system, the talent here at Pitt, as well as the AI and computational talent at Carnegie Mellon University. Pittsburgh could very well be the place to make precision medicine the norm and routine within the next five years or so.



**“There’s tremendous skill here. ... Creating an ecosystem of collaborations here will increase the number of patents issued. Then we will increase the number of commercial entities using a patent to build a product and, ultimately, improve health care.”**

**Anantha Shekhar, MD, PhD**

**What concerns do you have?**

**AS:** Health disparity is a major concern and not just for Pittsburgh. In many of our country’s urban areas there are zip codes where health outcomes are worse than Bangladesh while there are other zip codes that are better than Sweden. In Indianapolis, there is a train track that goes from Louisville to Chicago and cuts right through the city. Along those tracks, within a 12-mile radius the lifespan of the population drops by 14 years—65 years in the inner city, 81 years in the suburbs. That can’t go on.

**It’s difficult to comprehend why such a health disparity hasn’t been addressed.**

**AS:** Part of the challenge is that the underserved don’t trust the system because the health care professionals don’t look like them. The disparity is never going to end unless we start training more doctors who are persons of color; it’s never going to change until we train leaders, not just in research, but in social impact—leaders who are going to disrupt health care and create a new model, doctors who are going to look at social determinants of health. Ultimately, to change our society’s health, we

need to focus not only on the biology, because that’s only 20% of the diseases; 80% of the outcomes of any disease—other than some infections and certain types of cancer—are a patient’s behavior, a patient’s environment, a patient’s lifestyle, so we have to focus more on the entire picture.

**When you talk about increasing diversity among medical students, some might argue that could lead to a lessening of standards in order to have a diverse class.**

**AS:** I completely reject the argument that we’ll need to compromise our standards or our mission by increasing diversity. We get 7,000 applicants for 140 seats, so it’s not like we don’t have a choice. The cream of the crop apply. Take the top MCAT scores. There are, on an average, 100 Black students who ace the MCAT. Why don’t they come to Pitt? Well, we don’t have enough scholarships, and we don’t have enough diversity. We need to work on creating an environment where they want to come here. Increase diversity. Make medical school more affordable. Perhaps make the fourth year of medical school a paid hybrid year in which the student is a trainee. That could reduce a student’s debt by as much as \$75,000.

**It seems like you’re talking about a true paradigm shift in training doctors.**

**AS:** Don’t get me wrong; we’re incredibly successful in research—and we’re not going to diminish the importance of research—but now it’s time to increase our expertise in other dimensions as well. Think of it this way. In the past, doctors couldn’t carry a medical library with them and check a reference in their office just as they were about to see a patient. But today there’s more information in an iPhone than there was in my medical school library.

**Times have changed!**

**AS:** What hasn’t changed is that we need to learn from the patient and think through the problems and create solutions, which has been our University’s wonderful history.

**From the chancellor on down, people at Pitt have mentioned how pleased they are to have you here. Do you think—given the somewhat perilous state of the world—it’s still possible for a youngster living today in a tiny village in India to follow in your footsteps?**

**AS:** I think so; I would hope so.

**With that optimistic reply, Dr. Shekhar smiled and concluded the session. ●**



# NEWS



As of winter 2020, COVID-19 remains a worldwide crisis. Pitt is among notable institutions leading the way in pursuing treatments and vaccines. Learn more, starting on page 8, about the School of Medicine's efforts.

## Notable Faculty Achievements

**The year 2020 will be memorable for many reasons, including these bright spots for Pitt faculty:**

**Stephen Badylak, DVM, PhD, MD**, professor of surgery and deputy director of the McGowan Institute for Regenerative Medicine, was presented with a Lifetime Achievement Award by the Tissue Engineering and Regenerative Medicine International Society for his work to advance extracellular matrix-driven tissue regeneration.

**Jan Beumer, PharmD, PhD**, professor of pharmaceutical sciences, School of Pharmacy, was named editor-in-chief of the Cancer Chemotherapy and Pharmacology journal. Beumer has a secondary appointment as professor of medicine and is director of the UPMC Hillman Cancer Center Cancer Pharmacokinetics and Pharmacodynamics Facility.

**Peter Strick, PhD**, Distinguished Professor and chair of neurobiology, Thomas Detre Professor of Neuroscience, and founding scientific director of the University of Pittsburgh Brain Institute, received the Krieg Cortical Kudos Discoverer Award from the Cajal Club Neuroscience Society in recognition of his contributions to the understanding of the cortical circuits involved in motor control.

**John Williams, MD**, Henry L. Hillman Professor of Pediatric Immunology, is the 2020 recipient of the Norman J. Siegel Outstanding Science Award from the American Pediatric Society in recognition of his significant contributions to the field of pediatrics. He is an international leader in the field of respiratory virus biology, particularly human metapneumovirus. ●





(L-R), Birmaher, Girard

## Congratulations!

The School of Medicine congratulates **Boris Birmaher, MD**, Distinguished Professor of Psychiatry, who was elected to membership in the Association of American Physicians, and **Timothy Girard, MD**, associate professor of critical care medicine, who was elected to membership in the American Society for Clinical Investigation. Election to these societies recognizes significant achievement in scholarship and research. ●

## Prestigious Recognition

The National Academy of Medicine—which has more than 2,000 members chosen by their peers in recognition of outstanding achievement in their fields, as well as their willingness to engage in advisory activities—has elected two Pitt physician-scientists this past year:

**Toren Finkel, MD, PhD**, G. Nicholas III and Dorothy B. Beckwith Professor of Translational Medicine and director of the Pitt Aging Institute, and **Amy Wagner, MD**, Physical Medicine and Rehabilitation Professor of Translational Research, School of Medicine, and professor of neuroscience, Dietrich School of Arts and Sciences.

Finkel's work centers on how oxidative stress and the function of mitochondria alter the rate of aging. Recently, his focus has been on autophagy—the body's natural way of clearing out old and damaged parts of cells—as a target for anti-aging therapeutics.

Wagner uses biomarkers and statistical modeling to predict how well patients will recover from brain injury and to guide clinical decisions along the way—a strategy she calls “personalized rehabilitation medicine.” Her experimental research focuses on how dopamine systems, hormones, inflammation, and rehabilitation-relevant therapeutic agents affect plasticity and functional recovery. She also treats patients with neurological conditions during their acute care hospitalization and inpatient rehabilitation.

Including Finkel and Wagner, 20 Pitt School of Medicine faculty are among the academy's elite membership. ●

## Humanism Honors

The School of Medicine congratulates those who have recently been inducted into the Charles G. Watson Chapter of the Arnold P. Gold Humanism Honor Society. The society honors medical students, residents, fellows, and others selected by a vote of their peers who demonstrate high standards of humanistic clinical care, leadership, compassion, and dedication to service.

### *New members from the Class of 2021:*

**Ololade Adebisi**  
**Lauren Auster**  
**Patricia Campos**  
**Bryce Churilla**  
**Catherine Corey**  
**Camille Davis**  
**Mikaela Fenn**  
**Valerie Gobao**  
**Alexandria Harris**  
**Rafa Iftikhhar**  
**Evan Keller**  
**Song Kim**  
**Kathleen Koesarie**  
**Anna Leone**  
**John Leech**  
**Kara McClain**  
**Arthi Narayanan**  
**Cristine Oh**  
**Katherine Orr**  
**Vivianne Oyefusi**  
**Rahilla Tarfa**

## Leadership News

### Among the newest appointments to leadership roles in the health sciences and School of Medicine are these:

**Derek C. Angus, MD, MPH**, Distinguished Professor, Mitchell P. Fink Professor, and chair of critical care medicine, is the health sciences schools' inaugural associate vice chancellor for health care innovation. This role complements his appointment as UPMC's chief health care innovation officer and fosters more strategic linkages between Pitt and UPMC to improve learning of health systems and clinical care delivery.

**Stephen Chan, MD, PhD**, professor of medicine, is director of the Vascular Medicine Institute. He also continues to direct the Center for Pulmonary Vascular Biology and Medicine and work with the cardiology fellowship research program.

**Paula Davis, MA**, is associate vice chancellor for diversity, equity, and inclusion, health sciences, a new position. She is responsible for coordinating the recruitment and retention of diverse faculty, students, and staff in the health sciences schools; developing cultural competence education; and working to create a more inclusive environment.

**Mark W. Geraci, MD**, professor of medicine, is associate vice chancellor for interdisciplinary research, health sciences. In this newly reconfigured role, Geraci will advance research efforts across all six health sciences schools to support the University's expanding biomedical research activities. Prior to joining Pitt, Geraci served as John B. Hickman Professor and chair of the Department of Medicine at Indiana University.

**Alda Maria Gonzaga, MD, MS**, associate professor of medicine, is associate dean for student affairs. Gonzaga is known for her leadership in efforts on diversity, equity, and inclusion. She succeeds Joan Harvey, MD, who retired after 30 years at Pitt.

**Evelyn C. Reis, MD**, professor of pediatrics, is associate dean for the learning environment. Reis is an educational leader in communication skills and the doctor-patient relationship. She was the founding medical director of the University's Clinical and Translational Science Institute pediatric practice-based research network, Pediatric PittNet.

**Jason Rosenstock, MD**, professor of psychiatry, is associate dean for medical education. Rosenstock has won multiple teaching excellence awards, helped to found the medical school's neuroscience area of concentration, and has served as chair of the curriculum committee since 2015. ●

## Distinguished Faculty

The School of Medicine now boasts 13 additional faculty members who have been awarded the title of Distinguished Professor, the highest honor the University can accord to its faculty.

They are **Boris Birmaher, MD**, and **David Brent, MD**, Distinguished Professor of Psychiatry; **Gregory Cooper, MD, PhD**, Distinguished Professor of Biomedical Informatics; **Terence Dermody, MD**, Distinguished Professor of Pediatrics; **JoAnne Flynn, PhD**, Distinguished Professor of Microbiology and Molecular Genetics; **John Kirkwood, MD**, Distinguished Service Professor of Medicine; **Patrick Kochanek, MD**, Distinguished Professor of Critical Care Medicine; **Fadi Lakkis, MD**, Distinguished Professor of Surgery; **John Mellors, MD**, Distinguished Professor of Medicine; **José-Alain Sahel, MD**, Distinguished Professor of Ophthalmology; **Mark Shlomchik, MD, PhD**, Distinguished Professor of Immunology; **William Wagner, PhD**, Distinguished Professor of Surgery; and **Adriana Zeevi, PhD**, Distinguished Service Professor of Pathology. ●

# COVID-19 INFECTS THE WORLD PITT MED RESPONDS

## PITT IS A LEADER IN COVID-19 FIGHT

Scientists and clinicians across Pitt's six health sciences schools, along with colleagues from other academic departments, have taken a prominent role in responding to the pandemic. In all, Pitt is home to more than 400 ongoing studies related to COVID-19 and SARS-CoV-2.

Perhaps foremost among these are studies in the University's Center for Vaccine Research (CVR), which integrates efforts in virology, immunology, and other disciplines to develop diagnostics, therapeutics, and vaccines against known and emerging infectious diseases. CVR houses one of the few labs nationwide qualified to handle pathogens like SARS-CoV-2 (severe acute respiratory syndrome coronavirus-2), which causes COVID-19. CVR director **W. Paul Duprex, PhD**, received permission from the U.S. Centers for Disease Control and Prevention (CDC) to bring the virus to Pittsburgh in mid-February 2020.

**A POTENTIAL VACCINE IN THE PRECLINICAL PHASE—PittCoVacc—IS ADMINISTERED USING A FINGER-TIP-SIZED PATCH OF 400 TINY NEEDLES THAT DELIVERS LAB-MADE CORONAVIRUS SPIKE PROTEIN PIECES INTO THE SKIN. ... THE DELIVERY METHOD HAS ADVANTAGES FOR GLOBAL DISTRIBUTION AND POTENTIAL APPLICATIONS OUTSIDE OF THE PANDEMIC.**

A team led by Duprex is working on a COVID-19 vaccine candidate that harnesses a measles vaccine engineered to express SARS-CoV-2 proteins on its surface to generate immunity to the virus. CVR is partnering with the Serum Institute of India to bring the vaccine to phase I clinical trials.

Also in CVR, **William Klimstra, PhD**, associate professor of immunology, is investigating a polyclonal antibody therapy (SAB-185) that could be used to both treat and prevent COVID-19. Clinical staff began injecting SAB-185 into healthy volunteers for a phase I trial in August 2020.

Two pharmaceutical companies, Moderna and AstraZeneca, partnered early with Pitt and UPMC on vaccine trials. The phase III trials were led by **Judith Martin, MD**, director of the Pittsburgh Vaccine Trials Unit and CVR member, and **Sharon Riddler, MD**, director of clinical research in Pitt's Division of Infectious Diseases. (See page 10)

Another potential vaccine, called PittCoVacc, was developed by a team led by **Louis Falo, MD, PhD**, professor and chair of dermatology, and **Andrea Gambotto, MD**, associate professor of surgery. PittCoVacc is administered using a fingertip-sized patch of 400 tiny needles that delivers lab-made coronavirus spike protein pieces into the skin, where the immune reaction is strongest. The patch goes on like a Band-Aid, and then the needles simply dissolve. When tested in mice, the vaccine produced antibodies specific to SARS-CoV-2 at quantities thought to be sufficient for neutralizing the virus.

Although PittCoVacc, unlike some other vaccine candidates, is still in the preclinical phase, Falo believes that if PittCoVacc is approved, its delivery method has global distribution advantages and potential applications outside of the pandemic. ●

## STEROIDS IMPROVE COVID-19 PATIENTS' SURVIVAL

In the race to find treatments for COVID-19 patients, an international team led by Pitt and UPMC clinician-scientists found that administering widely available, inexpensive steroids boosts critically ill COVID-19 patients' survival odds. The study's results even prompted the World Health Organization (WHO) to update its COVID-19 treatment guidance.

"It is relatively rare in medicine that you find drugs where the evidence of their effectiveness in saving lives is so consistent," says lead author **Derek Angus, MD, MPH**, Distinguished Professor, Mitchell P. Fink Professor, and chair of critical care medicine. "This is, in many respects, the single clearest answer we've had so far on how to manage terribly ill COVID-19 patients," adds Angus, who is also associate vice chancellor for health care innovation in the Schools of the Health Sciences.

The findings, which were published across four JAMA articles, stem from the "Randomized Embedded Multifactorial Adaptive Platform-Community Acquired Pneumonia (REMAP-CAP)" trial, a large-scale international initiative to evaluate treatments at numerous hospitals. Because REMAP-CAP can simultaneously test multiple combinations of potential therapies—as opposed to



**IT IS RELATIVELY RARE IN MEDICINE THAT YOU FIND DRUGS WHERE THE EVIDENCE OF THEIR EFFECTIVENESS IN SAVING LIVES IS SO CONSISTENT."**

Derek Angus,  
MD, MPH

## Former Pitt Fellow Leads Wuhan's Pandemic Response



Today, Zhiyong Peng, MD, PhD, is professor and chair of critical care medicine at Zhongnan Hospital of Wuhan University in China, a region considered Ground Zero for the COVID-19 pandemic. But his crisis management skill derives, in part, from lessons Peng learned in Pittsburgh.

As a fellow and later researcher associated with Pitt Med's Department of Critical Care Medicine from 2006 to 2014, Peng focused on studying complications from acute kidney injury and severe infections like sepsis.

"He really ran the sepsis laboratory; it was my lab, but we worked closely together, and I trusted him to run it," says **John Kellum, MD**, Professor of Critical Care Medicine Research.

"My time at Pitt was very valuable," says Peng. "I learned a lot, including how to manage teams and be a leader."

Peng has been at the forefront of his hospital's COVID-19 response and has presented and published important clinical care insights on the first COVID-19 cases in Wuhan.

the traditional, slower clinical trial process that tests one therapy at a time—the initiative is well-suited for rapidly identifying effective treatments during the COVID-19 pandemic.

Between March and June 2020, the REMAP-CAP corticosteroid trial randomized 403 adult COVID-19 patients admitted to an intensive care unit to receive the steroid hydrocortisone or no steroids at all. (Steroids can reduce inflammation and modulate the immune system.) The trial found a 93% probability that giving patients a seven-day intravenous course of hydrocortisone would result in better outcomes than not giving the steroid. The results, which involved compiling data from 121 hospitals in eight countries, were consistent across age, race, and sex.

REMAP-CAP was one of several international trials testing steroids. After REMAP-CAP investigators coordinated with the other trials' researchers and WHO to pool and analyze data, the teams observed that the results were consistent across all trials—a major finding and collaborative effort, Angus notes, because, amid urgency to uncover breakthrough COVID treatments, such clear results are rare. The trials' findings were published alongside a simultaneous meta-analysis of the work.

During the study, steroids were given only to hospitalized COVID-19 patients needing respiratory support, since applying them unnecessarily can dampen the immune system and cause serious side effects. The REMAP-CAP corticosteroid trial was conducted primarily in resource-rich countries across Europe, North America, and Australasia, so the findings may not translate to low- and middle-income countries.

"REMAP-CAP and our findings on corticosteroids are possible because of a global community of clinicians and scientists coordinating and sharing data across different languages and countries," says coauthor **Christopher Seymour, MD, MSc**, associate professor of critical care medicine and Translational and Clinical Science Program director at Pitt's Clinical Research, Investigation, and Systems Modeling of Acute Illness (CRISMA) Center. "This is how we get definitive answers as fast as possible on how to best treat patients. Outcomes in Amsterdam are helping patients at UPMC Altoona." ●

### ACTIV-4 CLINICAL TRIALS RELYING ON PITT

The National Institutes of Health (NIH) selected the University of Pittsburgh to lead a trio of phase III clinical trials involving COVID-19 patients. Collectively known as ACTIV-4 Antithrombotics, these trials will explore the use of blood thinners in saving lives and improving care, particularly among adult COVID-19 patients who are at risk of developing life-threatening blood clots.

As the coordinating center for these trials, Pitt is occupying a leading role in NIH's Accelerating COVID-19 Therapeutic Interventions and Vaccines (ACTIV) initiative, funded through Operation Warp Speed. Six other universities—Harvard University, New York University, the University of Illinois at Chicago, the University of Michigan, the University of North Carolina at Chapel Hill, and the University of Vermont—are also participating in the initiative, which will continue to add qualifying institutions.

"This is a massive undertaking supported by NIH—one that is leveraging a global network to help improve patient outcomes for COVID-19," says **Anantha Shekhar, MD, PhD**, Pitt's senior vice chancellor for the health sciences and John and Gertrude Petersen Dean of Medicine. "It is also a challenge that the University of Pittsburgh, a longtime leader in health care innovation, is perfectly positioned to tackle."

**THIS IS A MASSIVE UNDERTAKING SUPPORTED BY NIH—ONE THAT IS LEVERAGING A GLOBAL NETWORK TO HELP IMPROVE PATIENT OUTCOMES FOR COVID-19. IT IS ALSO A CHALLENGE THAT THE UNIVERSITY OF PITTSBURGH, A LONGTIME LEADER IN HEALTH CARE INNOVATION, IS PERFECTLY POSITIONED TO TACKLE."**

**Anantha Shekhar,  
MD, PhD**

Researchers and clinicians have noted that many patients who have died from COVID-19 formed blood clots throughout their bodies, including in their smallest blood vessels. This unusual clotting—one of many life-threatening effects of the disease—causes multiple health complications, from lung and other organ damage to heart attacks, pulmonary embolisms, and strokes.

Antithrombotics, also known as blood thinners or anticoagulants, keep blood protein and platelets from turning into clumps or sticking to each other. Doctors are determining whether COVID-19 blood thinners are effective in treating patients with this condition and, if so, at what point they should be applied.

Stephen Wisniewski, PhD, Pitt's vice provost for budget and analytics, and two physician-scientists from Pitt—**Matthew D. Neal, MD**, Roberta G. Simmons Associate Professor of Surgery, and **Frank Sciorba, MD**, professor of medicine, who directs the Pulmonary Function Exercise Physiology Laboratory—are leading this effort.

"Understanding how to treat coagulation risk in COVID-19 patients is critical to lessening the impact of this pandemic," says Wisniewski. "Pitt's ability to innovate and collaborate enables us to help ensure that these trials will be completed with the rigor and speed necessary to make an impact at this critical moment. In collaboration with NIH and our peer institutions, we will use the combined tools of biology and statistics to advance the treatments of this deadly virus."

"This has been an amazingly cooperative endeavor—unequivocally the most rapidly moving, complex but also highly collaborative experience of my life," says Neal.

"While the greatest focus on blood clotting complications has been in the inpatient setting, earlier attention in more stable patients prior to hospitalization may have an important impact on progression to the more serious consequences of COVID-19," says

Sciorba. ●



## PITT PLAYS KEY ROLE IN COVID-19 VACCINE CLINICAL TRIALS

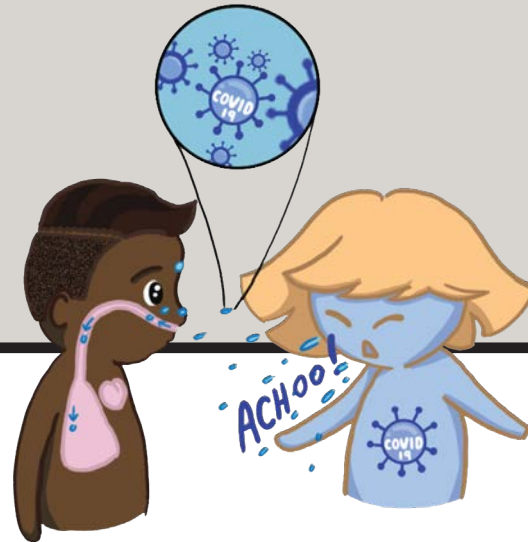
**N**IH's COVID-19 Prevention Network and Operation Warp Speed vaccine program are counting on the University of Pittsburgh to play a key role in COVID vaccine clinical trials—and it's no wonder. Vaccines and Pittsburgh go way back, most notably to the 1950s, when Pitt researchers led by Jonas Salk, MD, developed the first safe, effective vaccine against polio—the most feared disease of the era.

Beyond developing vaccines, conducting vaccine clinical trials is a crucial process, one with which Pitt has considerable experience. The Pittsburgh COVID vaccine clinical trials site is enlisting 750 participants, and several hundred volunteers have received the COVID vaccine as part of nationwide phase III clinical trials, says **Judith Martin, MD**, professor of pediatrics and director of the Pittsburgh site for the Moderna vaccine research study. The registry of Pittsburgh volunteers numbers almost 5,000 individuals, including many members of the Black and Latinx communities, which have been disproportionately affected by COVID-19.

In addition to the Moderna COVID vaccine, a second Pittsburgh site for the Astra Zeneca vaccine is being directed by **Sharon Riddler, MD**, professor and clinical research director in the Department of Medicine's Division of Infectious Diseases. The studies, which focus on vaccine efficacy and duration of immunity, have enrolled hundreds of patients from the region and contributed to the early vaccines' success.

Martin is also working with Janssen, the vaccine arm of Johnson & Johnson, and further notes that a Moderna pediatric vaccine study may be the next step for Pitt researchers.

"Pittsburgh has done vaccines for a long time," says Martin, who also directs the Pittsburgh Vaccine Trials Unit at UPMC University Center. "I think what's so wonderful about this environment is that we have the resources and we have such a collaborative nature," which, she says, has been key to enrolling diverse participants and rapidly obtaining the necessary infrastructure and personnel to conduct the trials. ●



### COVID-19 in Other Words and Pictures

Before the COVID-19 pandemic, School of Medicine student Carly O'Connor-Terry was conducting research with the Pittsburgh Center for Autistic Advocacy. When the virus hit Pittsburgh, she formed a volunteer effort with her med school peers and contacted the center to see if there was anything they could do to help.

Opal M. said they were thankful O'Connor-Terry contacted them because an entire community was in need.

"When Carly emailed us, I had just tested positive for COVID-19," said M., the center's assistant director and an autistic, disabled, queer/nonbinary parent of children who are autistic and disabled. "I looked and looked—even asked several of my physician contacts—and couldn't find any materials whatsoever written in plain language to help better understand the virus."

M. said it can be difficult for autistic people and people with intellectual disabilities to recognize cues in their own bodies, like hunger or thirst, or when they are sick or tired.

For O'Connor-Terry, a Pittsburgh native, she can personally relate to these concerns. O'Connor-Terry has an autistic brother with whom she does not communicate orally. She said this is part of the reason it was so important to help.

The same day she connected with M., O'Connor-Terry quickly got to work on the guide, recruiting help through a Slack group of med students across the country.

Using the CDC guidelines for reference, the team produced a plain language guide describing what COVID-19 is and what to do if a person experiences symptoms.

"We classified the symptoms into groups. The 'emergency group' is the most important, which includes shortness of breath. The 'ask for help group' includes fever and cough, and the 'stay home group' includes more general symptoms, like sore throat, runny nose, and muscle pain. We have a picture for each symptom, and we describe how the symptom could feel," said O'Connor-Terry, who is also a Clinical Scientist Training Program research scholar.

O'Connor-Terry and the team had their guide vetted by two infectious disease doctors at Pitt, along with other clinicians with relevant experience, including Peter J. Veldkamp, MD, MS, professor of medicine and director of education and of travel health in the Department of Medicine's Division of Infectious Diseases.

M. is so thankful for the guide and thinks it will be of great assistance. "People look for things that are illustrated to show how things feel in their bodies—and describe those feelings—so they can better understand what's happening," said M. ●



**IMMEDIATE  
COVID-19 RESEARCH  
RESPONSE**

**W**hen the COVID-19 pandemic began, Pitt's Clinical and Translational Science Institute (CTSI) wasted no time coordinating funding for the vital research and work needed to combat the outbreak across all fronts.

In April 2020, CTSI's COVID-19 Pilot Grant Program awarded \$900,000 to 17 Pitt research projects addressing various aspects of the pandemic.

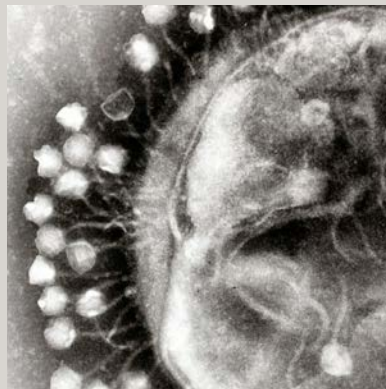
"We are optimistic that the impact of research will provide insight and results," said CTSI director **Steven Reis, MD**. "We are proud to be part of this thriving research community that has shown how Pittsburgh really steps up when called upon."

Awardees were selected after an accelerated, extensive peer-review process. The recipients' projects covered everything from clinical and community serosurveillance, pneumonia severity biomarkers, neurologic manifestations, maternal infections and newborns, modeling strategies, therapeutic nanobodies, and much more. Pitt's CTSI, Office of the Provost, Office of the Senior Vice Chancellor for Research, and the DSF Charitable Foundation funded the program.

Reis, who is also Distinguished Service Professor of Medicine and associate senior vice chancellor for clinical and translational research, health sciences, said the grant program was created to support research initiatives aimed at immediate progress toward reducing the harm to individuals, groups, and society from COVID-19. "We need to look at all options to deal with the COVID-19 pandemic, and the response to the call for proposals was overwhelming," said Reis, alluding to the program receiving more than 150 proposals from 590 investigators across 14 schools. "As encouraged as we were with the number, we were even more impressed with the thinking that went into the proposals from so many different parts of the University," he added. ●

**WE ARE PROUD TO BE PART OF THIS THRIVING RESEARCH COMMUNITY THAT HAS SHOWN HOW PITTSBURGH REALLY STEPS UP WHEN CALLED UPON."**

**Steven Reis, MD**



**ANTIBODY MAY  
POTENTIALLY TREAT  
AND PREVENT COVID**

**A** drug developed by Pitt researchers could be highly effective at preventing and treating COVID-19. Neutralizing the SARS-CoV-2 virus is not strictly a job for vaccines and their resulting antibodies. Pitt researchers and their collaborators have developed an antibody domain called Ab8 aimed at preventing and treating SARS-CoV-2 infection. Ab8 binds to the SARS-CoV-2 spike protein, preventing its attachment to healthy cells. Their findings were published in *Cell*.

"Ab8 not only has potential as therapy for COVID-19, but it also could be used to keep people from getting SARS-CoV-2 infections," says study coauthor **John Mellors, MD**, Distinguished Professor of Medicine, Professor for Global Elimination of HIV and AIDS, and chief of the Department of Medicine's Division of Infectious Diseases. "Antibodies of larger size have worked against other infectious diseases and have been well tolerated, giving us hope that it could be an effective treatment for patients with COVID-19 and for protection of those who have never had the infection and are not immune," Mellors says.

Using antibodies to treat COVID-19 patients takes a similar approach to convalescent plasma therapy, which harnesses antibodies from people who already had COVID-19 to treat those battling infection. Yet this therapy is still being tested in clinical trials, and there may not be enough plasma to benefit all in need.

**AB8 NOT ONLY HAS POTENTIAL AS THERAPY FOR COVID-19, BUT IT ALSO COULD BE USED TO KEEP PEOPLE FROM GETTING SARS-COV-2 INFECTIONS. ANTIBODIES OF LARGER SIZE HAVE WORKED AGAINST OTHER INFECTIOUS DISEASES AND HAVE BEEN WELL TOLERATED, GIVING US HOPE THAT IT COULD BE AN EFFECTIVE TREATMENT FOR PATIENTS WITH COVID-19 AND FOR PROTECTION OF THOSE WHO HAVE NEVER HAD THE INFECTION AND ARE NOT IMMUNE."**

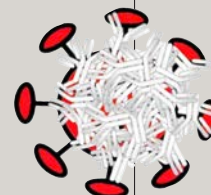
**John Mellors, MD**

The Ab8 antibody—which was tested in collaboration with other U.S. and international universities—is 10 times smaller than a full-sized antibody, meaning it can better penetrate tissues to neutralize the virus and could possibly be administered through inhalation or intradermal injection, as opposed to more standard intravenous antibody administration. The antibody does not bind to human cells, so it is unlikely to cause side effects in humans.

After the researchers infected mice with a modified version of SARS-CoV-2, those treated with even low doses of Ab8 contained 10-times less infectious virus than untreated mice. The drug also effectively treated and prevented SARS-CoV-2 infection in hamsters.

The researchers sifted through a pool of more than 100 billion antibody components, using the SARS-CoV-2 spike protein as bait to determine which antibodies would latch on and become potential therapeutics. Senior author **Dimiter Dimitrov, PhD, ScD**, professor of medicine in the Division of Infectious Diseases and director of Pitt's Center for Antibody Therapeutics, was among the discoverers of neutralizing antibodies for the original SARS coronavirus in 2003. He and his team discovered other infectious disease antibodies in ensuing years, hastening the search for effective SARS-CoV-2 antibodies.

Around Bio, a newly formed, Pittsburgh-based company, has licensed Ab8 for worldwide development, and the researchers hope to begin clinical trials in early 2021. ●



## Equitable Skin Care

In the Department of Dermatology, the Skin Health Equity (SHE) program has enhanced underserved communities' access to dermatologic care since 2017.

The program is vital, in part, because academic literature in dermatology contains a disproportionate amount of white skin compared to Black skin; and skin color influences how certain diseases look, according to **Alaina James, MD, PhD**, assistant professor of dermatology.

For example, people of color face increased melanoma morbidity because melanoma is often diagnosed at a more advanced stage in people of color, James says. "Through SHE, we are trying to improve all those aspects: education about skin of color, access for patients with skin of color, and education of patients with skin of color so that they can advocate for themselves."

SHE, after partnering with Pittsburgh community health centers and determining a community's dermatologic needs, deploys teams of dermatologists, residents, medical students, and undergraduates through MobileDerm, SHE's outreach program, to provide care in-person or via tele-consultation. James is director of SHE and MobileDerm.

Now, SHE is expanding. In 2020, the MobileDerm program was awarded a pilot grant from Pitt's Clinical and Translational Science Institute to expand outreach to rural regional communities, some of which are dermatology deserts, James says, with large populations lacking any dermatologists in the community.

James can't stress enough the importance of skin awareness: "[Skin] is in tune with the rest of the body and reflects a lot of what's going on with the overall health of the patient. We can commonly diagnose patients with internal medical conditions based on changes that are present on their skin." ●

## New Center Tackles Pelvic Pain

Although endometriosis and pelvic pain affect as many as one in 10 women of reproductive age, a proper diagnosis can take years. A new center established at UPMC Magee-Womens Hospital aims to improve early diagnosis and treatment of endometriosis and other pelvic pain disorders and to advance research through tissue sample collection and coordination of resources.

Endometriosis occurs when the uterine lining—called endometrial tissue—grows elsewhere in the abdominal cavity. Like normal endometrial tissue, these displaced lesions react to monthly hormonal cues, causing inflammation.

Symptoms include pelvic pain during a period and intercourse, generalized pelvic pain outside of the menstrual cycle, and unexplained infertility. Because it can't be detected with imaging equipment, the only way to definitively diagnose endometriosis is through exploratory surgery.

"Chronic pelvic pain can be so difficult to diagnose," says **Nicole Donnellan, MD**, associate professor of obstetrics, gynecology, and reproductive sciences and director of the Chronic Pelvic Pain and Endometriosis Center. "There are many different conditions that can cause pelvic pain, including bladder or muscle spasms, uterine issues, and even gastrointestinal problems."

The new clinic embraces a unified team approach to patient care, providing patients with the opportunity to meet with gynecologic surgeons, behavioral health therapists, and physical therapists during the same appointment, helping to begin treatment sooner.

"Many women come to the clinic in frustration after being told their pain is psychological," notes **Suketu Mansuria, MD**, associate professor of obstetrics, gynecology, and reproductive sciences.

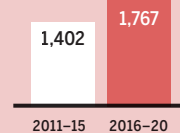
"Someday, we'd like to have a blood test to detect endometriosis, but we need to understand the pathology of the disease first," says Donnellan, who, along with researchers at Magee-Womens Research Institute, is on the case. ●

## Pitt Innovation by the Numbers



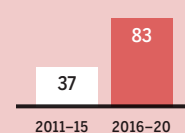
### Invention Disclosures

+27%



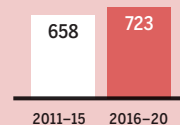
### Startups

+124%



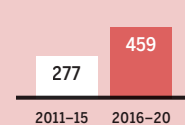
### Transactions

+10%



### Patents

+66%



### FISCAL 2020:

#### INNOVATION COMMERCIALIZATION

Invention disclosures: 394  
Patents: 88  
Transactions: 132  
UPMC agreements: 16  
Startups: 15  
Revenue: \$12,375,660

#### INSTITUTE FOR ENTREPRENEURIAL EXCELLENCE

1,900+ businesses  
received 1:1 consulting  
\$25,600,000+  
in capital formation  
8,500+ hours of consulting  
10,000+ jobs supported  
and/or created  
52 startups launched

**“We’re finding collaborative ways to fight debilitating infectious and immune-mediated diseases that affect children’s lives, like pneumonia, bronchitis, diabetes, and asthma.”**

**John Williams, MD**



## i4Kids Initiative

W

orldwide, the leading cause of death for children under age 5 is infection. In the United States, more children are hospitalized for infectious and inflammatory diseases than for any other cause.

The Institute for Infection, Inflammation, and Immunity in Children, i4Kids, is a joint initiative launched in 2020 by the University of Pittsburgh and UPMC Children’s Hospital of Pittsburgh to become a center of research, discovery, prevention, and treatment of these diseases in children as the

foundation of improving the health of future generations.

“We’re finding collaborative ways to fight debilitating infectious and immune-mediated diseases that affect children’s lives, like pneumonia, bronchitis, diabetes, and asthma,” says **John Williams, MD**, Henry L. Hillman Professor of Pediatric Immunology and the institute’s director.

“We have great strengths in infection biology and immunology research here in Pittsburgh, and i4Kids will build on those strengths,” adds **Terence Dermody, MD**, Distinguished Professor, Vira I. Heinz Professor, and chair of the Department of Pediatrics, who conceived the idea of such an institute more than 30 years ago. “We are also united in our goals for improved childhood health, which allows us to recruit for additional strength.”

Currently, 39 faculty members from across the University’s research enterprise are affiliated with i4Kids. Multidisciplinary team pilot projects funded for 2020 include:

- *In Situ* Engineering of the Skin Immune System To Treat Peanut Allergy (Dermatology and Pediatrics, School of Medicine, and Bioengineering, Swanson School of Engineering)
- Acoustic Waveform Respiratory Examination for Pediatric Inflammatory Airway Diseases (Pediatrics, School of Medicine, and Electrical and Computer Engineering, Swanson School of Engineering)
- CRISPRi Repression of Group B *Streptococcus*-Externalized Proteins To Identify Key Mediators of Macrophage Responses During Neonatal Infection (Pediatrics and Medicine, School of Medicine)
- Role of Protists in Virus-Mediated Loss of Oral Tolerance and Celiac Disease (Pediatrics and Immunology, School of Medicine)

At the same time, the institute’s Pittsburgh Phage Project is bringing together several dozen faculty from medicine, public health, and the Dietrich School of Arts and Sciences to investigate new uses for bacteriophages — viruses that infect and destroy bacteria.

In September 2020, the R.K. Mellon Foundation announced a \$1.5 million grant to support development of a candidate vaccine or therapeutic treatment against acute flaccid myelitis, an infection linked to neurological complications and paralysis in children.

All of this is very good news to **Anna Wang-Erickson, PhD**, assistant professor of pediatrics and the institute’s associate director, who states, “We are very excited about the development of new collaborations.” ●

## Surgical Engagement

**T**he COVID-19 pandemic, the calls for social justice, and other tumultuous events of 2020 have demanded new means of taking action on equity and outreach and that includes the School of Medicine.

In the Department of Surgery, **Timothy Billiar, MD**, Distinguished Professor, George V. Foster Professor, and chair of surgery, recently formed the Division of Community Engagement, which builds and fosters health equity, trust, and commitment among Pittsburgh's communities through educational and engagement initiatives. The division shares information and discussions on COVID safety, nutrition, trauma treatment, and many more topics of concern, while also working to inspire interest in science and medicine among young community members. Billiar appointed **Steven Evans, MD**, clinical professor of surgery, as community engagement division director.

"Our mission has to be to serve the needs of our surrounding communities, and that includes those who are underserved, underinsured, and underrepresented minorities, in a culturally sensitive way," says Evans. "I feel it's really incumbent on us as educators to focus on the root causes of these disparities and outcomes that we see."

While the pandemic restricts gatherings, the division's messaging has been shared across Pitt and UPMC channels and via social media, videos, and virtual town hall meetings, often in partnership with organizations attuned to education, social justice, and combatting disparities. Two of those partners include the Gateway Medical Society, an organization associated with the National Medical Association working to eradicate disparities in health care, and IHood Media, a collective of socially conscious artists and activists.

The division's outreach also emphasizes cancer screenings, which have taken a hit during the pandemic. "We're looking now at a potential uptick in cancer diagnoses," Evans says, "because of people no longer screening due to the pandemic." Breast cancer and colon cancer are leading killers among Black women and men, Evans says. The division reinforces the COVID safety measures taken by places like UPMC Hillman Cancer Center to keep patients and the community safe while continuing screenings. "We want to educate on prevention and treatment, as opposed to having conversations that accuse the community of not being responsible themselves," Evans says. ●

**"OUR MISSION HAS TO BE TO SERVE THE NEEDS OF OUR SURROUNDING COMMUNITIES, AND THAT INCLUDES THOSE WHO ARE UNDERSERVED, UNDERINSURED, AND UNDERREPRESENTED MINORITIES, IN A CULTURALLY SENSITIVE WAY."**

Steven Evans, MD

**"Stories are just so powerful. They are an incredible way to communicate; they can cross cultures, and they're a way to convey very technical information without using very technical language."**

Kathleen M. McTigue, MD, MPH, MS

## Storytellers Could Improve Health Outcomes

**S**tory Booth is a research project that collects people's stories about their health experiences and shares them with researchers. The project's roots are in PaTH, one of 33 networks that comprise the Patient-Centered Outcomes Research Institute's National Patient-Centered Clinical Research Network.

"The mission of Story Booth is to promote patient-centered research," says Kathleen M. McTigue, MD, MPH, MS, associate professor of medicine. "We wanted to make it easier to foster the development of research that addresses questions patients feel are important. Stories are just so powerful. They are an incredible way to communicate; they can cross cultures, and they're a way to convey very technical information without using very technical language."

People who volunteer to share their stories with Story Booth often record them over the telephone and agree to allow researchers to listen to the stories. The idea is that if researchers know what topics people think are important, researchers will design studies around those topics. Then, those studies can, hopefully, generate findings that may better people's health.

McTigue, also associate professor of epidemiology at Pitt's Graduate School of Public Health, explains that 72% of storytellers have expressed an interest in getting involved in health research as partners who help guide the research process. Story Booth researchers support team-building by introducing storytellers and researchers with shared health interests.

She says, "We knew that many researchers are intrigued by patient-centered research but don't really know how to make it happen and often feel uncomfortable. Likewise, we know many patients are interested in the concept but are sometimes intimidated because they don't know how to find or connect with researchers, and they may use different vocabularies than researchers. Story Booth is a way to bring those two different groups of people together."

In 2019, Story Booth was affiliated with a Pitt Year of Creativity award that funded a project with University of Pittsburgh at Bradford undergraduates and faculty artists. Each picked a story that inspired them and created artwork based on the story.

"It's another way we're trying to amplify the storytellers' voices," says McTigue. ●





“**W**hen [the COVID-19 pandemic] hit and we were told to shelter in place, it hadn’t hit me yet. I was still going to the store without a mask or gloves, but then I started to see the shelves emptied of hand sanitizer, hand soap, toilet paper, etc. I hadn’t really felt the impact of it. I was in shock. Then, I started wearing gloves, a hat, a double mask, and I was really scared—really petrified of people and of being in public spaces. But I had to go out and get necessities. I also have an 80-year-old mother who lives on the other side of town. She definitely couldn’t be going out shopping, so I had to be the one to do it. One time, I had just come from dropping off groceries to my mom and had to drive back across town to get home and unload my groceries. At the time, they didn’t know whether the virus could last on packaging, so I put my groceries on the floor and used bleach mixed with water to wipe everything down before I put it away. I just broke down. It was a lot. I had to remember everything I touched

before I got into the house and then everything I had touched once I got inside the house and clean it all. It was overwhelming. I think I had a panic attack or something. Then, I would go to the grocery store and have to tell my mom that they had run out of a lot of things, and we were just going to have to take what we could get. It took about until the middle of May before I felt like I had a groove. But then I started seeing people without masks because they thought [the pandemic] was over. People stopped social distancing. I think we opened up way too early. I just need to do whatever I have to in order to keep myself and my mother safe. It still scares me when people get too close or they’re not wearing masks or wearing them inappropriately. I wonder when I’m going to snap out.” ●

— adapted from a Story Booth recording of a woman’s experience living through the COVID-19 pandemic as someone who is HIV positive and caring for her aging mother

# EDUCATION



## A Virtual Year

With the cancellation of most in-person events during the COVID-19 pandemic, the School of Medicine has reinvented how it celebrates its traditional milestone events and builds community. Strict physical distancing meant meeting virtually for most of 2020.

### MATCH DAY

Match Day 2020 at Pitt Med was a virtual celebration of the hard work and accomplishments of the graduating medical students. Students fundraised for four years to make their Match Day a celebration to remember. When the arrival of COVID-19 forced their festivities online, the students opted to donate their party funds to local organizations supporting the community during the COVID-19 crisis. That's a celebration that will leave an indelible memory.

### SCOPE AND SCALPEL

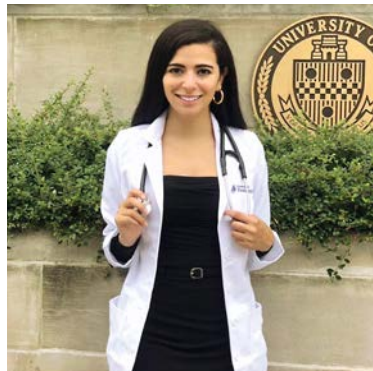
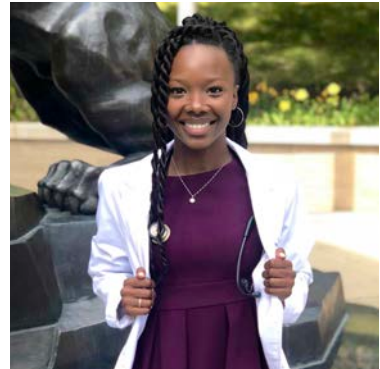
By late March, it seemed like Scope and Scalpel—the annual production put on by graduating medical students—would end its 65-year streak of roasting all things Pitt Med. But students were able to film individual parts of “The Lyme King” and screen it as a whole via Zoom in May. Proceeds from this year's show went to the Greater Pittsburgh Arts Council's Emergency Fund for Artists.

### DIPLOMA DAY

Students in the School of Medicine virtually celebrated Diploma Day on May 18, 2020. It was streamed on YouTube, had all of the traditional pomp and ceremony, and has been viewed more than 7,000 times. David Fajgenbaum, MD, MBA, MSc, assistant professor of medicine at the University of Pennsylvania and a survivor and researcher of Castleman disease, delivered the commencement address. He wrote the acclaimed memoir “Chasing My Cure: A Doctor's Race to Turn Hope into Action,” reflecting on his journey as a patient and physician-scientist.



(Above) On Match Day, med school students shared their future residencies (and excitement!) online. (Top R) “The Lyme King,” this past year's Scope and Scalpel production, took place virtually and can still be viewed on YouTube.



### WHITE COAT CEREMONY

The White Coat Ceremony is a symbolic event marking the entry of first-year students into the medical profession. School of Medicine administrators and faculty members virtually welcomed students of the Class of 2024; and Vaughn S. Clagette, MD, MBA, physician, Southeast Permanente Medical Group, and member, Pitt Board of Trustees and UPMC Board of Directors, gave the keynote address: "Your journey is about to begin," he told the medical students. "At Pitt, with continued work, you can become any and everything

you want to be in life." As for the students, they declared their commitment to integrity, ethical behavior, and honor by reciting the Hippocratic Oath. This year, in addition to the traditional Hippocratic Oath, Chenits Pettigrew Jr., EdD, associate dean for diversity, equity, and inclusion and director of diversity programs, challenged students to write their own class oath for the first time in the school's 134 years. The new oath was more explicitly inclusive of all people, including those historically overlooked by the medical community. ●

**“We believe that our oath acknowledges the context of U.S. history and medicine and uses it to explain our current state. We used the past and present to clarify our future goals as physicians.”**

**Tito Onyekweli '24**



DO NO HARM

## Hippocratic Evolution

In addition to reciting the traditional Hippocratic Oath during the White Coat Ceremony in August, members of the University of Pittsburgh School of Medicine's Class of 2024 started a new tradition by writing their own class oath to acknowledge their ever-evolving responsibilities as physicians.

At orientation, Chenits Pettigrew Jr., EdD, associate dean for diversity, equity, and inclusion, challenged med students to update the oath. After circulating a draft to the entire medical school class for feedback, students officially presented the new oath to Anantha Shekhar, MD, PhD, senior vice chancellor for the health sciences and John and Gertrude Petersen Dean of the School of Medicine.

"At Pitt, we challenge our students to change the world — and the future of medicine — for the better. This class didn't wait," said Shekhar. "Their class oath, the first of its kind in our program's 134-year history, speaks to the power and importance of clinical care and research in creating a more inclusive and just society, and I am excited to watch them put this promise into practice."

The oath, which highlights issues like COVID-19, health care disparities, and racial injustice, is not merely about current events, said first-year medical student Tito Onyekweli, one of 12 students on the oath writing committee.

"We believe that our oath acknowledges the context of United States history and medicine and uses it to explain our current state," Onyekweli said. "We used the past and present to clarify our future goals as physicians."

The students acknowledged that they are beginning their careers in medicine at an unforgettable moment in history. The oath addresses championing diversity in medicine and society, being an ally to those of low socioeconomic status, and restoring trust in the health care community.

"We start our medical journey amidst the COVID-19 pandemic and a national civil rights movement reinvigorated by the killings of Breonna Taylor, George Floyd, and Ahmaud Arbery," the oath begins. "We honor the 700,000+ lives lost to COVID-19, despite the sacrifices of health care workers."

In the future, each incoming School of Medicine class will be invited to write its own unique oath during orientation week to help them establish their professional identities as physicians. ●

### UNIVERSITY OF PITTSBURGH SCHOOL OF MEDICINE CLASS OF 2024 OATH

As the entering class of 2020, we start our medical journey amidst the COVID-19 pandemic and a national civil rights movement reinvigorated by the killings of Breonna Taylor, George Floyd, and Ahmaud Arbery. We honor the 700,000+ lives lost to COVID-19, despite the sacrifices of health care workers.

We recognize the fundamental failings of our health care and political systems in serving vulnerable communities. This oath is the first step in our enduring commitment to repairing the injustices against those historically ignored and abused in medicine: Black patients, Indigenous patients, Patients of Color, and all marginalized populations who have received standard care as a result of their identity and limited resources.

Acknowledging the privilege and responsibility that come with being a physician, I take this oath as a call to action to fulfill my duty to patients, to the medical profession, and to society.

#### THEREBY, I PLEDGE AS A PHYSICIAN AND LIFELONG STUDENT OF MEDICINE:

*I will* support and collaborate with my colleagues across disciplines and professions, while respecting the patient's vital role on the health care team.

*I will* honor my physical, mental, and emotional health so as to not lessen the quality of care I provide.

*I will* carry on the legacy of my predecessors by mentoring the next generation of diverse physicians.

*I will* recognize the pivotal role of ethical research in the advancement of medicine and commit myself to endless scholarship with the ultimate goal of improving patient care.

*I will* care for my patients' holistic well-being, not solely their pathology. With empathy, compassion, and humility, I will prioritize understanding each patient's narrative, background, and experiences, while protecting privacy and autonomy.

*I will* champion diversity in both medicine and society and promote an inclusive environment by respecting the perspectives of others and relentlessly seeking to identify and eliminate my personal biases.

*I will* be an ally to those of low socioeconomic status, the BIPOC community, the LGBTQIA+ community, womxn/women, differently-abled individuals, and other underserved groups in order to dismantle the systemic racism and prejudice that medical professionals and society have perpetuated.

*I will* educate myself on social determinants of health in order to use my voice as a physician to advocate for a more equitable health care system from the local to the global level.

*I will* restore trust between the health care community and the population in which I serve by holding myself and others accountable and by combating misinformation in order to improve health literacy.

In making this oath, I embrace the ever-changing responsibilities of being a physician and pledge to uphold the integrity of the profession in the clinic and beyond.

**“Our students, with the support and leadership of Dean Shekhar, have been leaders in this change, pushing us to make our curriculum more anti-racist, more attentive to social medicine themes.”**

Jason Rosenstock, MD

## Medical School Curriculum Undergoes Major Advances

**T**he time is now for “disruptive change” (the good kind) in the curriculum for Pitt medical students. That assessment comes from School of Medicine educators, based on rapid changes in biomedical science, medical practice, pedagogical shifts, and student feedback.

“We continually upgrade the curriculum, but for larger changes you need a broader revival effort,” says Jason Rosenstock, MD, associate dean for medical education and professor of psychiatry, who spearheads the curriculum reform. “We also wanted to address some specific themes.”

One of the themes is interprofessional education. In a working environment, physicians interact with pharmacists, nurses, physical therapists, and other health professionals to provide the best care for patients. Interprofessional education blends students and learning from different health care fields. Rosenstock and others believe the current new construction to increase space and flexibility in Alan Magee Scaife Hall — the medical school’s home — is essential to the new styles of learning. In fact, Anantha Shekhar, MD, PhD, senior vice chancellor for the health sciences and Petersen Dean of Medicine, made changes to the layout plans soon after arriving in Pittsburgh in June 2020 to ensure suitability for interprofessional learning.

The change in space puts the medical school at the forefront of curriculum reform because it gives students ready access to different technologies, like point-of-care ultrasound, and also reinforces the school’s emphasis on smaller, more active learning groups.

Another focus is social medicine — social determinants in medicine, race and ethnicity in medicine, and

LGBTQ-specific needs in medicine — a theme that has been growing in the curriculum but came to the forefront during this past year’s social justice movement.

“Our students, with the support and leadership of Dean Shekhar, have been leaders in this change, pushing us to make our curriculum more antiracist, more attentive to social medicine themes,” points out Rosenstock.

Instead of waiting for the curriculum reform to be launched in fall 2023, Pitt Med has already refreshed elements of the curriculum, including a class in winter 2021 to address bias and racism in medicine. An already existing social medicine focus will be strengthened throughout the curriculum, and another suggested plan is to include students’ projects examining health care disparities in Pittsburgh and working on solutions that involve collaboration with local agencies and other professionals.

Medical students have also asked educators to reexamine the first two years of the curriculum. Rosenstock says the committee is looking at condensing or making more efficient the basic science curriculum and at how assessment and feedback are given to students for them to be better prepared for exams and clerkship experiences.

The school is giving the curriculum update the time and effort it deserves, with more than 70 people on five subcommittees representing voices at every level, including basic science faculty, physician-educators, students, education and education technology experts, and student affairs, faculty affairs, and admissions personnel.

“Everything is affected by curriculum reform,” says Rosenstock. “Changes can affect the educators we need and the students we admit. It’s really the lifeblood of our institution.” ●

# Who We Are

2020–21 Academic Year

## 599

MD students

327 (55%) women and 272 (45%) men;  
211 (35%) Pennsylvania residents; with  
18% underrepresented minority students

368 registrants in PhD programs

152 students in MS programs

34 students in certificate programs

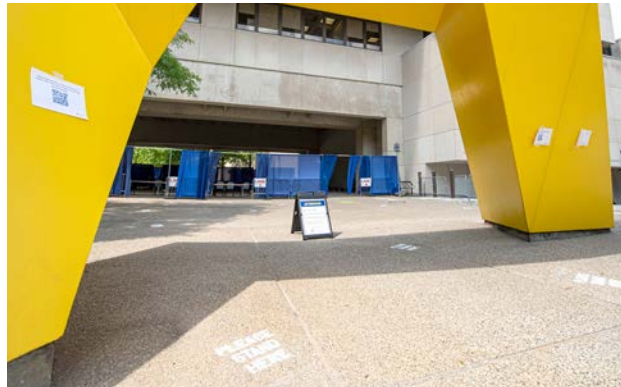
For 2020,

## 7,177

applications for admission

734 prospective students interviewed  
for a first-year class of 149 students

2,424 regular and  
2,190 volunteer faculty members;  
81 are members of the  
Academy of Master Educators



## On-Campus COVID-19 Testing

In an effort to keep the University community healthy, Pitt, through the School of Medicine's leadership, is working to monitor and contain the spread of COVID-19 on and off campus by using surveillance testing of asymptomatic students.

The strategy is designed to detect substantial shifts in trends of positive tests and helps give a sense of the prevalence of the virus in the larger community. Students are randomly selected—based on the work of statisticians and epidemiologists in the Graduate School of Public Health—to be tested for the virus.

Students receive an email from Pitt's COVID-19 Medical Response Office—directed by infectious disease specialist **John Williams, MD**—notifying them that they have been selected to get tested. The percentage of the student population tested has aligned with recommendations from both the Centers for Disease Control and Prevention (CDC) and the American College Health Association. (Mass testing of asymptomatic students didn't take place because it places undue stress on testing capacity, and lag time for results diminishes their medical relevance.)

For the fall semester, two cohorts of 280 randomly selected students on the Pittsburgh campus, who weren't experiencing symptoms of COVID-19, were tested each week at the on-campus outdoor testing site. Testing takes only about 15 minutes, using a simple nasal swab. The students and their test results remain confidential.

If students test positive, they are isolated at a University-designated facility or at home. Contact tracing is also conducted to identify people who may have been exposed to the virus through close contact. During on-campus isolation, food is delivered to the students, and they are monitored daily by a health care professional who determines the most appropriate care.

For the semester, 7,766 students underwent surveillance testing; there were 33 positive tests, for an overall rate of 0.42% among asymptomatic students. Overall, there were approximately 700 students who tested positive, which included symptomatic students, many of whom were tested through student health services. ●

## MusiCare Show Goes On

For seven years, School of Medicine students have been singing, playing, and performing music for hospital patients through the school's MusiCare program. Small bands of students take up their guitars, keyboards, cellos—everything—and head to area hospitals to share the comforting, healing qualities of music with patients. They play pop covers, classical music, and much more for patients on dialysis, in palliative care, and in other settings. They perform Disney songs at UPMC Children's Hospital of Pittsburgh.

But then came the COVID pandemic, which threatened to silence the music.

"We all put our heads together in the spring when everything was shut down," says Julia Knight, a second-year medical student and MusiCare coordinator who also sings and plays ukulele for patients. "We knew that, especially during that time, it was even more important to provide this music to patients. Notably, they were separated from their families and visitors weren't really allowed in the hospital."

So, the students launched the MusiCare Connections YouTube channel to share their performances virtually. To get the word out, students took to social media and partnered with other students and hospital staff to distribute business cards with QR codes and info on MusiCare to patients and their families.

Even though recordings can't capture the same connectivity as live performances, going virtual has let alumni and even students at other medical schools partake in the music making, Knight says. But she looks forward to performing for patients in-person again when safe to do so. "Within a few minutes of playing and singing, [patients] kind of light up. And I think that's such a rewarding experience to be able to provide that for them and for their families." ●



(L-R), Davis, Humphrey

## Snacks for STEM

For Camille Davis, the moment came during a rotation in pediatrics. A young patient, who looked familiar, was talking with her about how she wanted to be a physician or scientist when she grew up because she likes math and science. The patient described a program at her elementary school where medical students came in to discuss careers in medicine and STEM-related fields. Davis happened to be one of those visiting med students through the program, Snacks for STEM, which she co-created with fellow student Victoria Humphrey. The program is meant to provide children from underserved communities more exposure to STEM careers, while also helping to combat food insecurity.

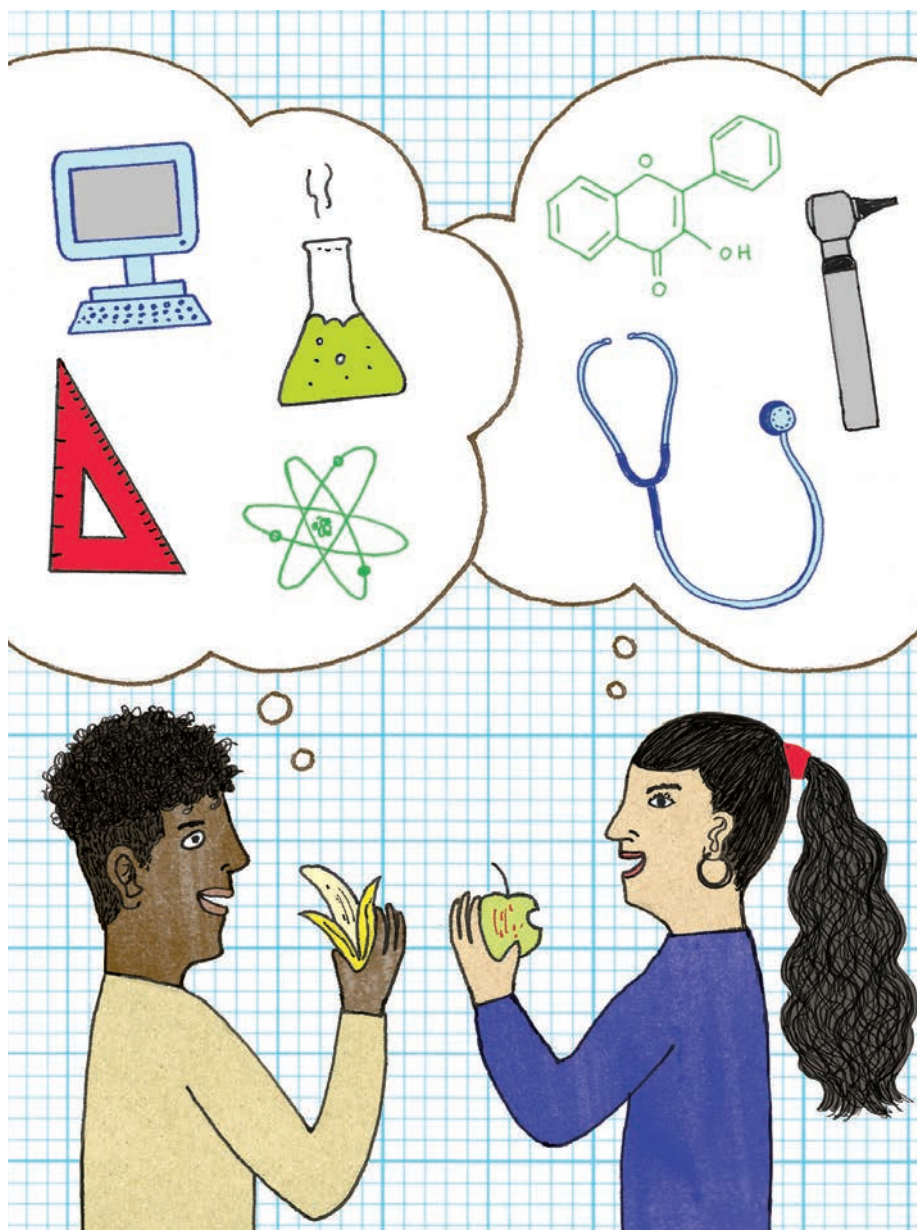
A couple of years ago, after a Student National Medical Association meeting, Davis and Humphrey decided to act on their mutual passions for education, equality, and service. They created Snacks for STEM, a community service organization that gives healthy treats and information about STEM-related careers to children at Pittsburgh Fulton PreK-5, a city school with a percentage of its student body coming from underserved communities. In addition to being funded through allocations from campus organizations for community outreach, Snacks for STEM received a 2020 Martin Luther King Jr. Day of Service grant.

"We bring some physician tools and talk to the children about what we do and what the career possibilities are in fields like science, technology, or engineering to just open up their minds to different possibilities," says Humphrey.



**“Sometimes all it takes is a 30-second conversation for them to realize that they could be doctors, scientists, or engineers, too.”**

Camille Davis



Davis and Humphrey, both now fourth-year med students, bring snacks to school because they know many families struggle with food insecurity, and they talk about professions in STEM because they know that representation matters. Both women had similar experiences in elementary school, where they saw someone who looked like them who worked in a STEM field.

“It’s so important that Black, Latinx, and historically marginalized populations have that exposure to positive representation, especially from someone who looks like them,” says Humphrey. “It reaffirms that if they can’t see you, they can’t be you.”

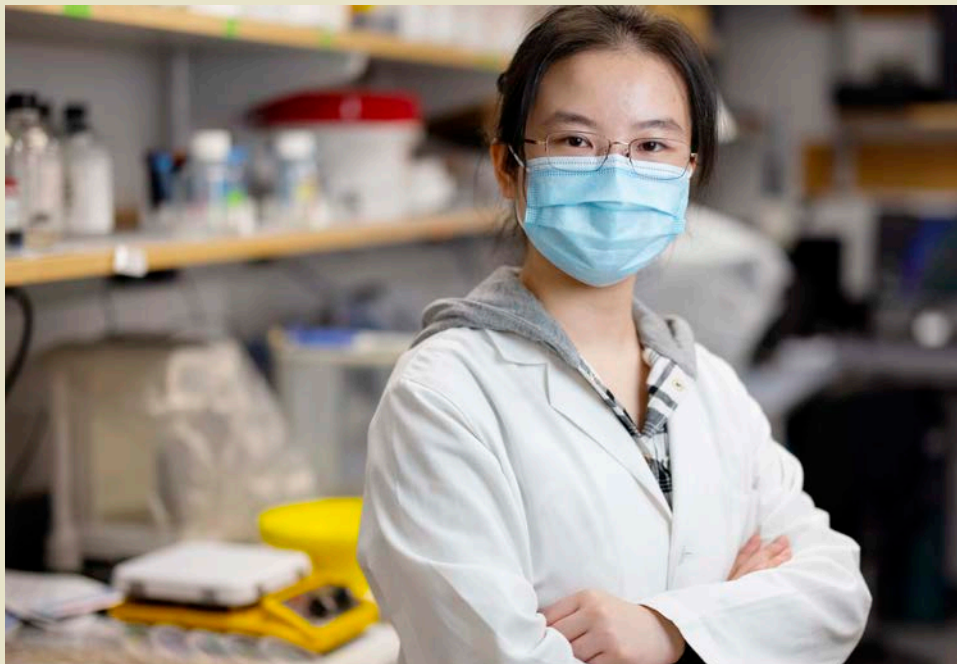
“Sometimes all it takes is a 30-second conversation for them to realize that they could be doctors, scientists, or engineers, too,” says Davis. “That’s how it worked for me when I was in their shoes in elementary school.”

While they cannot be in Pittsburgh Fulton PreK-5 right now because of the COVID-19 pandemic, Davis and Humphrey are figuring out new ways to help the community, including possibly putting the Snacks for STEM grant toward sponsoring some teachers’ educational wish list items.

Both Davis and Humphrey want to continue programs similar to Snacks for STEM in their residencies next year; and, wherever they end up, they also want to continue working toward representation and equality.

“I’m currently applying to pediatrics residency programs that focus on underserved populations,” says Davis. “I’ll be involved in increasing minority representation in medicine and helping Black and Brown children make it into STEM fields in general.”

Humphrey agrees and says, “I’m also passionate about increasing representation within my intended field of dermatology and working with underserved and minority communities through clinical practice and community outreach.” ●



Jenny Jiao, a visiting research scholar from Tsinghua University School of Medicine, at work in the lab.

## Pitt Mentorship Program Coveted by International Students

**I**n a University of Pittsburgh School of Medicine lab, a team of scientists is using zebrafish and a technology they developed—chemoptogenetic ablation of neuronal mitochondria—to understand the mechanisms underlying cell death in Parkinson’s disease. Simply put, they are studying how nerve cells die in neurodegenerative diseases. The development and use of this new technology encompasses the doctoral work of one team member, Binxuan Jiao (who uses the name “Jenny”).

“Jenny is extremely smart, works very hard, and is a great colleague,” says her mentor, Edward A. Burton, MD, DPhil, Professor of Movement Disorders in Neurology and associate professor of neurology.

For the past two years, Jiao has been working in Burton’s lab as a visiting research scholar, part of Pitt Med’s collaboration with Tsinghua University School of Medicine, one of China’s premier universities, through which the Pitt School of Medicine provides two years of mentored research training to qualifying students in Tsinghua’s eight-year MD program. The visiting scholars must complete a master’s-level thesis based on their research at Pitt as a requirement to receive their Tsinghua MD. In 2019, Tsinghua added an MD/PhD

track to its medical school degree offerings for a selected, very small group of students to spend an additional year engaged in mentored research at Pitt, the results of which would qualify them for the PhD portion of their MD/PhD.

Of her years at Pitt, Jenny says, “Pitt has such a great environment for research. My mentor, Dr. Burton, is my career role model. He’s very helpful and supportive and has taught me a lot about how to do research and think like a scientist. My project is very exciting because it has just reached the point where I can dig deeply into the mechanisms underlying cell death in Parkinson’s disease.”

Jiao feels fortunate to have the opportunity to continue her studies at Pitt, especially in the midst of the COVID-19 pandemic.

“Tough things will pass eventually, while my experience here will stay with me for a lifetime,” she says. ●

**“Jenny is extremely smart, works very hard, and is a great colleague.”**

Edward A. Burton, MD, DPhil

## Nurturing Underrepresented Undergrads in Biomedical Sciences

**T**

he college student-to-scientist career pipeline is not always constructed the same for all students, especially students who are underrepresented minorities. Some students know they like science but haven't had the exposure or formative experiences that help them solidify a decision to pursue it as a career. To capture these students, faculty members and graduate students in the School of Medicine's Program in Microbiology and Immunology (PMI) developed and fast-tracked the Microbiology and

Immunology Diversity (MID) Scholars Program.

With financial support and enthusiasm from Anantha Shekhar, MD, PhD, senior vice chancellor for the health sciences and Petersen Dean of Medicine, and the Departments of Immunology and of Microbiology and Molecular Genetics, the program moved from concept to four funded scholars in just a few months (four additional scholars will be selected to begin the program in the 2021 spring semester). Similar programs exist at the University, but engaging students as undergraduates makes the MID program unique.

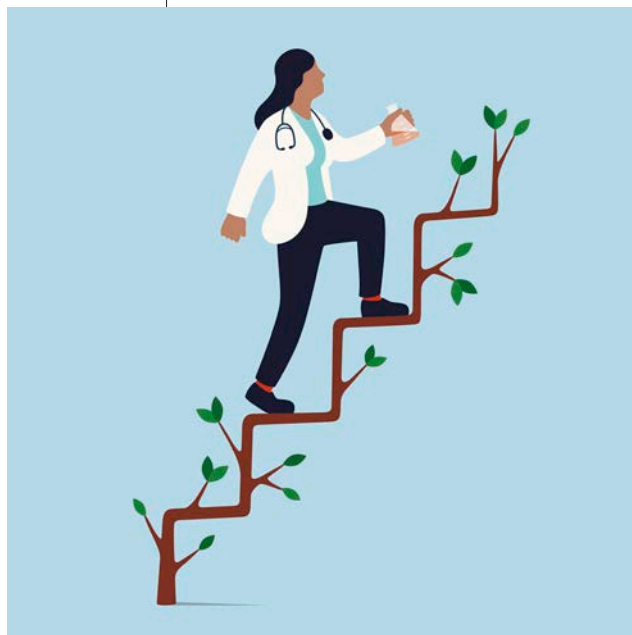
"We created this program at the undergraduate level because it's during this time when students who have an interest in biomedical sciences get lost because they don't get resources or support," says Partha Biswas, PhD, associate professor of medicine (Division of Rheumatology and Clinical Immunology) and of immunology and program director. "We want to pick them up early on, put them in a research lab, introduce them to biomedical science, and see how their interest grows. This support at the initial level is important because, by the time their undergraduate years are finished, their interest in science may not have been supported, and they've already moved away from science as a career."

Students from underrepresented minority groups accepted into the MID program are funded for two years in order to complete long-term basic, clinical, and/or translational research projects within the graduate program in microbiology and immunology under the mentorship of experienced researchers and principal investigators. Scholars also receive peer-based mentoring and career advice from PMI graduate students, are encouraged to attend career and professional training sessions, and receive travel awards to present their projects at local and national conferences.

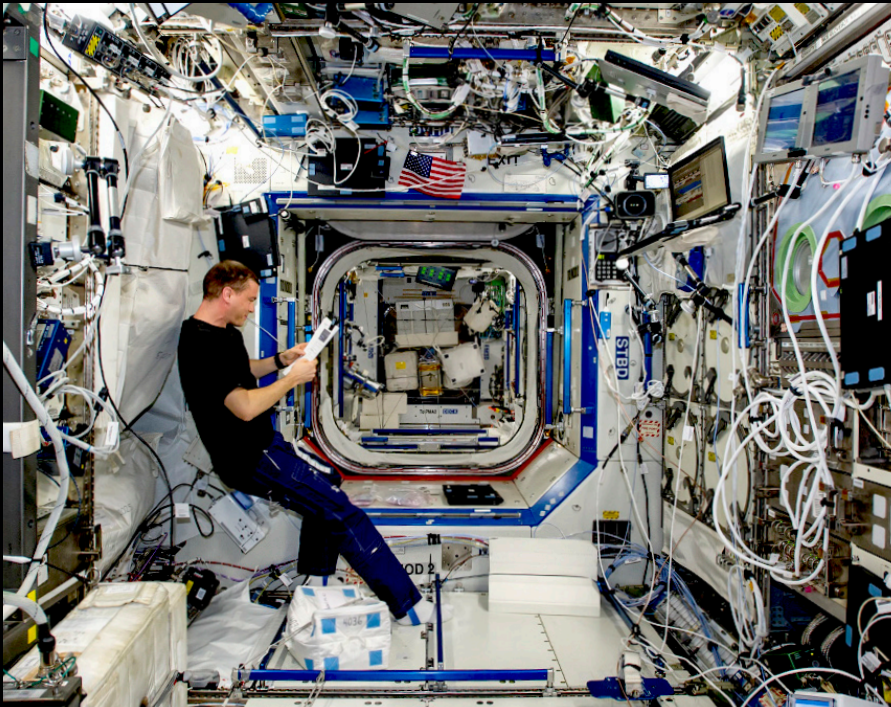
"The idea for the MID program came from PMI graduate students and was also borne out of the social justice movement in the past few months," says Biswas. "We want to nurture and mentor these scholars and their interests. There has been a tremendous enthusiasm for the program so far, and now we're looking at long-term sustainability and how to reach more students." ●

**"The idea for the MID program came from PMI graduate students and was also borne out of the social justice movement in the past few months."**

Partha Biswas, PhD



# RESEARCH



A new alliance—between Pitt and the International Space Station (ISS) U.S. National Laboratory—aims to advance regenerative medicine by enabling research to take place onboard the ISS. (Above, a flight engineer at work in space.) See page 34.

## De-liver-ing

Using skin cells from human volunteers, School of Medicine researchers created fully functional mini livers, which they transplanted into rats. These lab-made organs survived for four days inside their animal hosts. **Alejandro Soto-Gutiérrez, MD, PhD**, associate professor of pathology, and colleagues, wrote in *Cell Reports*.

“Seeing that little human organ there inside the animal—brown, looking like a liver—that was pretty cool,” said Soto-Gutiérrez, who is also affiliated faculty with the McGowan Institute for Regenerative Medicine and the Pittsburgh Liver Research Center.

These mini livers secrete bile acids and urea like a normal liver. Soto-Gutiérrez and colleagues reprogrammed human skin cells into stem cells, coaxed those stem cells to become various types of liver cells, and then seeded those human liver cells into a decellularized rat liver, completing what would normally be a two-year maturation process in under a month.

Four days after the lab-grown livers were transplanted into rats bred to resist organ rejection, researchers investigated how well the implants were functioning. Although blood-flow problems had developed within and around the graft, the transplanted mini livers worked, and human liver proteins were detectable in the rats’ blood.

Significant challenges, including long-term survival and safety issues, remain, the authors noted.

“The long-term goal is to create organs that can replace organ donation; but in the near future, I see this as a bridge to transplant,” Soto-Gutiérrez said. “For instance, in acute liver failure, you might just need hepatic boost for a while instead of a whole new liver.” ●

**“The long-term goal is to create organs that can replace organ donation; but in the near future, I see this as a bridge to transplant.”**

**Alejandro Soto-Gutiérrez, MD, PhD**



**“Living-donor liver transplant should be considered the first and best option for most patients with liver disease.”**

Abhinav Humar, MD

**8,000**

LIVER TRANSPLANTS PERFORMED ANNUALLY

LESS THAN

**5%**

OF OPERATIONS INCLUDE LIVING DONORS

ABOUT

**25%**

OF PEOPLE ON THE NATIONAL WAITING LIST DIE EACH YEAR WAITING FOR A TRANSPLANT

**PROFILE: ABHINAV HUMAR, MD**

## Prioritize Living-Donor Liver Transplants

**I**n what is often a life-or-death option for treating liver disease, living-donor transplants can improve outcomes and survival rates and reduce costs compared to deceased-donor transplants, the more common procedure.

Nationally, of the 8,000 liver transplants performed annually, less than 5% of operations include living donors, which involves removing a portion of the donor’s liver that grows back to full size and function within eight to 10 weeks.

About 25% of people on the national waiting list die each year waiting for a transplant and experience poorer health at the time of transplant because of the prolonged wait. For these more than 14,000 people, living-donor transplant could be a viable, preferable option.

“The consequences for patients on the waiting list can mean the difference between life and death because the longer they are waiting, the sicker they become,” says **Abhinav Humar, MD**, Thomas E. Starzl Professor of Transplantation Surgery and clinical director of the Thomas E. Starzl Transplantation Institute. “Living-donor liver transplants, in tandem with deceased-donor liver transplants, represent an opportunity to significantly decrease the risk of wait-list mortality and give us the ability to transplant a person sooner.”

In a retrospective review published in the *Annals of Surgery*, Humar and other Pitt researchers evaluated 245 adult living-donor liver transplant recipients and 592 deceased-donor recipients whose procedures were performed over the last 10 years at UPMC, which houses the country’s largest living-donor liver transplant program. Here’s what they found:

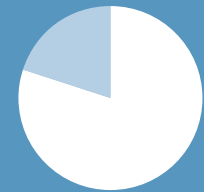
- Living-donor liver transplants’ three-year patient survival stood at 86%, hospital stays averaged 11 days, and there was a 53% likelihood of needing intraoperative blood transfusion and a 1.6% likelihood of needing post-transplant dialysis. In comparison, for deceased-donor transplants, the recipients’ three-year survival was 80%, hospital stays averaged 13 days, and there was a 78% likelihood of needing intraoperative blood transfusion and a 7.4% likelihood of needing post-transplant dialysis. In addition, hospital costs were also 29.5% lower for living-donor recipients.
- Patients and donors were followed for at least two years post-transplant. There were no deaths among the living donors, who had an overall complication rate of 20%.
- “Living-donor liver transplant should be considered the first and best option for most patients with liver disease,” Humar says. “It is not only an option for those on the waiting list but could perhaps offset the fact that not everyone who may benefit from transplant qualifies to receive a deceased-donor transplant based on today’s current rules of allocation.” ●

## Making Progress

2019 NATIONAL INSTITUTES OF HEALTH FUNDING UNIVERSITY OF PITTSBURGH

**\$582 M**

80% School of Medicine

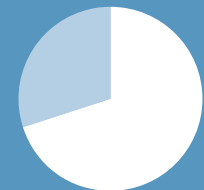


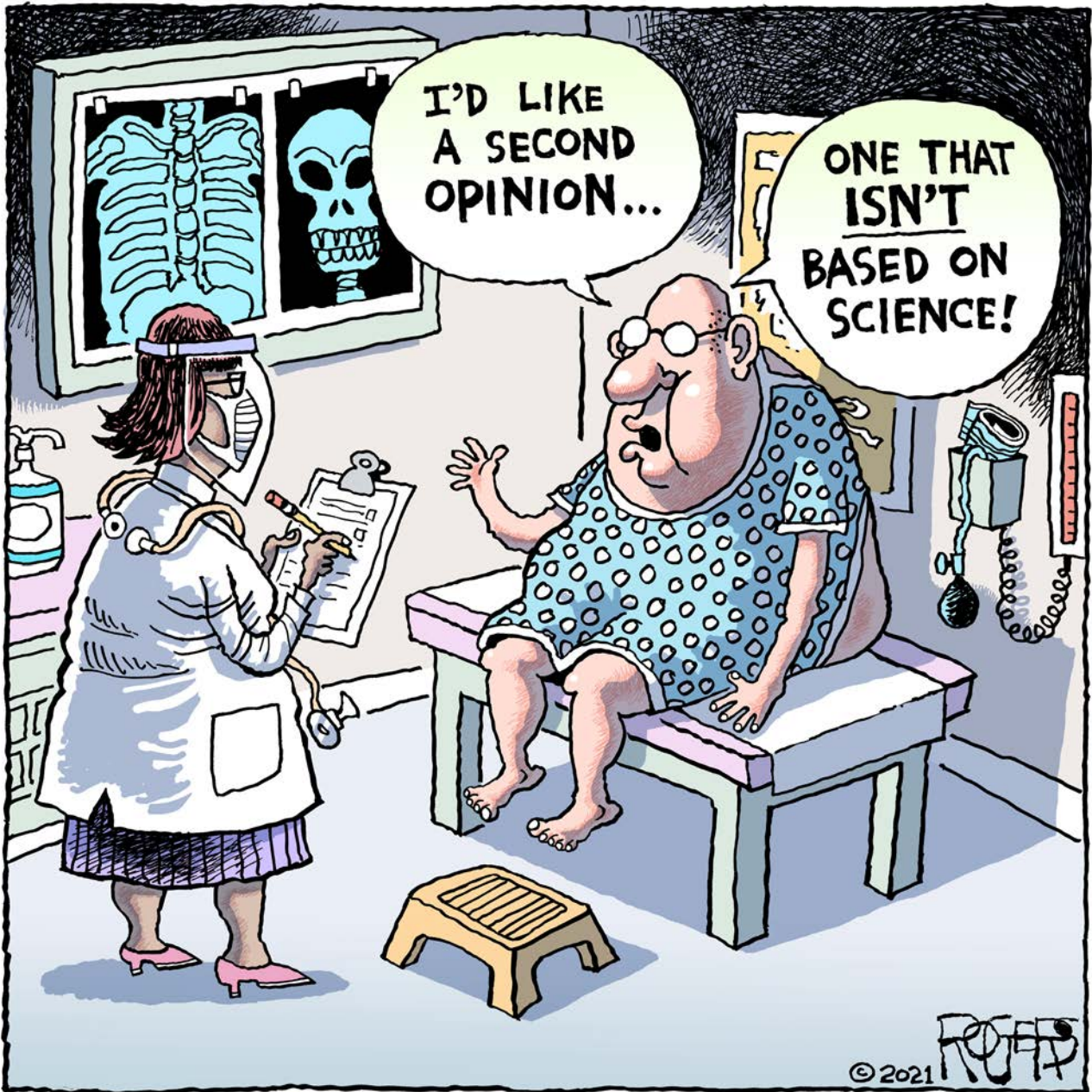
**Rank 6th**

2020 PITT TOTAL RESEARCH BUDGET

**\$874 M**

70% School of Medicine





## Published Advancements 2020

### JAMA

SEP 2019 | VOL 322 | ISSUE 11

**PITT AUTHOR: Halina Zyczynski, MD**, Professor of Obstetrics, Gynecology, and Reproductive Sciences

#### Effect of Vaginal Mesh Hysteropexy vs Vaginal Hysterectomy with Uterosacral Ligament Suspension on Treatment Failure in Women with Uterovaginal Prolapse

Compared to traditional vaginal hysterectomy with uterosacral ligament suspension of the vaginal apex, a uterine suspension with transvaginal mesh results in comparable three-year anatomic and symptomatic outcomes in women with pelvic organ prolapse.

### JAMA SURGERY

MAR 2020 | VOL 155 | ISSUE 3

**LEAD AUTHOR: Anita Courcoulas, MD, MPH**

Anthony M. Harrison Professor of Surgery

#### Interventions and Operations 5 Years after Bariatric Surgery in a Cohort from the U.S. National Patient-Centered Clinical Research Network Bariatric Study

According to a national, multicenter cohort study involving tens of thousands of bariatric surgery patients, in the five years following bariatric surgery, patients who underwent a gastric bypass operation were more likely to experience a readmission to the hospital or to undergo an additional abdominal operation or intervention compared to patients who underwent a gastric sleeve operation.

### NATURE STRUCTURAL & MOLECULAR BIOLOGY

AUG 2019 | VOL 26 | ISSUE 8

**SENIOR AUTHOR: Bennett Van Houten, PhD**

Richard M. Cyert Professor of Molecular Oncology, Professor of Pharmacology and Chemical Biology

#### Damage Sensor Role of UV-DDB during Base Excision Repair

Beyond detecting DNA damage caused by ultraviolet exposure, the ultraviolet-damaged DNA-binding (UV-DDB) protein can also scout for oxidative DNA damage and, in turn, help DNA repair molecules to fix damage often buried deep in chromosomes.

### SCIENCE TRANSLATIONAL MEDICINE

OCT 2019 | VOL 11 | ISSUE 513

**SENIOR AUTHOR: Bernhard Kühn, MD, PhD**

Associate Professor of Pediatrics

#### Control of Cytokinesis by $\beta$ -adrenergic Receptors Indicates an Approach for Regulating Cardiomyocyte Endowment

Beta blocker drugs could stimulate cardiomyocyte cell division in infants with congenital heart defects to improve heart function.

### eLIFE

SEP 2019 | ONLINE JOURNAL

**SENIOR AUTHOR: Vaughn Cooper, PhD**

Professor of Microbiology and Molecular Genetics

#### Evolutionary Pathways to Antibiotic Resistance Are Dependent Upon Environmental Structure and Bacterial Lifestyle

Whether bacteria live as independent cells or grow into communal biofilms determines how they evolve antibiotic resistance, which could expose vulnerabilities in drug-resistant infections.

### CLINICAL EPIGENETICS

NOV 2019 | ONLINE JOURNAL

**SENIOR AUTHOR: Melissa Mann, PhD**, Associate Professor of Obstetrics, Gynecology, and Reproductive Sciences

#### Perturbations in Imprinted Methylation from Assisted Reproductive Technologies but not Advanced Maternal Age in Mouse Preimplantation Embryos

Fertility treatments, not advanced maternal age, may cause the epigenetic changes associated with Beckwith-Wiedemann, Silver-Russell, and Angelman syndromes, as shown in mice.

### THE LANCET

JAN 2020 | VOL 395 | ISSUE 10219

**LEAD AUTHOR: Kristina Rudd, MD, MPH**

Assistant Professor of Critical Care Medicine

#### Global, Regional, and National Sepsis Incidence and Mortality, 1990–2017: Analysis for the Global Burden of Disease Study

2017 data reveals that sepsis—the body's potentially fatal response to infection that injures its own tissues and organs—is associated with one in five deaths worldwide, largely in low- or middle-income countries.

### CELL

AUG 2019 | VOL 178 | ISSUE 4

**SENIOR AUTHOR: Daniel Kaplan, MD, PhD**

Professor of Dermatology

#### Cutaneous TRPV1+ Neurons Trigger Protective Innate Type 17 Anticipatory Immunity

Pain-sensing nerves in skin could also detect pathogens, triggering an immune response to fight infections.

### JAMA PEDIATRICS

MAR 2020 | VOL 174 | ISSUE 3

**SENIOR AUTHOR: Elizabeth Miller, MD, PhD**, Edmund R. McCluskey Professor of Pediatric Medical Education, Professor of Pediatrics

#### An Athletic Coach–Delivered Middle School Gender Violence Prevention Program

The Coaching Boys Into Men program, aimed at stopping violence and sexual assault against women and girls, successfully reduces abusive behaviors among middle school athletes, demonstrating the program's success with younger adolescents.

### JAMA NEUROLOGY

APR 2020 | VOL 77 | ISSUE 4

**AUTHORS: Michael W. Collins, PhD**, Professor of Orthopaedic Surgery; **Anthony Kontos, PhD**, Professor of Orthopaedic Surgery

#### Association of Time since Injury to the First Clinic Visit with Recovery Following Concussion

Athletes treated within a week after experiencing a concussion recovered faster than athletes not treated until eight days to three weeks after injury, indicating the importance of seeking appropriate, specialized care early on.

### PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES

JUN 2020 | VOL 117 | ISSUE 23

**AUTHORS: David Levinthal, MD, PhD**, Assistant Professor of Medicine (Division of Gastroenterology, Hepatology, and Nutrition); **Peter Strick, PhD**, Distinguished Professor and Chair of Neurobiology and Thomas Detre Professor of Neuroscience

#### Multiple Areas of the Cerebral Cortex Influence the Stomach

The brain-body connection has largely focused on the gut's influence on the brain, but neural pathways connecting the brain to the stomach reveal that the brain influences stomach function and development of stomach ulcers.

### eLIFE

FEB 2020 | ONLINE JOURNAL

### NATURE COMMUNICATIONS

FEB 2020 | ONLINE JOURNAL

**SENIOR AUTHOR: Anne-Ruxandra Carvunis, PhD**

Assistant Professor of Computational and Systems Biology

#### Synten-Based Analyses Indicate that Sequence Divergence Is Not the Main Source of Orphan Genes

#### De novo Emergence of Adaptive Membrane Proteins from Thymine-Rich Genomic Sequences

De novo genes, born from noncoding regions of the genome, may trigger more species-specific and beneficial traits in organisms than previously thought.

## Pioneering Grants 2020

### VISION RESTORATION SUPPORTED

Restoring lost vision could lie in understanding how the eye and the brain work together and using this knowledge to advance brain-computer interfaces and novel genetic technologies. Pitt's Department of Ophthalmology is pursuing this research with the support of a **\$6 million** grant from the Richard King Mellon Foundation.

### MANAGING PAIN AND OPIOID MISUSE

Key research for treating pain associated with the lower back, end-stage renal disease, osteoarthritis, and other conditions has been bolstered by **\$32 million** in NIH grants to Pitt and UPMC researchers studying opioid misuse and pain management. As part of NIH's Helping to End Addiction Long-term (HEAL) initiative, the nine grants received support research on sleep and opioid use, prescription medication misuse in young adults, *in utero* opioid exposure and neurological development, and other areas.

### REGENERATIVE REHABILITATION AND TRAINING

Integrating regenerative medicine with rehabilitative medicine can better assist people with disabilities, which is a primary goal of the Alliance for Regenerative Rehabilitation and Training (AR3T). With a five-year, **\$5 million** grant, NIH has renewed support for AR3T, which comprises a multi-institutional network of laboratories at Pitt, Stanford University, the University of Texas at Austin, and the Mayo Clinic.

### REGENERATING DAMAGED MUSCLE

Regrowing muscle tissue is a much sought-after ability because, when more than 20% of a muscle is damaged, as is common in combat injuries, tissue can't regenerate, and a stiff scar forms. That's why a **\$22 million** Defense Advanced Research Projects Agency (DARPA) grant is supporting a multi-institution research team, led by Pitt, to develop a device that combines artificial intelligence, bioelectronics, and regenerative medicine to regrow muscle tissue.

### DIVERSITY AND PALLIATIVE CARE

The importance of palliative care is reflected in its expanded availability in hospitals across the country. However, palliative care specialists are most often not minorities. In response, a **\$250,000** award from The Arthur Vining Davis Foundations is supporting an initiative for minority physicians led by the UPMC Palliative and Supportive Institute and School of Medicine faculty to foster career paths in palliative care at minority-serving medical schools. To do so, the program, in part, sends UPMC palliative care physicians to those institutions for mentoring faculty on how to better incorporate palliative care into student and resident education.

### FUNDING VACCINE DEVELOPMENT

To help combat today's pandemic, an international, academia-industry partnership has generated funding for SARS-CoV-2 vaccine development. The intergovernmental organization Coalition for Epidemic Preparedness Innovations (CEPI) has committed nearly **\$5 million** to a consortium led by the Institut Pasteur research center in Paris, collaborating with Themis in Vienna and Pitt's Center for Vaccine Research. The funding aims to support vaccine research and phase I clinical trial rollout.

## Rethinking Research (and Care)

There is a time for tradition and a time—a now—for transformation. To meet the challenges of deadly diseases like COVID-19, H1N1, and sepsis, Pitt's School of Medicine and UPMC are advancing research and clinical practice with a new twist on research: randomized trials concurrent with patient care.

Centered in the newly formed Office of Health Care Innovation, the initiative is headed by **Derek Angus, MD, MPH**, Pitt's inaugural associate vice chancellor for health care innovation and UPMC's chief health care innovation officer.

"The goal must be a system that has a more integrated approach to learning while doing," Angus wrote in a May edition of the *Journal of the American Medical Association*, calling on clinicians and researchers to "lean in" and expand their approaches to testing and trying new therapeutics.

"We like to use the analogy of a stadium," explains pulmonologist **Christopher Seymour, MD, MSc**, one of a cadre of physician-scientists who are associated faculty in the new office. "In traditional clinical trials, you build a stadium, you play one game, and you tear it down. Our approach is to build a stadium and play lots of games."

Formally known as the Randomized Embedded Multifactorial Adaptive Platform (REMAP) (see page 8), the approach is less program and more purpose—one that percolates through day-to-day clinical decisions in patient care and includes quality-improvement activities, new treatment paradigms, and computer modeling, all connected with electronic health records.

In essence, the new office is a conduit for innovation that unites the extensive biomedical sciences, public health, and health policy research based at Pitt with UPMC's vast clinical and commercial expertise. Using pretrial simulations, various therapeutic, behavioral, or quality improvement strategies can be explored to identify trial designs that can quickly be adapted to changing conditions.

"We work closely with the Clinical and Translational Science Institute and Department of Biomedical Informatics at Pitt, as well as UPMC Enterprises and clinical analytics, to take the research that Pitt wants to test in an integrated, multicenter way to move the science forward," says Seymour, associate professor of critical care medicine.

"It's exciting," he adds. "There aren't too many opportunities in the U.S. where a health care system and clinical efforts can fuse with research." ●





## Bahar Reflects on Coveted NAS Honor for Scientists

**Ivet Bahar, PhD**, Distinguished Professor, John K. Vries Professor, and chair of computational and systems biology, discusses her 2020 election to the National Academy of Sciences (NAS), one of the highest honors a scientist can receive. Responses have been edited for length and clarity.

Q

**What was the first thing you said when you found out and to whom did you say it?**

A

A colleague congratulated me by email. By mistake, I looked at the American Academy of Arts and Sciences online and didn't see my name. [Pitt structural biology department chair and NAS member] Angela Gronenborn called, and I kept telling her that she was mistaken—until I saw a flood of congratulatory email messages from friends/colleagues who are NAS members. I ran to my husband and elder son and told them I couldn't think of any scientific recognition that could make me happier.

Q

**Your research in protein dynamics has many potential applications. What are you working on now and why?**

A

I have always wanted to understand how proteins and biomolecular systems undergo structural changes during their biological activities. These changes are called conformational dynamics. We developed network models and analytical methods for predicting the structural changes that proteins can undergo while retaining their fold and stability. Establishing the link between biomolecular structure and function, through dynamics, is crucial. Understanding the dynamic capabilities of proteins encoded by their structure also opens the way to designing modulators of function that would alter the dynamics for therapeutic purposes—hence the broad applicability of our methods in drug design and discovery.

Q

**What future directions do you anticipate for your investigations?**

A

I have always been driven by translation to biomedical applications. A machine-learning algorithm we developed (Ponzoni and Bahar, PNAS 2018) is now available in a new server, called *Rhapsody*. Our plan is to further extend it to facilitate applications in precision medicine. We also think implementing fundamental theory and methods into computational tools/software is very important for enabling efficient use by the broader community. For example, our *ProDy* interface for predicting and analyzing protein dynamics has been downloaded more than 2 million times to date and has more than 130,000 users worldwide. New components to *ProDy* make it applicable to a wide range of areas from molecular mechanics to pharmacology.

In the past decade, I've focused on understanding neurobiological systems dynamics and, specifically, on neurotransmission at the molecular level—how neurotransmitters are transported by membrane proteins across cell membranes. Understanding how the deregulation of neurotransmitter transport and signaling may lead to neurodegenerative disorders (including drug addiction) is an important topic that needs significant work.

Other topics of interest are modeling protein-lipid interactions, including the molecular and cellular implications of lipid peroxidation events, understanding at the molecular level how the adaptive immune system responds to pathogens, and combining molecular- and systems-level quantitative methods for drug discovery and repurposing. For example, we recently started to understand the molecular origin of the cytokine storm observed in some severe COVID-19 patients, including children with multisystem inflammatory syndrome (Chen, et al., PNAS 2020) in collaboration with Cedars-Sinai. ●



**“We’ve licensed five patents and have a portfolio of products.”**

Kacey Marra, PhD

PROFILE: KACEY MARRA, PhD

## Breakthrough Nerve Repair

Since Kacey Marra, PhD, and colleagues reported successfully regenerating portions of damaged nerves using a polymer tube filled with growth-promoting protein in January 2020, the technology has inched a bit closer to clinical trials in humans thanks to growth of an entrepreneurial kind.

“We have a startup and have licensed the technology from Pitt,” says Marra, a professor of plastic surgery and core faculty member of the joint Pitt-UPMC McGowan Institute for Regenerative Medicine.

So far, tests in monkeys show that the biodegradable nerve guide can promote enough nerve growth to bridge a two-inch gap between the nerve stump and its target muscle. The guide has proven “comparable to, and in some ways better than, a nerve graft,” says Marra.

While the company, Nerve Repair Technologies, seeks U.S. Food and Drug Administration approval for a clinical trial in humans, Marra pursues funding. “We’ve licensed five patents and have a portfolio of products.” Finding angel investors is next on the agenda.

The U.S. Department of Defense has funded the Marra team for the past 12 years and has great interest in seeing their work progress. Half of wounded American soldiers return home with injuries to their arms and legs, which aren’t well protected by body armor, often resulting in damaged nerves and disability. Among civilians, car crashes, machinery accidents, cancer treatment, diabetes, and even birth trauma can cause significant nerve damage, affecting more than 20 million Americans.

Options for a clinical trial include enrolling a few patients or doing a larger, multisite trial in collaboration with Walter Reed National Military Medical Center.

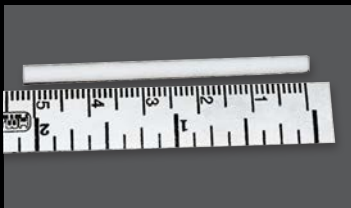
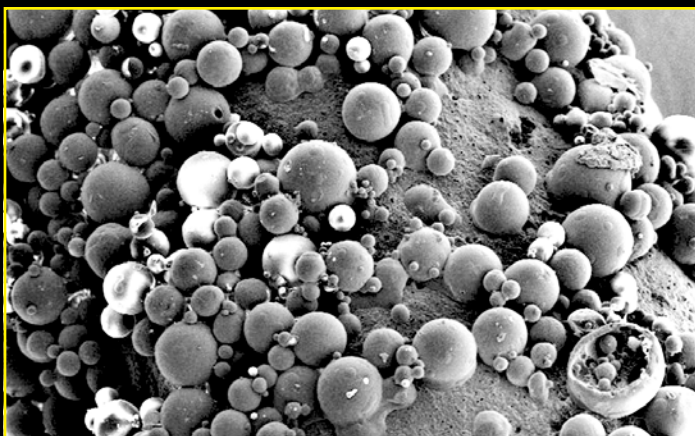
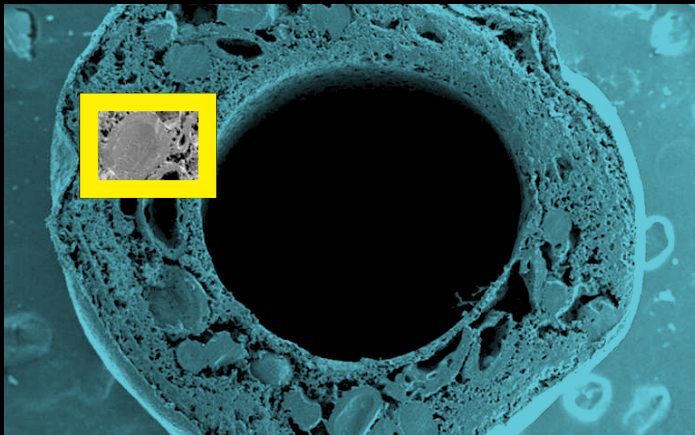
Peripheral nerves can regrow up to a third of an inch on their own; but if the damaged section is longer than that, the nerve can get knotted into a painful ball called a neuroma.

The most common treatment for longer segments of nerve damage is to remove a skinny sensory nerve at the back of the leg—which causes numbness in the leg and other complications but has the least chance of being missed—chop it into thirds, bundle the pieces together, and then sew them to the end of the damaged motor nerve, usually in the arm. But only about 40% to 60% of motor function typically returns.

“It’s like you’re replacing a piece of linguine with a bundle of angel hair pasta,” Marra says. “It just doesn’t work as well.”

Marra’s nerve guide, by contrast, returned about 80% of fine motor control in the thumbs of four monkeys.

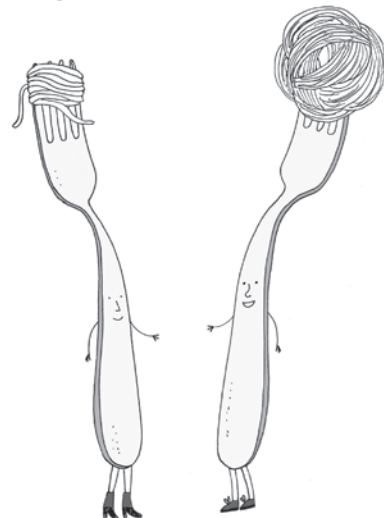
“Now that we feel we’ve developed a successful nerve tube, we’re focusing our studies on therapies for the de-enervated muscle to restore function even more,” she says, adding that previous experiments in rats (published in *Muscle and Nerve*, May 2019) found efficacy in restoring some muscle function when rats were injected with adipose-derived stem cells after nerve injury. ●



(Above) Microspheres containing a neural growth factor adhering to the nerve conduit during the manufacturing process. A cross-section image of the nerve conduit embedded in microspheres. (Left) Photo of the 5.2-cm nerve guide.

**“It’s like you’re replacing a piece of linguine with a bundle of angel hair pasta. It just doesn’t work as well.”**

**Kacey Marra, PhD**



## Developing Medical Technologies in Space

Space is the final frontier for explorers; and, increasingly, it is becoming a place for new commercial enterprises. For the biomedical industry, researchers are working to leverage microgravity to create products for patients on Earth.

The International Space Station (ISS) U.S. National Laboratory has teamed up with Pitt's McGowan Institute for Regenerative Medicine to map out the most promising technologies for biomedical development and manufacturing in low Earth orbit. The alliance is a key effort for the ISS National Laboratory as it works across many technological areas to increase the commercial use of space and builds on decades of experimentation performed on the space station.

The ISS National Laboratory and the McGowan Institute have enlisted a broad range of industry partners, other academic research centers, and government agencies to further expand the scope of medical technology development on board the ISS and to focus on new microgravity research to demonstrate the value of the space environment.

McGowan Institute director and Distinguished Professor of Surgery **William Wagner, PhD**, says that the space station offers a unique platform for regenerative medicine. The microgravity environment distinctly affects the properties of certain materials and substances, enabling processes not possible on Earth. Stem cells, for example, behave and reproduce differently in low gravity, Wagner says, and growing them in space might bolster cellular therapies for a variety of diseases and conditions like traumatic brain injury and type I diabetes.

Microgravity also permits 3D printing of complex tissue structures that would collapse or deform under full gravity. Miniaturized organ models reproduce certain diseases in microgravity, potentially permitting the study of treatments for conditions such as kidney failure and osteoporosis.

Given the cost and resources required to conduct space research, the partnership also focuses on rigorous business analysis to determine which areas of medical technology development are most likely to benefit patients on Earth. ●





**“The reason the intravenous route is so effective is that the vaccine travels quickly through the bloodstream to the lungs, the lymph nodes, and the spleen, and it primes the T cells before it gets killed.”**

JoAnne Flynn, PhD

PROFILE: JOANNE FLYNN, PhD

## Improving TB Vaccination Effectiveness

Improving the protective power of the tuberculosis vaccine could dramatically reduce TB burden and deaths. In recent years, tuberculosis has killed more people across the world than any other infectious disease, even though a vaccine is widely available. The Bacille Calmette-Guérin (BCG) tuberculosis vaccine uses a live, weakened form of TB bacteria and is typically injected under the skin. But the vaccine is not very effective and leaves some susceptible to infection.

Simply changing the vaccine’s route of administration might drastically boost its effectiveness, however. Describing their work in *Nature*, researchers from Pitt and the National Institute of Allergy and Infectious Diseases found that, in nonhuman primates, intravenous vaccination produced superior TB protection.

“The reason the intravenous route is so effective is that the vaccine travels quickly through the bloodstream to the lungs, the lymph nodes, and the spleen, and it primes the T cells before it gets killed,” explains senior author **JoAnne Flynn, PhD**, Distinguished Professor of Microbiology and Molecular Genetics. “When we compared the lungs of animals given the vaccine intravenously versus the standard route, we saw a 100,000-fold reduction in bacterial burden. Nine out of 10 animals showed no inflammation in their lungs.”

To test the method of administration’s effects, Flynn and collaborators separated the nonhuman primates into groups: unvaccinated, standard human injection, stronger dose and standard injection, mist, injection plus mist, and stronger dose administered intravenously. Six months later, the researchers exposed the nonhuman primates to TB and monitored them for infection.

The intravenously vaccinated animals all had BCG and activated T cells in their lung tissue. The other animals had no detectable BCG in lung tissue, and their T-cell responses were only modest. Virtually no TB bacteria were found in the lungs of the intravenously vaccinated animals, and only one primate in this group developed lung inflammation or disease.

The researchers hope to eventually test intravenous TB vaccination in humans, but they’re first studying whether lower doses of intravenous BCG could provide equally robust TB protection. The larger dose can cause side effects, primarily temporary lung inflammation. Before human translation can occur, however, the method must also be proven safe and practical; intravenous vaccination requires more skill to administer and can also more readily cause infection. ●

**Francis S. Collins** @NIHDirector

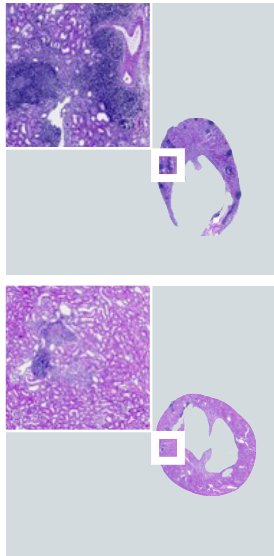
Researchers from #NIH and @PittHealthSci saw dramatic improvement in how well the world’s only tuberculosis vaccine works by simply changing the delivery method and dose. Instead of the usual injection into skin, they gave it to animals intravenously.

Changed route of immunization dramatically improves efficacy of TB  
NIH scientists report results from animal study.  
nih.gov

Jan 2, 2020

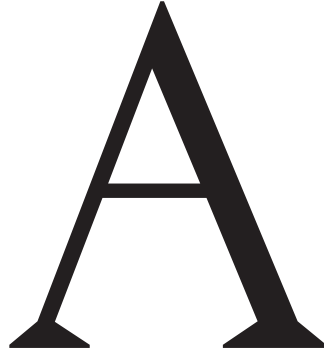
**“Knowing exactly how the innate immune system plays a role opens the door to developing very specific drugs, which allows us to move away from broadly immunosuppressive drugs that have significant side effects.”**

**Fadi Lakkis, MD**



**PROFILE: FADI LAKKIS, MD**

## Minimizing Chronic Organ Rejection



A breakthrough immune system finding could help minimize organ transplantation complications. While transplants have saved countless lives, for some patients, chronic rejection of transplanted organs can cause future complications. It's been almost six decades since immunosuppressive drugs made organ transplantation a clinical reality, yet many organ recipients will still need a second transplant in their lifetimes.

Using a genetically modified mouse model, Pitt researchers and their collaborators at Houston Methodist Hospital recently found that the innate immune system may be able to “remember” foreign cells—an ability previously thought exclusive to the adaptive immune system. This finding, described in *Science*, could ultimately help prolong transplanted-tissue survival and prevent the need for second transplants.

“Knowing exactly how the innate immune system plays a role opens the door to developing very specific drugs, which allows us to move away from broadly immunosuppressive drugs that have significant side effects,” says senior author **Fadi Lakkis, MD**, Distinguished Professor of Surgery, Frank and Athena Sarris Professor of Transplantation Biology, and scientific director of the Starzl Transplantation Institute.

Innate immune cells are the first to detect any foreign agents in the body; and they activate the adaptive immune system, which “remembers” various invading viruses, bacteria, and other agents in order to quickly impede them if they reemerge. This process is vital to immunity; but it also results in transplanted organs’ eventual rejection, even with immunosuppressive drugs.

Innate immune cells like monocytes and macrophages haven’t been thought to possess immunological memory. However, the researchers found that these cells’ capacity to remember foreign tissues is as specific as that of adaptive immune cells, like T cells and B cells.

Using molecular and genetic analyses, the researchers showed that the paired Ig-like receptor-A (PIR-A) molecules were essential to the innate immune cells’ memory. By blocking PIR-A molecules with a synthetic protein or genetically removing them from the host animal, the cells’ memory was abolished, enabling transplanted tissues to survive for much longer. Essentially, the murine innate immune cells, after being exposed to foreign tissue, could initiate an immune response if exposed to that same foreign tissue again.

Beyond improving transplant outcomes, this finding could have implications for treating cancer, autoimmune conditions, and other diseases, says senior author **Martin Oberbarnscheidt, MD, PhD**, assistant professor of surgery. Further understanding of innate immune memory mechanisms could lead to developing targets for improving effective immune responses against tumors or restoring self-tolerance in autoimmune diseases. ●

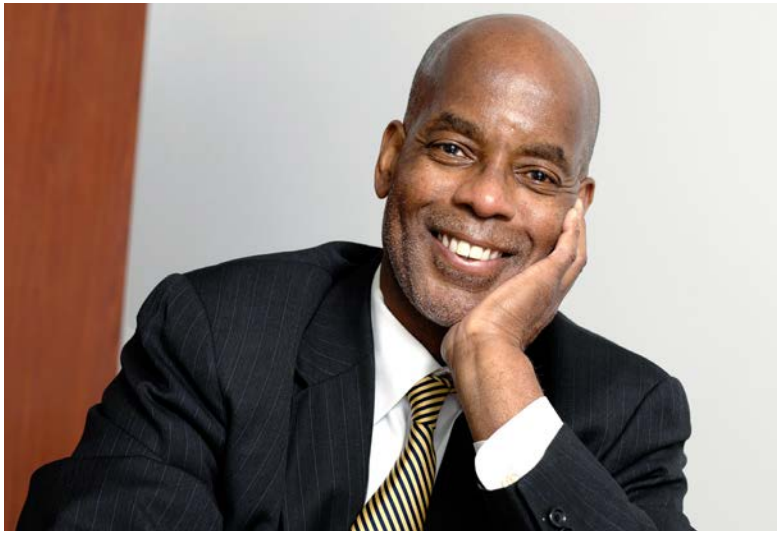
# DONORS



With grateful appreciation for their generosity, we acknowledge the following individual, corporate, and foundation donors whose contributions of \$1,000 or more to the University of Pittsburgh School of Medicine, UPMC Hillman Cancer Center, and UPMC Western Psychiatric Hospital between July 1, 2019, and June 30, 2020, have supported us in our academic, research, and clinical missions.

*Thank you.*

---



PROFILE: LLEWELLYN HYACINTHE, MD, MBA

## Pay It Forward

W

hen Llewellyn Hyacinthe, MD, MBA, was a medical student at the University of Pittsburgh, a mentor unexpectedly came into his life at a time when he most needed him. He believes that this mentor, Myrven Caines, MD, helped him stay at Pitt, get his medical degree, and enjoy a decades-long career as a physician and educator.

Now associate professor and director of operations, Department of Urology, SUNY Downstate Health Sciences University, and staff urologist, University Hospital of Brooklyn, Dr. Hyacinthe describes his first

year of medical school as a “daily struggle.” He didn’t grow up with a particular interest in science or medicine; he just had a desire to help people and solve problems, and his parents were keen on him being a doctor.

“Probably like many medical students, I was having trouble putting together all this data they were throwing at us every day,” recalls Dr. Hyacinthe. “I really felt isolated and didn’t feel as if there were any teaching faculty members I could go to to help me transform all this data into information that would help me become a physician.”

In Dr. Hyacinthe’s second year, Dr. Caines contacted him and other Black and Brown students in his class. He began meeting with them for an hour over lunch in his office every day, after their morning lectures and before their afternoon lab classes.

“My first-year knowledge was lacking,” says Dr. Hyacinthe. “So, we’d review organ systems and disease processes, and he helped bring me up to speed. He gave me the pathway to catch up and to build up that foundation so I could move forward. Being able to pull all that information together gave me confidence that I just didn’t have. More than anything, he gave us support and reassurance. I’m not sure I would’ve finished Pitt if not for his intervention.”

At the time, Dr. Caines was an associate professor of pathology and associate director of laboratories for the Pittsburgh VA Medical Center and had his own busy schedule. Jagjit Singh, MD, assistant professor of pathology, is a former colleague of Dr. Caines and knew him in the mid-1980s when Dr. Caines was mentoring Dr. Hyacinthe.

“He was gentle, calm, had a Zen-like persona, and a warm, caring personality,” remembers Dr. Singh. “He was a people person; and I sought advice from him, especially when he held his administrative role at the VA. He was a great listener and was fair and impartial in his feedback.”

Dr. Singh has since heard about Dr. Caines’ own experiences when he arrived in Pittsburgh from Trinidad and thinks they may have influenced Dr. Caines’ desire to help other students. In an interview for Pittsburgh History in 1995, Dr. Caines describes his reception by colleagues at the School of Medicine in the late 1960s:

“I ran straight into racism full, square, and center. There were some white professors in the department who point-blank refused to teach me anything, who hid materials from me, and it was very clear that their intentions were that I should not succeed. My reaction to them was probably similar to what you would find from most immigrants, which is that we viewed these as roadblocks [that] one would have to overcome. So my philosophy was to turn every negative experience into a positive experience.”

Dr. Hyacinthe benefitted from Dr. Caines’ desire to turn his negative experiences into positive ones for the students he helped. To honor the commitment and dedication of Dr. Caines, who died in 2014, Dr. Hyacinthe has established the Myrven Joseph Caines, MD, Fund for Medical Diversity to support the School of Medicine’s Office of Diversity, Equity, and Inclusion.

“From my position now, I realize how much of a sacrifice he made for us. I have enjoyed virtually every day of my career as a physician, as a urologist, so I’m very thankful. I can’t imagine ever doing anything else,” says Dr. Hyacinthe. “My main motivation is to just pay it forward; it’s impossible to pay it back. I look around and African American males—we’re still a rare species in medicine, unfortunately, so I’m trying to do my part to address it. Dr. Caines certainly did his part.” ●



## INDIVIDUALS

Venus A. Hadeed, MD, and Antonio A. Achkar, MD	Kay F. Barker and Walter D. Barker	Diane L. Boron and Walter W. Boron	C. Dale Cameron
Nancy L. Aitken	Dr. Shirley R. Baron	Courtney Bost and Robert Bost	Beth Campbell and Carl L. Campbell
Yuki Aiyama, MD	Marian P. Barron and Peter J. Barron	Jane Bower and James N. Bower, MD	Vena J. Campbell and Larry C. Campbell
Judith L. Albert, MD, and Anthony B. Fiorillo, MD	Sonia Barros and Michael C. Barros	Barbara I. Bowser and Gary K. Bowser Sr.	Patricia H. Canfield, MD, and Thomas N. Canfield
Saud S. Albugami	Anthony G. Poli and Rosalie Barsotti	Angella Velvet Bradick	Jeff and Kanika Capel
Gayle Martin and William C. Alexander	Edward J. Barvick, MD	Jeffrey R. Grieb and Sara M. Bradley, MD	Janet F. Cappy
Karen A. Alfano and Nicholas J. Alfano	Dr. Eric B. C. Bass	Patricia Brady-Fugitt	Steve N. Caritis, MD
Nourah A. M. TH. Alghanem and Ebraheem J. Alghanim	James E. Bauer, MD	Bunny Bragdon and Robert W. Bragdon, MD	Robert J. Carmazzi and Christine Carmazzi
Jameel Abdulla Al-Jishi, PhD	Katherine H. Bayer and Daniel A. Bayer	Allyce M. Brand	Pamela Kay Carpenter and David K. Carpenter
Barbara A. Allen and David W. Allen	Dorothy B. Beckwith and G. Nicholas Beckwith III, Trustee	Joyce Brand and Edward J. Brand, MD	Richard G. Cassoff, MD
Michelle Aloe and Andrew Aloe	MaryBeth Belka	Paul Branum	George W. Causey Trust
Rachel and Nduka M. Amankolor, MD	William T. Belko and Lynne Rowan Belko, Esquire	Geraldine H. Brause and Barry D. Brause, MD	Lou and Millie Cestello
Patrice J. Americus and Robert L. Americus	Judith C. Bellin	Frank W. Bregar, MD	Barbara R. Chait and Gerald E. Chait
Joan G. Ammer, MD	Kathleen L. Bendel and James D. Bendel	Stephanie Brenner and Laurence Harvey Brenner, MD	Laura R. Champagne and Lloyd P. Champagne Jr., MD
Carolyn J. Anderson, PhD	Catherine M. Bender, PhD	Nancy B. Brent, MD, and David A. Brent, MD	Wing K. Chan and Cheuk K. Chan
Maureen M. Anderson and Eric N. Anderson, Esquire	Paul G. Benedum Jr.	Sheryl Broadhurst and Jeffrey Sherwood Broadhurst	Jane P. Charlesworth and Ernest E. Charlesworth, MD
Stephanie Anderson	Reneé J. Benson	Barbara Ann Brooks	Judith S. Charlson and Murray T. Charlson, MD
Tori Anderson/ Walk with Tori	William L. Benson	Loretta A. Brooks and Daniel H. Brooks, MD	Shirley M. Chervenick and Paul A. Chervenick, MD
Richard P. Anton, Esquire, and Bonnie B. Anton	Stacey L. Berceci and Scott A. Berceci, MD, PhD	David E. Brougher, MD	Richard A. Chesnik, Esquire
Patricia Louise Argyros and Gregory J. Argyros, MD	Dr. Ann R. Berenfield and Leonard H. Berenfield	Rachel F. Haft, MD, and Jeffrey S. Brown, MD	Homer D. W. Chisholm and Gertrude K. Chisholm
Deanna M. Armstrong, MD	Kathy Berkowitz and Stuart Berkowitz, MD	Martha I. Bruce, PhD	Rushir J. Choksi, MD, and Neha A. Choksi, MD
Robert M. Arnold, MD	James S. Bernier and Maria N. Bernier, Esquire	Jill and Adam Brufsky, MD, PhD	Tsz-Ming Chow, MD
Bruce Arnoldt	Joan Bigley and Thomas G. Bigley, Trustee	Jodi and Seth Brufsky	Betty Christopherson
Leslie Aron and Ben Aron	Amy S. Bille and Matthew C. Bille	Kay M. Brummond, PhD	Tim D. Oury, MD, PhD, and Charleen T. Chu, MD, PhD
Elizabeth Aronson and James Aronson, MD	Timothy R. Billiar, MD	Kathryn F. Bryson and Michael A. Bryson	Roberta M. Churilla
Donna M. Artz	Marcel Binstock, MD	Carol Olmert and Alan P. Burckin, MD	Paula A. Ciliberti
Mark Ashley, MD	Haley Jo Birmingham	Lisa and John Burke	Tanyia Z. Harrison-Clagette and Vaughn S. Clagette, MD, Trustee
Nancy A. Aspiotes and Nicholas G. Aspiotes	Denise Birsic and Daniel J. Birsic, Esquire	Katrina D. Butela and Shawn T. Butela, MD	Andrew J. Clark
Egil Aukrust and Rose Tao Aukrust	Patter Birsic and Thomas E. Birsic, Esquire	Carolyn M. Byham and William C. Byham, PhD	Linda W. Clark and G. Reynolds Clark
Elaine Axelson and Alan A. Axelson, MD	James D. Bittel Jr.	Ann W. Cahouet	Jay W. Cleveland Jr.
Lesley E. Baer and David G. Baer, MD	James M. Blake	Fredrick R. Nene and Candace Cain	Eric Close and Kelly B. Close, MD
Carole A. Baierl	Ruth E. Blake	Michael Andrew Caines, MD	Melissa R. Cognetti, MD, and David M. Cognetti, MD
Terry Williamson and Nancy Baily	Mrs. Donald Blechman	Jordan Calaguire	Nancy and Steve Cohen
Emilie Zielinski Baker and Stephen Duane Baker, MD	Maryrose Benkoski Block	Rosemarie Calandra and Frank Calandra Jr.	Seija L. Cohen
Jodi B. Baldrige and Paul L. Baldrige, MD	Norman Wolmark, MD, and Eva Tansky Blum, Esquire	Joseph E. Calderone Jr., MD	Scott Coker
Aldo W. Balestra	Jeffrey S. Blum, Esquire, Trustee	Nancy S. Caldwell	Marcia R. Colvin and Dr. David F. Colvin
Carolyn V. Baney and Richard N. Baney, MD	Karen L. Blumen, Esquire	Jeanne C. Caliguiri	Gail F. Combs and William G. Combs, MD
Robert E. Barber	*Gertrude Blumenschein, MD	Mary Ellen Callahan, Esquire, Trustee	Thomas D. Ziegler and Colleen Conner Ziegler
Robert Bargiel	Mary Ann and Chuck Bogosta	Clifton W. Callaway, MD, PhD, and Patricia S. Callaway	William S. Conover II
	Robert W. Kraemer and Marguerite Bonaventura, MD	Lori and Steven Callen	Patricia L. Conrad and John F. Conrad
	Michael J. Bonidie, MD	Carol Cambridge and Joseph Cambridge	Loretta L. Conti and Philip P. Conti Jr.
	David Borofka		
	Tara A. and Jason J. Borofka		

Thomas G. Cooney Sr.	Kelly Ann Dickison	Christine M. Fulton and George A. Fechter	Margaret R. Gallagher
Margaret Cooper and James Cooper	John A. Disegi	John H. Feist, MD	Stephen J. Gardner
Vera J. Cornes and Cleon L. Cornes, MD	Dennis M. Domsic	Vivienne Felberman Ivry	Herb Garrison, MD, and J. Lynne Garrison, MD
Charles L. Cost	Alda M. Gonzaga, MD, and Ankur A. Doshi, MD	Anita Feldman and Gerald E. Feldman	Clara F. Gauthier
Dr. Patricia L. Krainz and Bruce M. Coull, MD	Patricia A. Dotter	Ralph A. Ferber and Linda M. Ferber	H. Arnold Gefsky, Esquire, and Adrien B. Gefsky
Mary S. Counihan, MD, and Peter J. Counihan, MD	Imelda Dougherty	Malcolm Ferguson	David A. Geller, MD
Marion Love Couzens and William U. Couzens	Thuy Bui and Gerry Douglas	Arlene Butera Ferrante	Deborah Genstein and James M. Genstein
Margaret Cowburn	Karen Downing	Laura K. Ferris, MD, PhD, and Robert L. Ferris, MD, PhD	Amie Gentile and Bryan Gentile
Barbra L. Cox	Susan B. Doyle and The Honorable Michael F. Doyle	Jean Y. Fetch	Elizabeth A. Gentile and Joseph P. Gentile
Carolyn C. Coyne, PhD	Jan Drappatz, MD	James D. Fett, MD	Natalie Gentile
Mary F. Crawford	Ann M. Dugan	Pamela Fields and Darin Fields	Elizabeth T. George and Thomas R. George
Ruth Ann and Daniel Crawford	Colleen J. Dunwoody*	Sheila R. Fine	*Ruth P. Gerber
Laura Lynne Cregan and Kevin M. Cregan, MD	Louis H. Dupart, Esquire, and Theresa M. Dupart, Esquire	Margaret L. Fischer and Gary S. Fischer, MD	Cheryl Gerson Americus
Gail L. Crimaldi and Albert A. Crimaldi, MD, PhD	Mary Lou and Richard Durr	Joan Fisher	Elinor Getz and James F. Getz
Rose Crisanti and Vincent A. Crisanti	Stephanie K. Dutton	*Leslie E. Fisher	Paula Giglio
Molly Crooks and Thomas G. Crooks	Patricia K. Eagon, PhD	Audrey Hillman Fisher and Timothy O. Fisher	Sarah F. Gillman, MS, CSW
Nancy Hickcox and Lawrence S. Crossett, MD	Colleen K. Ebbert, MD, and Thomas J. Ebbert	Meghan E. Fitzpatrick, MD	Margaret Gilmartin and Richard C. Gilmartin Jr., MD
Patricia A. Cullinan and Stephen A. Cullinan	Dean W. Eckenrode	Eleanor M. Flanagan and Hugh J. Flanagan	M. Lisa Gismondi and John P. Gismondi, Esquire, Trustee
Anne M. Curtin and William M. Curtin, MD	Daniel I. Edelstone, MD	Curtis D. Fleming and Kimberly T. Fleming	Tammy S. Shields and Mark T. Gladwin, MD
Lori M. Dabrow and Steve M. Dabrow	Pat A. Edney and John J. Edney, MD	Richard A. Flinn, PhD	Stephen A. Glickman
David B. Dalzell Jr.	Gary Lee Eggenberger	Gilbert Floyd Sr.	Lee Glunt and J. Roger Glunt, Trustee
Geraldine O. Dando and Ted E. Dando, DMD	Karen K. Egorin	Edward L. Foley, MD	Mary L. Godleski and John J. Godleski, MD
Joan B. Darby and James D. Darby Jr.	Gary Eiben	*Dorothy H. Forman	Deanna L. Goff and Daniel Goff
Mohini Dasari, MD	Carol A. Eibling and David E. Eibling, MD	Robert E. Forman	Steven H. Cohen and Nancy B. Gold-Cohen
Randi and *L. Van V. Dauler Jr.	Leticia J. El Naggar and Shaaban F. El Naggar	Stephen A. Fornoff and Wendy B. Fornoff	Lisa A. Golden, MD, Trustee
Benjamin J. Davies, MD, and Sarah Davies, MD, DDS	Tracy Elder and Lee E. Elder	Richard E. Forrest	Vickie Good
Selene L. Davis and Arnold A. Davis	Graeme W. Eldridge and Diane D. Eldridge	Malgorzata Fort and Edward T. Fort	John H. Goodish and Katherine Schussler Goodish
Thomas M. Davison, MD, and Nancy N. Davison	Liberty El-Kadi and Matt El-Kadi, MD, PhD, FACS	Dorothy C. Fox and Louis J. Fox, JD	Sandra G. Goodman and Lee S. Goodman
Kathy Sabec Dax	Kathleen G. Lokay and Peter G. Ellis, MD	John Framel and Phyllis McCanna Framel	Linda B. Goorin
Sven de Jong and Elizabeth S. de Jong	Arnold M. Epstein, Esquire, and Barbara A. Epstein	Christian L. Allison and Jane K. France	Vikram C. Gorantla, MD
Janet DeBlasio and Pasquale V. DeBlasio	*Jane M. Epstine	Elie Francis, MD, and Lanie K. Francis, MD	Mary Ellen Gosman and Dr. James H. Gosman
Dale W. Deist and Barbara A. Deist	Marie Erlbaum and Eric R. Erlbaum, MD	Gary Frazier	Patricia L. Grealish and Daniel P. Grealish
Robert T. Deithorn	*Virginia Esaian-Noga	Mary Pat Friedlander, MD, and Eric J. Friedlander, MD	Thomas Grealish
Andrew DeJaco	Jeremiah T. Escajeda, MD	Summer G. Friedlander and H. Duffy Friedlander	Janice Ugaki and R. Douglas Greally, MD
Allison S. DeKosky, MD	Francisco Silveira Escobar III, MD	Sherwood C. Friel	Robin E. Greco and Richard J. Greco, MD
Debra K. Demchak and William S. Demchak	Jacob Esquenazi, MD	Regina L. Friend and Douglas S. Friend	Bonnie S. Green
Nicole Engle-DeMonaco and Nicholas A. DeMonaco, MD	Kenneth L. Euler, PhD	Christopher C. Fromme and Karen C. Fromme	Laurence B. Green
David S. DeRose and Jhonnette DeRose	Barbara S. Mensch and Mark Evans	Katherine Furbee	Sara R. Greenhill, MD, FCCP
Tara Desai and Ravi Desai	Sally A. Evans and Terry L. Evans, MD	Jill Fusaro	Cynthia B. Gregg
Cameron DeZfulian, MD	Richard G. Evelyn	Annie Futrell and J. William Futrell, MD	Kristina E. Gregory
Rajeev Dhupar, MD, and Katharine A. Dhupar	Roy Faigenbaum	Henry J. Gailliot	Capt. James W. Grinter III
	Dr. Stefano Falconi	Karen R. Roche, MD, FACS and R. Kent Galey, DMD	
	Jeffrey Bartlett and Jonie Farrar		
	Kristen K. Farrell and Michael J. Farrell		

Debra Grishkat	Kim Henderson and Mark Henderson	Edward W. Jew Jr., MD	Brooke N. Klatt, PhD, and Brian A. Klatt, MD
Bette Gromis and Robert Marvin Gromis, MD	Cindy A. Henderson and Richard M. Henderson Jr.	Janis C. Johnson and Jonas T. Johnson, MD	Andrew J. Klein, MD
Mary J. Groppe and Carl W. Groppe Jr., MD	Sarah J. Heppenstall and C. Talbot Heppenstall Jr.	LaVonne C. Johnson	*Eugene J. Klein
Glen S. Gross and Rhonda I. Gross	Robert M. Hernandez	Lynn M. Johnson and Mark L. Johnson, MD	Cary H. Klein and Kathryn U. Klein
Mustafa K. Gül	Linda Hertzberg and Richard W. Hertzberg, PhD	Murray C. Johnson	*Ruth Ann Eisner Klein
Ina Gumberg and Lawrence N. Gumberg	Francoise Hibbs and John B. Hibbs Jr., MD	Richard H. Johnson	Barbara Kleyman and Thomas R. Kleyman, MD
Joan Gurrentz and Rodger Gurrentz	Tracy G. Hill and J. Craig Hill	Kathryn Johnson and Thomas G. Johnson, MD	Joseph R. Knechtel
Linda J. Gustafson and Richard P. Gustafson	Margaret M. Hill and John B. Hill, MD	Susan A. Johnson and William R. Johnson	James T. Knox
Barney C. Guttman	Mary L. Hill and Thomas M. Hill	Bradford D. Johnston, MD	Cynthia R. Koch and Robert L. Koch II
William H. Guy II, PhD, and Victoria E. Guy, MD	Johanna M. Seddon, MD, ScM, and Ralph W. Hingson, ScD, MPH	Dorothy J. Johnson and Gerald S. Johnston, MD	Arlene E. Fleck and John G. Kokales, MD
Maria Koenig Guyette, MD, and Francis X. Guyette III, MD	John F. Hinkey and Patricia J. Hinkey	Marilyn S. Johnstone and Graham F. Johnstone, MD	Jaya Kondaveeti and Dr. Kotayya Kondaveeti
Amy P. Haemmerle and Marcus J. Haemmerle, MD	David J. Hirsch and Therese O. Hirsch	Raymond E. Joll	Karen and Joseph Konefal
Frances Haer	William A. Hite	Mary Jones and Channing Jones	Geraldine Kosanovich and Nicholas S. Kosanovich
Nancy Hamilton	Nancy Tseng Ho and Dr. Chien Ho	Jesse Mason and Gail Reede Jones, MD	Robert Cook and Roberta J. Kostick
Shahla Hamoodi and Abdulla N. Hamoodi	Carol W. Hoch and David R. Hoch	Lisa Jones and Robert T. Jones Jr., MD	John F. Kraus, MD
Mary Anne D. Hanna and Howard W. Hanna III	David L. Hodge	Sheryl S. Jordan and Michael F. Jordan	Paulette L. Krause and John R. Krause, MD
Barbara J. Hannan and Robert W. Hannan	Paul J. Hoffman, MD, and Kristin Robbins Hoffman, MD	Ellen F. Judy and Kevin D. Judy, MD	Lawrence M. Kulla, MD
Kathryn Z. Harbrecht and Brian G. Harbrecht, MD	Robert E. Hoffmaster	Harriet Kalin and Joshua Kalin, MD	Roop D. Kumar
Mary Anne Hardesty and John R. Hardesty Jr.	Susan S. Hogarty	Kevin M. Kane, MD, and Irene G. Kane, PhD	Nagen D. Kurukulasuriya
Jaishree Hariharan, MD, and Sundaram Hariharan, MD	Diane P. Holder, Trustee, and Gerald D. Holder, PhD	Vanita Kapoor and Nitin Kapoor, DO	Mary H. Kushner and James P. Kushner, MD
George K. Harrah Jr. and Barbara F. Harrah	Catherine B. Holman and Bruce E. Holman	Marsha B. Karp and Robert Karp	Mary Ann LaCarte and John V. LaCarte
Donald J. Harrington	Sy M. Holzer, Trustee	Simone F. Karp	Deb and Bob Ladley
John L. Harrington, MD	Coleen S. Holzinger	Richard B. Kasdan, MD	Catherine M. Lafferty and William L. Lafferty
Mary Lou Harrison and Edward I. Harrison	Elmer J. and Ethelreda Holzinger	Loreta Matheo, MD, and Dr. Robert E. Kass	Michael S. LaFrankie
Rosanne I. Harrison	Janis Holzman and Stephen R. Holzman, MD	Patricia J. Kassling and William E. Kassling	Verna R. Laman and David Laman, MD
Cary Hart	Nancy Solimine Honbo and Ken Shoji Honbo, MD	Lois S. Kaufman	Frances S. Lancaster and Stewart L. Lancaster, MD
Peggy B. Hasley, MD, and Stephen K. Hasley, MD	Manami Honda, MD	Amy M. Kelleher and Dennis J. Kelleher	Michelle Langer and Mark Langer
Caryn Hasselbring, MD	Susan Hootman and Barry D. Hootman, MD	Charles F. Kelley Jr., MD	Ann Marie Langerholc
John Hauber and Marcy Hauber	Robert F. Horsch, MD	Robert M. Kemper III	Margaret D. Larkins-Pettigrew, MD
Katie A. Haynes	Dolores Hughes and Thomas E. Hughes Jr., MD	Don S. Kennedy	Louis A. LaRose
Timothy Hazel and Elizabeth Wright Hazel, MD	Kevin Hugo	Mark E. Kennedy	Patricia A. Larson and Christopher E. Larson, DMD, MD
Dennis Lynn Headings, MD	*Aura R. Hulme	Kathleen H. Kent and Rodney D. Kent	Jennifer N. Larson, MD
Shari Heald and Rick Heald	Gene Abramov and Britton Hunter	David Demoise and Erin E. Kershaw, MD	Martin B. Laufé, MD
Eileen R. Heenan	William S. Hunter and Sue S. Hunter	Marco G. Patti, MD, and Melina R. Kibbe, MD	*Harold A. Lauterbach
Brockton J. Hefflin, MD	Calvin T. Iida, MD	Andrew S. Kim, MD	William Lawson
Ruth C. Hefflin	Linda Ionta and Joseph A. Ionta	Peter K. Kim, MD	Jacqui F. Lazo and John S. Lazo, PhD
Barbara A. Heigl	Joy Irvin and Chris Irvin	Saki Kimura	Donald J. Sadler and Alberta M. Lee
Jeffrey S. Heinle, MD, and Sheila K. Heinle, MD	Anna Ivey	Alicia M. King	Jae H. Lee, MD
*Theodore R. Helmbold, MD	Tija C. Jacob, PhD	A.J. Conrad Smith, MD, and Janet Kinnane, MD	Grace J. Lee, MD, and Joon Sup Lee, MD
	Joseph James	Donna L. Kipp, Esquire	Peggy L. Lee, MD
	James Jancik	Marsha L. Kirik	Kathleen M. Lee and Robert E. Lee, MD
	Florian Jeantieu	Janet F. Kirk and Andrew W. Kirk	
	Jae-Ho Jeong, MD, PhD	Joseph E. Kiss, MD	

Freya Elizabeth Hory Lee, PhD, and William Lee, MD	Richard M. Mann, MD	Katharine G. McCullough and The Honorable Samuel A. McCullough	Nancy J. Minschew, MD
Anita P. Legler and Robert C. Legler	Chronis Hazi Manolis and Diane A. Manolis	Maria McCutchen and Andrew McCutchen	Martha Mitchell and Charlie Mitchell
Marina Persic Lehn, Esquire, and Kenneth M. Lehn, PhD	Maribel Manzari and H. J. Manzari	Nancy A. McDonald	Shelley C. Mix and Troy D. Mix
Nathalie and Mario Lemieux	Cheri J. Manzinger and Joseph Manzinger Jr.	Nancy C. McGinley	Raymond J. Moncini
Anne Gendler and David Leib	Janet R. Markel	Audrey A. McGinnis and Gerald E. McGinnis	Jane C. Montgomery and Derwood H. Montgomery
Robert A. Leininger and Judy Leininger	Pamela E. Markovitz and Alvin Markovitz, MD,FACP	Beverly B. McGowan and John A. McGowan, MD	Harry B. Moore
Joel Lennen and Kathleen C. Lennen, Esquire	Nikol Marks and Stanley M. Marks, MD	James H. McGraw IV and Jane Love McGraw	Delynne J. Myers, MD, and John J. Moosy, MD
Jeanne M. Leonard and Edward E. Leonard II, MD	Myrna Marlowe	Susan McGuinn and Martin G. McGuinn	Jeffrey L. Morby and Jacqueline C. Morby
Astro Jhong and Anita B. Leon-Jhong, MD	Timothy B. Morrow and Carol A. Marmo	Christine L. McHenry, MD	BeeJee Morrison
Cynthia B. Lesker	Lucine O. Marous	David McKamish	Sally Moses
Susan T. Silversmith and Lawrence F. Leventon	*Curtis R. Marquard	Janet McKamish and Dennis McKamish	Elizabeth H. Moy, MD
Sandra Levin	*Helen B. Marquard	William McKendree	John M. Musacchio and Linda L. Musacchio
The Children of Sally Levin	Sheldon Marstine	Charles C. Cohen and Michele M. McKenney, MPH, JD	Volker Musahl, MD, and Tina Musahl, MD
Susan F. Levine and Aaron M. Levine, MD	Cathy A. Mary and John Mary	Carrie McKenzie	Barbara L. Myers and Eugene N. Myers, MD
Alan H. Levy, PhD	Carl Maskiewicz	McKernan Living Trust	Wendi Nachwalter and Richard S. Nachwalter, MD
Anne Lewis	Aaron C. Mason, MD	Tommie M. McLaughlin	Marlene Naft
Evelyn Pei Hua Li	Myrna R. Mason and Mark E. Mason	Stephen J. McMahan and Deborah K. McMahan, MD	Mary J. Nagel and John R. Nagel, MD
Sissy Lieberman and William K. Lieberman, Trustee	Michael W. Mason	Timothy L. McNickle and Cynthia A. McNickle	Guy M. Nardella Jr., MD, and Dorothy P. Nardella
Carol Limbach and Mark Limbach	Alina Sanson Massaro and Joseph A. Massaro III	Patric R. McPoland, MD	Patrick Narduzzi
Jenny M. Lin	John R. Pearson and Margaret M. Mateer	Cynthia S. McQuillis and Robert F. McQuillis	Constance Nassif and James A. Nassif
Li-Shei Lin, MD, PhD	Rachel J. Givelber, MD, and Michael A. Mathier, MD	Kathleen W. McSorley and David McSorley	Marie and David Navikas
Chih-Tsung Kang, PhD, and Li-Yin Lin, PhD	Steve Matusch, PEng, MBA	Diana Prufer and Daniel A. Medalie, MD	Sue A. Neal and David J. Neal
R. C. Lin, MD, and Shioh-Bih Lin, MD	Elizabeth Maxwell-Schmidt, MD	Anne R. Medsger and Thomas A. Medsger Jr., MD	Jenna Neiterman
Lt. Col. Patrick Lindauer and Mary M. Lindauer, DDS	Rebekah Mazariegos and George V. Mazariegos, MD	Amita D. Mehta, MD, and Dhaval R. Mehta, MD	Bruce Nelson
David W. Litzinger	The Honorable Romano L. Mazzoli	Arthur S. Levine, MD, and Linda S. Melada	Joel B. Nelson, MD
Edward T. Liverani	Andrew M. McAlpin, MD	Helen Mendel	Ross J. Nese Jr. and Carol D. Nese
Renata Lob and Dr. Edgardo Lob	Trudi L. McAuley and Clyde E. McAuley, MD	Richard B. Meredith Jr., MD	Dana Schaeer Nestel and Daniel A. Nestel
Paula Lockhart	*Althea McCalmont	Grace F. Messer, CRUT	John W. Newman
Rose D. Losken and Wolfgang Losken, MD	Cynthia McCann and Robert J. McCann	Tracey Messer	Julie Lendvay Newton and Douglas K. Newton
Frank J. Lotito	Pamela K. McCarter and Jackson H. McCarter, MD	Michael F. Michelis, MD, and Mary Ann Michelis, MD	Mary W. Nice and John A. Nice
Jean M. Loubeau, MD	Sarah J. McCarthy-Reiland	Ann N. Migliore and Philip J. Migliore, MD	Kerri Nielsen and Thomas Nielsen
Annette M. Luchini and Gary R. Luchini	Mary M. McCartney	Vanessa and David Morehouse	Theresa L. Nimick-Whiteside, PhD
Sherwood S. Lutz	Paula K. McCartney and Thomas J. McCartney	Anne Mosites Miller	Marjorie J. Nord and Roland E. Nord, MD
Jeanne F. Fritch and Ella E. Lyons	Bruce A. McClane, PhD	Cedric B. Miller, MD	Kristin E. Novak and Dr. Justin M. Novak
Carole A. MacMullan	Jennifer McClure and A. Gregory McClure, MD	Julie A. Miller	Beatriz Delgado Ochoa and Juan B. Ochoa, MD
The Honorable John A. Maher III, Trustee	Helen A. McConaghy and John R. McConaghy, MD	Marcia M. Miller and Thomas B. Miller	Marsha R. Oeler and Robert P. Oeler
Jean M. Malinic, DMD	Marella McConnell and Calvin W. McConnell	Natalie D. Miltenberger	Lois A. Pounds Oliver, MD
Rebecca E. Mancoll, MD	Elizabeth H. McCormick and Jeffrey M. McCormick	Takafumi Minato	*Tom W. Olofson
Lawrence W. N. Weber, MD, and Ellen M. Mandel, MD	Anne-Marie B. McCoy, MD, and Matthew S. McCoy, MD	Diann R. Minderlein and James Minderlein	Melinda M. Olson and David C. Olson
Claudia Mandurino			Bert W. O'Malley, MD
Daniel Mann			Pamela Ziegler and Scott Opitz
Amy Mann and Gavin Mann			Corie A. Opperman and Fane W. Opperman



PROFILE: JOHN TIPPINS

## Family Foundation Remembers Its Patriarch

John Tippins comes from a family that knows well the value of hard work and innovation. His grandfather, Leon Tippins, the first of 11 children to go to college, moved to Pittsburgh to find a job in his field of electrical engineering. In 1923, he ended up starting a small family business, Tippins Machinery Co., in reconditioning used mining machinery. John's father, George, was also an electrical engineer.

When George returned to Pittsburgh from serving in World War II, he wanted to help his father build the company. His father let him take the lead in 1946, and George built a two-employee company into a nearly 300-employee strong company that became the world leader in refurbishing, designing, and building rolling mills and other equipment for the steel and metals industries. By the time he retired, he held more than a dozen patents for machines and metals processes.

George Tippins was also known for being the major investor in the acquisition of Allegheny Ludlum Steel Corporation, the nation's largest stainless steel producer at the time, from its parent, Allegheny Ludlum Industries. His investment was widely credited as saving the steel company from being sold to out-of-state financiers who planned to close it and sell it piecemeal to foreign companies. He was board chair and majority owner of Allegheny Ludlum Steel from 1980 through 1986, by which time the company was once more successful and growing into a world leader in the stainless and titanium steel markets.

Sadly, George Tippins was diagnosed with Alzheimer's disease in his later years. Even though he knew it was too late for him to benefit, he had the foresight, again, to create a family foundation before he died in 2005.

"He wanted to endow the foundation to do good things," says John (now a managing director at Stonewood Capital Management, after the family business was sold). "The three areas the foundation supports are entrepreneurialism (one of the recipients is the University of Pittsburgh's Institute for Entrepreneurial Excellence), general philanthropy, and Alzheimer's disease research."

Though the Tippins Family Foundation supports numerous Alzheimer's disease research initiatives, it is a large supporter of a research powerhouse in its own backyard, the University of Pittsburgh Alzheimer's Disease Research Center (ADRC), led by Oscar Lopez, MD, Levidow-Pittsburgh

Foundation Professor of Alzheimer's Disease and Dementia Disorders in the Department of Neurology, professor of neurology and of psychiatry, School of Medicine, and of clinical and translational science.

Pitt scientists know more than a little about hard work and innovation, too. In addition to other research advances, Pitt is the home of Pittsburgh Compound B (PiB), invented and developed by a team of researchers led by Chester Mathis, PhD, Distinguished Professor of Radiology and Professor of Radiology PET Research, and William Klunk, MD, PhD, Distinguished Professor of Psychiatry, Levidow-Pittsburgh Foundation Professor of Alzheimer's Disease and Dementia Disorders in the Department of Psychiatry, and codirector, ADRC. In addition to making possible the early diagnosis of Alzheimer's disease, PiB should help clinicians monitor the disease's progression. PiB works by binding to telltale beta-amyloid plaque deposits found in the brains of patients with Alzheimer's. These plaques are thought to kill brain cells, and their presence differentiates Alzheimer's disease from other dementias. PiB can be injected into the bloodstream of patients, and specialists can then use PET imaging to locate the plaques associated with Alzheimer's. Before Pittsburgh Compound B, it was possible to confirm Alzheimer's disease only after a patient's death at autopsy.

The Tippins Family Foundation supports numerous areas of research at Pitt, including cancer and urology, but ADRC has become an unofficial focus. And, like George Tippins, John and his family support the research being done in Western Pennsylvania.

"We really want to try to help solve the real problem for humanity, if we can," says John Tippins. "It's wonderful that we have an organization like Pitt right here that is truly outstanding." ●

Deborah S. Orens and Jeffrey D. Orens Ellen M. Ormond, PhD Susan M. Orringer and Mark B. Orringer, MD Sandy and Gene O'Sullivan Mary E. Othic and Christopher Othic David L. Blinn, MD, and Donna M. Ottoviani Jennifer Paisley Vasso E. Paliouras and Constantine S. Paliouras Alicia M. Palladino, PhD, and Michael J. Palladino, PhD Edna F. Panbakker Mary Panitch and Howard Barry Panitch, MD Daniel Paquin Kay B. Pareso and James D. Pareso, MD Sun C. Park and Sang C. Park, MD Vida Cecilia A. Passero, MD, and Christopher J. Passero, MD Scott R. Patrick Kate L. Patrick and Stuart K. Patrick Mr. and Mrs. Kenneth L. Payne Henry M. Pelusi Kathleen J. Pelusi and John H. Pelusi Jr., Trustee Revathi Pennathur and Arjun Pennathur, MD Marshal D. Peris, MD, and Anna A. Peris, PharmD Michael A. Perkovich Diane Peterson Mathis Suzanne K. Morrissey, MD, and Daniel P. Petro, MD Mark Petros and Jill Petros Christine J. and Robert A. Pietrandrea Anne M. Pilewski and Joseph M. Pilewski, MD Giuseppe Pilolli *Anna Plocquidio Beth H. Piraino, MD Christopher C. French and Jodi A. Pitchok Shayna F. Pitt and Bruce R. Pitt, PhD Caryn Pizon and Anthony F. Pizon, MD Lori Plung and Louis B. Plung Terri and *Jim Polacheck Ann Poling and Harry E. Poling, MD Harriet Pollack and Stephen J. Pollack, MD Dorothy J. Pollon and Neal M. Pollon Barbara G. Poolos and C. J. Poolos, MD Renee M. Porada Frazier, Esquire Matthew R. Poremcka, MD	Cary O. Poropatich, MD, and Ronald K. Poropatich, MD Elizabeth S. Porter, MD Marsha A. Poster, PhD Wesley W. Posvar Jr. Lesley L. Potash and Marc A. Potash James L. Poth Jr., MD Carolyn Powell and E. Reid Powell Mary L. Pranzo, PhD Richard A. Prather and Margaret L. Prather, DO Robert E. Price Jr. and Denise R. Price Thomas W. Trimm and Patricia A. Prozzi Edward V. Puccio, MD Dr. Raman S. Purighalla and Uma Purighalla, MD Janet K. Quint Jay S. Rabinowitz, MD, and Mindy G. Rabinowitz Sally Rabinowitz and Ronald Rabinowitz, MD Nancy L. Rackoff, Esquire, and William H. Rackoff Kathryne G. Raclin and Jonathan S. Raclin Margaret V. Ragni, MD, MPH Dorothy L. Raizman, Esquire Rosemarie and Kiran Rajesenan, MD Mary L. Ranck and Sidney Graydon Ranck Jr., MD Ned and Sally Randall John G. Rangos Sr. Rama K. Rao Hariklia E. Raptis and Anastasios Raptis, MD, PhD, FACP Carol Rasnak Edie Rath and David Rath Diana M. Rath, MD, and Frank E. Rath Jr. Linda Ray Diane H. Raymond and James I. Raymond, MD P. Sudhakar Reddy, MD Anu Reddy and Dr. Raj Reddy Taruna Reddy John C. Regan Scott C. Reinhart, MD Randall S. Remahl Michaela Remtulla, MD, and Rahim A. Remtulla, MD Susan L. Greenspan, MD, and Neil M. Resnick, MD Amy S. Rex and James Caldwell Rex Jr., MD Dr. Kathleen W. Reyes and Vincent E. Reyes, MD	James S. Reynolds Kristin Burns Reynolds and John D. Reynolds IV Dawn Amy Rhee and John C. Rhee, MD Lawrence S. Rich and Betty Sue Rich Dr. John E. Richardson William E. McKahan and Ruth A. Riesenman, EdD C. Daniel Riggs *Paul M. Rike, MD Anne K. Ringham Mona Riordan and Robert W. Riordan Dr. Linda S. Kardos and Howard M. Robbins, MD Christopher F. Robertshaw Marc B. Robertshaw Donald F. Fink and Benjamin C. Robertson, PhD Jeffrey B. Markel and Carol L. Robinson William Henry Robinson III, Esquire, and Toni Lynn Robinson Roger Roble Kathleen D. Rockey and Charles E. Rockey Ann A. Rogers Sandra B. Rogers Jane M. Rollman and Bruce L. Rollman, MD, MPH Joanne K. Romboski Jeffrey A. Romoff Greta Rooney and Arthur J. Rooney II, Trustee Glenda Root Joan Rosenfeld and David L. Rosenfeld, MD Margaret Quinn Rosenzweig, PhD, and Michael H. Rosenzweig, Esquire Karen and Anthony Ross Michael J. Rossi Gayla Margolin, PhD, and Steven Rottman, MD Diane D. Rowe and Clifford R. Rowe Jr. Gordon Lisker and Nancy A. Rozendal Joshua T. Rubin, MD, and Pamela J. Rubin Thomas C. Rumsey Sandra I. Ruscetti, PhD, and Francis W. Ruscetti, PhD Layla B. Saba and Samir F. Saba, MD Michael H. Sable in honor and memory of his beloved late wife Catherine Marie Heaney Michael B. Saggese Annie Sahel and José-Alain Sahel, MD	*Anne Salmon and *The Honorable J. Quint Salmon Pablo J. Sanchez, MD Marjorie K. Sandoval Susan C. Santa-Cruz Jeffrey P. Sarmonis Athena Sarris Ronnie C. Parker, MD, and Melissa I. Saul Charolette J. Saunders Samantha J. Scalise and Mark R. Scalise Diane C. Schachner, MSN, RN, and Thomas J. Schachner Irwin A. Schafer, MD *Marion Weinman Schafer Martha S. Scheeren Patricia A. Scheller Mikell Schenck and A. William Schenck III Holly Schlossmann and Bradley S. Schlossmann Christopher C. Schmidt, MD Robert E. Steele and Marisa S. Schmitt, MD *Fritz N. Schneider Katherine M. Scholl Kathleen Schulien and Anthony J. Schulien Cynthia Schumann and Glen E. Schumann Dorie S. Schwab and Thomas A. Schwab Jeffrey J. Schwalm Margaret A. Schwarz, MD, and Dr. Roderich E. Schwarz Lana J. Scolieri and Michael J. Scolieri, MD Sun K. Scolieri, MD, and Paul Scolieri, MD Lari M. Scorza, MD Joyce S. Scott and Charles N. Scott Craig H. Scott, MD, and Evelyn S. Scott, MD Marilyn A. Scott Katherine R. Screen Bonnie J. Seaton Steven A. Burton, MD, and Tracy Robin Seewald, MD Anita A. Seifert and Edward W. Seifert Charles J. Seigel, MD Stewart Sell, MD *Joan D. Shanahan Barbara B. Shapira William G. Sharra III, MD Sharon Sharratt and Thomas Sharratt
--	---	--	--

Herbert S. Shear, Trustee, and Barbara S. Shear	Vera R. Sperling, MD, and Dr. Mark A. Sperling	Dung L. Thai, MD, PhD	Richard L. Walton and Amanda L. Walton
Mark D. Sheehan, MD	Jane E. Spielmann and John M. Spielmann, MD	Ruchira N. Thakor and Dr. Nitish V. Thakor	Thomas A. and Nancy K. Wandrisco
Laura Shelly and Rev. Marshall K. Shelly	Ada G. Davis and Joseph M. Spirer	Harold D. Thomas Jr., MD	Peter M. Ward, MD
Dr. Ann C. Shelly and Robert K. Shelly	Michael S. Srodes, MD	Ann E. Thompson, MD	Anne D. Washburn, MD, and W. Kenneth Washburn Jr., MD
Peter E. Sheptak, MD, and Gracia V. Sheptak	Karen Staley and John A. Staley V	Mark E. Thompson, MD	Ronnette Watters-Benamati
Gene V. Sherman, MD	Diane S. Standish and N. Graham Standish, PhD	Paul Tine	Evan L. Waxman, MD, PhD
John G. Sherman	Linda D. Steed and David L. Steed, MD	Kathy P. Tosh and Joseph N. Tosh III, Esquire	Larry D. Webb
Kitty Mathis-Shildt and Richard A. Shildt, MD	Beverly E. Steinberg and Jeffrey Steinberg	Barbara E. Trachtenberg	Rita Weber and Martin Weber
Timothy R. Short	Barbara J. Steiner and Louis A. Steiner	Karen S. Trackler and Richard T. Trackler, MD	*Donald P. Wei
Elissa M. Sichi and Harry J. Sichi	Sharon Steinfurth and Adam Steinfurth	Kien T. Tran, MD, PhD	Yuling L. Wei
Ann Donovan-Sierra and Gustavo Sierra	Elaine and Jim Steinfurth	Donna J. Salsburey, MD, and Michael A. Tranovich, MD	Richard B. Weisband and Mary Ellen L. Weisband
Randi B. Sigal and Michael B. Sigal, MD	Theodore Stern	Thomas J. Tredici, MD	Arnine Weiss and Jeffrey P. Weiss, MD
Susan L. Silverman and Arnold B. Silverman	Maxine B. Stevens, MD	Edith K. Trewin	Marcia J. Weiss
Elizabeth L. Silvers and Stewart A. Silvers, MD	Jeffrey K. Cohen, MD, and Ellen C. Stewart, MD	Jeffrey Lawrence Warhaftig, MD, and Amanda Clair Trimpey, MD	Reina K. Welch and Robert L. Welch
Richard L. Simmons, MD	Mary N. Stewart	Serena Troiani and Giuseppe Fortuna	Officer Dominic J. Welton
Virginia C. Simmons and Richard P. Simmons, Trustee	Lori J. Stofman and Guy M. Stofman, MD, FACS	Susie Tsai and Mark C. Tsai, MD	Thomas Koester Welty, MD, and Edith Roberts Welty, MD
H. Joyce Simmons and Wayne S. Simmons	Frank E. Stone II and Kerry B. Stone, MD	*Richard K. Tucci	Mark R. Werts and Carol L. Werts
Benjamin W. Simon and Joanne Ross Simon	Susan K. Stonebraker	Diane Z. Tucker	Thomas J. Whalen
Jeremy Simon, MD, and Karen R. Simon, MD	Ron Stout and Christine M. Stout	Heidi Mattila and Jari Tuomala	Debi Wheeler
Debra P. Sindler and Mark A. Sindler, Esquire	Dorthea G. Stover and Richard L. Stover	Kasper Tuomala	Joan Wheeler
Norman A. Sindler	Carol A. Strausbaugh	Marian C. Turkel, RN, PhD, and M. Brooks Turkel	Lance and Melanie White
Gurmukh Singh, MD, PhD, MBA	Nancy H. Sumkin and Jules H. Sumkin, DO	Paul C. Turkeltaub, MD	Michael J. White, MD
Rabi Sinha	Nancy Nan-Szu Sun, MD	Thomas C. Valenza, MD	Linda T. Whitford
Renee Oliver and Lloyd Slaton Jr.	Henry D. Sundermann Jr.	Stephanie Valetich, Esquire	Mary A. Whitney and Alan L. Whitney, MD
Suzanne M. Slisz and Bernard F. Slisz	John P. Surma and Elizabeth L. Surma, Trustee	Richard J. Van Allan, MD	Ann D. Whitney and Timothy M. Whitney, MD
James Smail and Nancy L. Smail	Urvashi Surti, PhD, and Shailesh Shashikant Surti	Lucie M. Van der Veer and Hugh G. Van der Veer, Esquire	Barbara M. Wible and LeRoy C. Wible, MD
Meredith A. Smart and Lawson Charles Smart, MD	Patricia J. Swansiger and Robert J. Swansiger, MD	Bethann Vanscoy and Gordon J. Vanscoy, PharmD, MBA, CACP	Bruce Wiegand
Carl L. Smith, MD	Linn McCarthy Swanson	John M. Vautier	Thelma J. Wigton
Janice A. Smith and David A. Smith	Julie F. Sweeney, Esquire, and Michael T. Sweeney, Esquire	John Vetere	Becky Wild and Thomas Wild
Dr. Jack D. Smith and Georgia M. Smith	Frank J. Swetlech	Lee A. Viard	Beth Wild
Thomas A. Smock	Sandrina K. Swider and Matthew G. Swider	Dario A. Vignali, PhD, and Kathleen Vignali	Jamie Wilen
Rebecca C. Snyder	Elaine M. Sylvester and Walter R. Sylvester Jr.	Susan J. Vines	Sheila Duignan and Michael I. Wilkins
Lee F. Snyder and Sally M. Snyder	Ida M. Tafel	Dolores Viverette and J. Franklin Viverette, MD	Jeanne M. Williams and Lawrence E. Williams
Sandy L. Snyder	Valerie Tatalovich and Wayne N. Tatalovich	Gerard Vockley, MD, PhD	Pamala A. Ferron, MD, and Barth L. Wilsey, MD
Patricia S. Snyder and William I. Snyder	Cynthia A. Tatar and Barry S. Tatar, MD	Sharon L. Volpatt and Raymond A. Volpatt Sr.	Kathleen C. Wilson and James A. Wilson, MD
Jane Spangler	Douglas B. Taylor	Sandra M. Volpe	Leticia Wincko and Jeffrey T. Wincko, MD
Sheryl B. Wein and Jeffrey W. Spear, Esquire	Jonnie Lynn Tedrow	Virginia M. Balderston, MD, and Theodore Vuchinich III, MD	Barbara H. Winslow
Catherine Specter	Lisa Teel and Larry Teel	Nancy A. Wagner and The Honorable Jack Wagner	Linda Winter and Robert R. Winter
James Spencer, Esquire	*Esther F. Teplitz, MD	Anne M. Walsh and Christopher J. Walsh, MD	Susan E. Wisneski and John T. Wisneski Jr., MD
		Deborah A. Walsh	Thomas Witomski, MD
		Edward H. Walter	Lois E. Wolfanger
			Sally and Craig Wolfanger
			Pattie C. Woo and Savio L. Y. Woo, PhD, DSC



Kurt Weiss, MD, cancer survivor and researcher, friend of the Hardesty and Garcia families, and grateful recipient of their support for his sarcoma research

PROFILE: JOHN GARCIA & JOHN HARDESTY

## An Inspiring, Grateful Reunion

W

hen John Garcia was a student at West Virginia University, he decided to look for a summer job. John Hardesty hired him to work over the summers, and it was the beginning of a decades-long friendship. Over the years, Mr. Garcia would eat meals, go on vacations, and spend holidays with the Hardestys, who welcomed him as a member of the family. Mr. Garcia got to know Mr. Hardesty's son, Johnny, very well.

In 1998, Johnny was a student at the University of Georgia when Mr. Hardesty received a call from the university's clinic with a message to pick up Johnny right away. What Johnny suspected was only a sore leg from playing touch football was actually something more serious. A quick visit to a physician in Morgantown confirmed a grim diagnosis.

"Johnny was diagnosed with osteogenic sarcoma, a cancer that begins in the bones," said Mr. Hardesty. "The doctor told me my son was probably not going to live. That's when I said, 'Well, that's bullshit.'"

Mr. Hardesty sought recommendations to get the best care for Johnny and ended up taking him to Shadyside Hospital (now UPMC Shadyside). During Johnny's time in the hospital, the Hardestys were befriended by the Weisses, another family whose son, Kurt, also had osteogenic sarcoma as a teenager. Kurt and Johnny endured similar chemotherapy, operations, and leg amputations, and their parents bonded over their sons' diagnoses and treatments.

"Mary Anne, my wife, and Mrs. Weiss went through many of the same sufferings together," says Mr. Hardesty.

Kurt eventually received treatment in a clinical trial that put his cancer into remission. After numerous attempts at treatment, Johnny went home to Morgantown. One of the last times he left his bed was to go downstairs and visit with Mr. Garcia and his family. About two and a half years after his diagnosis, Johnny died.

"To watch that young man and what he went through in those years—he never lost faith, never lost his sense of humor," says Mr. Garcia. "His strength was just incredible."

So, years later, when Mr. Garcia was on a fishing trip and heard of an orthopaedic cancer physician at the University of Pittsburgh with a story just like Johnny's, he told Mr. Hardesty, who realized the physician was Kurt Weiss, and a reunion was set in motion through mutual acquaintances. Kurt Weiss, MD, associate professor of orthopaedic surgery, welcomed the Hardestys and the Garcias to his Pitt lab to reconnect with his parents and to show them his transformation from bone cancer survivor to surgeon and cancer researcher, codirecting the Department of Orthopaedic Surgery's Musculoskeletal Oncology Laboratory, dedicated to the study of bone and soft tissue tumors.

"Kurt brought us up to speed on his research," says Mr. Garcia. "The question still looms: How does that cancer metastasize from bone to the lung or other parts of the body? He seems to be making headway on that."

Mr. Hardesty credits Mr. Garcia with coming up with the idea for them to create the Osteosarcoma Research Fund in Johnny's memory to support Dr. Weiss' research. The fund has been essential for Dr. Weiss' lab, which he codirects with Rebecca Watters, PhD, assistant professor of orthopaedic surgery.

"Dr. Watters and I had originally planned to save this donation for a rainy day," says Dr. Weiss. "Well, that was before COVID-19, and now it's raining! The pandemic has been difficult for everyone, and scientists are no exception. Thanks to the Hardesty and Garcia families, we have been able to keep the lights on in the lab. We are grateful beyond words for their friendship, kindness, and generosity."

"My wife, Cathy, and I are truly grateful for the physicians and care we have received at the University of Pittsburgh and UPMC over the years," says Mr. Garcia. "We have a great deal of appreciation for their work. It was great for me to see Dr. Weiss' research facility. When you walk through that lab and see what they're doing, you want them to have the best and be the best. That's what motivates us to help with these programs. Dr. Weiss is a special guy, and his staff truly reflect his passion. In my mind, it is not a coincidence that a conversation on a fishing trip with my friend Ken Marino regarding Dr. Weiss and Johnny reunited the families after all these years."

"We're praying that Dr. Weiss can find a cure for osteogenic sarcoma," says Mr. Hardesty. "Kurt has dedicated a significant amount of his life and time to doing research on a cancer that he and my son both went through. We're glad to be a part of supporting research." ●



\*Dana C. Wood  
 Sarah S. Woodings and Robert T. Woodings III, Esquire  
 Shailen G. Woods, MD, and Barrett I. Woods, MD  
 Anne R. Woods and William A. Woods, MD  
 Patricia Kolling and Mark E. Worshtil, MD  
 \*Leo Yakutis Sr.  
 Linda Darby Yankes and Joseph Robert Yankes Jr., MD  
 Dr. Betty Yao  
 Stephen D. Yarabinetz and Elaine A. Yarabinetz  
 Stephanie A. Yoder and Bradley A. Yoder, MD  
 Marlene E. Yokim and John A. Yokim  
 Scott Drabert and Stephen L. Yoset  
 Kathleen J. Yost and Richard O. Yost, MD  
 Betty Lou Yount Trust  
 Jian-Min Yuan, MD, PhD  
 Christopher Yunkun and Dawn Yunkun  
 Kimberly S. YunKun  
 Fr. Kenneth Zaccagnini  
 Anne Zacharias and Sam S. Zacharias, Trustee  
 Ornella Pagliano and Hassane M. Zarour, MD  
 Cristi G. Zavatsky and Joseph M. Zavatsky, MD  
 Jonathan Zdziarski  
 C. James Zeszutek  
 JingJing Zhang, MD  
 Dandan Zheng  
 Anton and Janet Zidansek  
 Basil J. Zitelli, MD, and Suzanne D. Zitelli  
 Kathleen Zoldos and Jozef F. Zoldos, MD  
 Brian S. Zuckerbraun, MD, and Noel S. Zuckerbraun, MD, MPH

**ORGANIZATIONS**

1994 Steel Factory Corporation  
 84 Lumber Company  
 A Breath of Hope Lung Foundation  
 A Glimmer of Hope Foundation  
 AACN Foundation  
 AbbVie Inc.  
 Accelaron Pharma  
 Acorda Therapeutics  
 Aesthetic Plastic Surgery of Pittsburgh  
 AGA Research Foundation  
 AI Solutions Inc.  
 AIM at Melanoma Foundation  
 Alliance for Cancer Gene Therapy  
 Alphabet City Management Co.  
 ALS Association  
 Alzheimer's Association  
 American Academy of Child & Adolescent Psychiatry  
 American Academy of Otolaryngology-Head and Neck Surgery  
 American Association for Cancer Research  
 American Association for the Study of Liver Diseases  
 American Association of Immunologists  
 American Cancer Society Inc.  
 American College of Medical Toxicology  
 American Diabetes Association  
 American Foundation for Suicide Prevention  
 American Foundation for Surgery of the Hand  
 American Heart Association Inc.  
 American Lung Association  
 American Orthopaedic Foot & Ankle Society  
 The American Orthopaedic Society for Sports Medicine  
 American Parkinson Disease Association Inc.  
 American Sleep Medicine Foundation  
 American Society for Pharmacology and Experimental Therapeutics  
 American Society of Hematology  
 American Society of Nephrology  
 American Textile Company  
 American Venous Forum Foundation  
 Amgen USA  
 The Ann & Frank Cahouet Foundation

AOTrauma North America  
 ArtSci Health Solutions  
 Asia Carpet & Decorating Co.  
 Assist America Inc.  
 Associazione Italiana per la Ricerca sul Cancro  
 AstraZeneca Pharmaceuticals LP  
 The Audrey Hillman Fisher Foundation  
 Aura R. Hulme Irrevocable Trust  
 Autism Speaks Inc.  
 AVI Foodsystems Inc.  
 Awesome Events  
 The Ayco Charitable Foundation  
 Bakery Square Holdings LP  
 Bakery Square & Walnut Capital  
 Bayer  
 The Breast Cancer Research Foundation  
 Bellator Sport Worldwide LLC  
 The Benevity Community Impact Fund  
 Margaret J. Biddle Charitable Trust  
 Big Burrito Restaurant Group  
 Bill & Melinda Gates Foundation  
 Binational Science Foundation  
 The Birmingham Foundation  
 Bishop McCort High School  
 BNY Mellon Foundation of Southwestern Pennsylvania  
 Boston Scientific Cardiac Rhythm Management  
 Bowser Automotive Inc.  
 Brain Cancer Awareness 5K, Limited  
 Breast Cancer Alliance  
 Bristol-Myers Squibb Company  
 Brooke High School  
 BRP US Inc.  
 Bruce E. Dice & Associates PC  
 Buchanan Ingersoll & Rooney PC  
 Buckeye Partners LP  
 The Buncher Company  
 The Jack Buncher Foundation  
 The Burroughs Wellcome Fund  
 Bye Bye Birdies  
 Byham Charitable Foundation  
 C.F. Roe Slade Foundation  
 Cabaniss, Johnston, Gardner, Dumas & O'Neal LLP  
 Camelot Communications Group Incorporated  
 Cancer Data Initiative  
 Carnegie Mellon University  
 Catholic Diocese of Wichita  
 Celgene Corporation

Centre for Neuro Skills Inc.– Bakersfield  
 CERTIFY Global Inc.  
 CET Training LLC  
 Charles E. Kaufman Foundation  
 Charles F. Spang Foundation  
 Chartwell Pennsylvania LP  
 Children's Hospital of Pittsburgh Foundation  
 Chronic Obstructive Pulmonary Disease Foundation Inc.  
 ChronoTrack Systems Corp  
 Chubb Charitable Foundation  
 Chuck Noll Foundation for Brain Injury Research  
 Citizens United for Research in Epilepsy  
 Clark Patterson Lee  
 Clear Thoughts Foundation  
 Cleveland Brothers Equipment Co. Inc.  
 Clyde & Co  
 CNX Resources Corporation  
 Coherus Biosciences Inc.  
 Committee to Elect Wayne Fontana  
 Community Foundation of Western PA & Eastern OH  
 Community Liver Alliance  
 Comptec Inc.  
 Conquer Cancer Foundation of the American Society of Clinical Oncology  
 Consult USA  
 Conti Family Foundation  
 Cosmich, Simmons & Brown PLLC  
 Cost Company  
 CPL Architects & Engineers  
 Crawford Consulting Services  
 Crohn's and Colitis Foundation of America  
 CSN Group LLC  
 Cystic Fibrosis Foundation  
 Cystic Fibrosis Foundation Therapeutics Incorporated  
 Cystinosis Research Foundation  
 Damon Runyon Cancer Research Foundation  
 Dana C. Wood Revocable Trust  
 Daniel and Glenda Root Family Foundation  
 Darger Errante Yavitz & Blau LLP  
 Dealers Auto Auction of the Rockies  
 Deborah A. Walsh Trust  
 DeHay & Elliston LLP  
 Deloitte  
 Dempsey Construction Inc.

Deno F. Barsotti Family Fund	Gailliot Family Foundation	The Institute for Transfusion Medicine	Malady & Wooten Inc.
Dermatology Foundation	Gallagher Bassett Service Inc.	Jacobs & Wallace PLLC	Marbury Group
Design Alliance	GE Foundation	Jacqueline E. Bayley Foundation	Margaret Hardy Trust
Dialysis Clinic Inc.	Genentech USA	James B. Tafel Trust	Margaret L. Stevens Foundation
The Walt Disney Company Foundation	Genzyme Corporation	Jane and Tom Tang Foundation for Education	Mark Foundation for Cancer Research
Dollar Bank Foundation	Gertrude Blumenschein CRUT	Janssen Biotech Inc.	Markovitz Family Trust
Donegal Insurance Group	Gertrude E. Hellerman Charitable Trust Fund	Jenmar Corporation	The Marstine Family Foundation
Dorothy L. Lappin Foundation	GIST Cancer Research Fund	Jewish Federation of Greater Pittsburgh	Mascari Warner Dinh Architects
Dorsey & Whitney LLP	The Gloria and Thomas R. Kitchen Memorial Foundation	Jewish Healthcare Foundation	Mascaro Construction Company LP
Doyle for Congress Committee	Goldman Sachs & Company	JG Direct Mail Marketing Inc.	Massaro Corporation
Dr. Gordon J. Vanscoy CLAT TR	Gordon & Rees Scully Mansukhani	John A Nigro Inc DBA C S Kim Karate Foundation	McElhattan Foundation
Drinker Biddle & Reath LLP	Greater Horizons	John G. Rangos Sr. Family Charitable Foundation	McGivney Kluger & Cook PC
DSF Charitable Foundation	Greenfish Marketing LLC DBA Wild West Bass Trail	John H. Jr. and Kathleen J. Pelusi Family Foundation	The McKamish Family
Easley & Rivers Inc.	Grey NY	John Nesbit Rees and Sarah Henne Rees Charitable Foundation	Medtronic Inc.
The Raymond and Elizabeth Bloch Foundation	Griifols	Joseph M. Spirer Charitable Lead Unitrust	MehaffyWeber PC
Elizabeth Equipment Services LLC	Harold D Thomas Jr Living Trust	JPT Architects PC	Melanoma Research Foundation
Elizabeth Louise Glasgow Foundation	HDJ & Associates Inc.	Just Pour It LLC	Memory Finders
Emelie Renziehausen Trust	Head For The Cure Foundation	Juvenile Diabetes Research Foundation	Mendel E. & Sylvia G. Solomon Charitable Trust
Emma Clyde Hodge Memorial Fund	Helen Mendel Survivors Trust	K & I Sheet Metal Inc.	The Merck Foundation
Endocrine Society	Hemophilia Center of Western Pennsylvania	Katherina A. Miller Trust	Mesothelioma Applied Research Foundation
Equitrans Midstream Foundation	Henderson Brothers Incorporated	The Mary Kay Foundation	Michael Mosier Defeat DIPG Foundation
Ernst & Young	Henry Clay Frick Rodgers Trust	KCIC LLC In Escrow for Dana Companies LLC	Microsoft Corporation
Ernst & Young Foundation	Henry L. Hillman Foundation	Kelly Family Foundation	Microvascular Therapeutics LLC
The Ethel Vincent Charitable Trust	Heritage Valley Medical Group-31	Kenmawr Real Estate Investments LP	Mid Atlantic Capital Corporation
Eugene J. Klein and Ruth A. Klein Charitable Remainder Trust	Highmark	Kenneth Rainin Foundation	The Milbank Foundation
Extracorporeal Life Support Organization	The Hillman Company	The Klingenstein Third Generation Foundation	Miscellaneous Anonymous Donor
ExxonMobil Foundation	The Hinchman Foundation	Knights Templar Eye Foundation Inc.	Montour School District
Eye & Ear Foundation	Hirshberg Foundation for Pancreatic Cancer Research	Koncept Inc.	Morby Family Charitable Foundation Inc.
Farrell Family Charitable Foundation established by Michael J. Farrell	Hoff Enterprises Inc.	Koppers Inc.	Morgan Stanley Global Impact Funding Trust
Federated Investors Inc.	Holman Webb Lawyers Adelaide	Kosanovich Revocable Living Trust	Mount Lebanon Travel Hockey Association
Fidelity Charitable Gift Fund	Homestead District Lion Club	Kurt J. Lesker Company	Muscular Dystrophy Association Inc.
The Fine Foundation	Howard Hanna Company	The Kurtz Family Foundation	The Nancy Taylor Foundation for Chronic Diseases Inc.
First National Bank of Pennsylvania	Hunter Legacy Family Foundation	Kyowa Kirin Inc.	NARSAD Research Institute Inc.
Flaherty & O'Hara PC	The Huntington National Bank	The Laerdal Foundation for Acute Medicine	National Eczema Association
Flight Attendant Medical Research Institute	Husch Blackwell LLP	Latrobe Specialty Metals	National Organization for Rare Disorders
Fondation Leducq	IBM Employee Services Center	Laurel Mountain Production LLC	National Philanthropic Trust
Foundation Fighting Blindness	Image Associates Inc.	Leech Carbide	National PKU Alliance
Foundation for Physical Medicine and Rehabilitation	Immunomedics	Life Sciences Research Foundation	National Psoriasis Foundation Inc.
Michael J. Fox Foundation for Parkinson's Research	Incyte Corporation	Lilly Oncology	NBBJ
Francis Family Foundation	Innovative Municipal Products (US) Inc.	Lodi Bass Team	NCMIC Foundation
Franco Associates LP	International Anesthesia Research Society	Lostritto Family Foundation	New Era Cap Foundation
Frank Calandra Inc.	International OCD Foundation	Louis and Sandra Berkman Foundation	The New York Community Trust
Friends of Susan Merison	Interstitial Cystitis Association of America Inc.	Love Family Foundation Inc.	New York State Amateur Hockey Association Inc.
Fritz N. Schneider Revocable Trust	Involta LLC	Lumbar Spine Research Society	Nhk Japan Broadcasting Corp.
Frontstream	ITW Foundation	Lupus Research Alliance	Nokia
The Fund for Charitable Giving		MacLachlan, Cornelius & Filoni Inc.	
The Futrell Foundation			

Normandy Industries Inc.	Robert Wood Johnson Foundation	Sun Pharmaceutical Industries Inc.	UPMC
NSABP Foundation Inc.	Roesch Family Charitable Trust	Susan G. Komen for the Cure	UPMC Enterprises
One Hope Foundation	Romie Lane Pet Hospital	System One Holdings LLC	UPMC Pinnacle
One Mind for Research	Rotary Club of Monroeville	Team Beans LLC	UPMC Centers for Rehab Services
Orthopaedic Research and Education Foundation	Rucker Family Charitable Trust	Team Danielle	Urology Care Foundation
O'Toole Scrivo Fernandez Weiner Van Lieu LLC	Russo's Marina Inc.	Tesaro	Usher 1F Collaborative Inc.
Oxford Development Company	The Ruttenberg Family	The Bruce & Barbara Wiegand Family Foundation	Vanguard Charitable
P. J. Dick Incorporated	S&T Bank	The Cambia Health Foundation	Vascular Cures
PAA Foundation	S. Reed Family Charitable Foundation	The ChadTough Foundation	Vasculitis Foundation
PACSI Syndrome Research Foundation	Saiseikai Takaoka Hospital	The Cleveland Foundation	Vautier Communications Inc.
Parkinson's Disease Foundation	Salinas Police Officer Association	The CM Group	Verastem Oncology
Pennsylvania Breast Cancer Coalition	Samuel and Emma Winters Foundation	The Community Foundation of Harrisonburg and Rockingham County	Vertical Solutions Inc.
People-Centered Research Foundation	Sarcoma Foundation of America Inc.	The Design Alliance Architects	VitalTalk
Pharmacyclics LLC	Schwab Charitable Fund	The Doug and Carol Goin Family Foundation	Volpatt Construction Corporation
Philip V. & Anna S. Brown Foundation	Scleroderma Foundation	The Giorgio Foundation	von Briesen & Roper, s.c.
PhRMA Foundation	Searle Scholars Program	The Karp Family Foundation	Vorys Sater Seymour & Pease LLP
Pirates Charities	Serving Other Souls	The Legacy of Angels Foundation	W. L. Gore & Associates Inc.
Pittsburgh Amateur Hockey League	Shady Lady Studio LTD	The Leigh Tison Charitable Trust	Wabtec Corporation
Pittsburgh Emergency Medicine Foundation	ShellyLyons Public Affairs & Communications	The Leo And Anne Albert Charitable Trust	Wabtec Foundation
Pittsburgh Magazine	Shirley Hobbs Martin Memorial Fund	The Pittsburgh Foundation	Walnut Capital Management
Pittsburgh Penguins	Shirlie and Owen Siegel Foundation	The T. Rowe Price Program for Charitable Giving	Watson Chevrolet
Pittsburgh Penguins Foundation	The Juliet Lea Hillman Simonds Foundation Inc.	The U.S. Charitable Gift Trust	Watters' Enterprises Inc.
Pittsburgh Pirates	Simons Foundation	Thompson Hine LLP	Wayne Fusaro Pancreatic Cancer Research Fund
Pittsburgh Post-Gazette	Sinars Slowikowski Tomaska LLC	Thompson Public School District No. 61	Western Pennsylvania School for the Deaf
Pittsburgh Steelers LLC	Mark Sindler Law	The Thoracic Surgery Foundation for Research & Education	Westmoreland ICS LLC
Plastic Surgery Foundation	Slagle Family Foundation	TIAA Charitable Inc.	Wheeler Family Charitable Foundation
PMCenters USA & Consult USA	Smail Auto Group	Tina's Wish	Whitehall Foundation Incorporated
PNC Charitable Trust	Smith & Nephew Inc.	The Tippins Foundation	The Whiting-Turner Contracting Company
PNC Financial Services Group Incorporated	Snyder Associated Companies Inc.	Titusville Elks Lodge No. 264 of the Benevolent & Protective Order of Elks of the USA	WiesnerMedia LLC
Pond North LLP	The William I. and Patricia S. Snyder Foundation	Tom W. Olofson Family Foundation	William C. Alexander & Company
PricewaterhouseCoopers LLP	The Society for the Psychological Study of Social Issues	Toyama Prefectural Central Hospital	The Woiner Foundation
Promobilia Foundation	Society for Vascular Surgery	TriState Capital Bank	Woodings Industrial Corporation
Pulmonary Fibrosis Foundation	Solot and Karp Family Foundation	The Trivedi Family Foundation	Worrell Corporation
Pyrotechnic Management Inc.	The Frank E. Rath Spang & Company Charitable Trust	Truck Insurance Exchange	Wyoming Way LLC DBA Coughlin's Law
R & D Watters Septic Service Inc.	Specter Perpetual Charitable Trust	Tucker Ellis LLP	XVIVO Perfusion
R. P. Simmons Family Foundation	Squire Patton Boggs (US) LLP	Turfenders Inc.	Youman & Caputo LLC
Raymond James Charitable	St. Clair Hospital	UBS Donor Advised Fund	YourCause LLC
RCG Fight Management	St. John's Lutheran Church Sunday School	United Initiative to Cure Brain Cancer Foundation	The E. Matilda Ziegler Foundation
Reinecke Family Charitable Foundation	Stanley M. Marks Blood Cancer Research Fund	United Way of Greater Atlanta	The Zoll Foundation
Renaissance Charitable Foundation Inc.	The Stanley Medical Research Institute	United Way of Greater Philadelphia and Southern New Jersey	
RenovaCare Inc.	Steelers Charities	United Way of Southwestern Pennsylvania	
Research to Prevent Blindness	Stephen & Julia Harmelin Family Foundation	United Way of the Capital Region	
Rheumatology Research Foundation	The Stephen A. Cullinan Trust Agreement		
Ri.MED Foundation			
Richard King Mellon Foundation			
Rizza Engineering Inc.			
RM Creative			
Robert I. Glimcher Family Foundation			

Every effort has been made to ensure the accuracy of these records. Any errors or omissions may be brought to the attention of the University of Pittsburgh Philanthropic and Alumni Engagement's Donor Relations and Stewardship: 412-624-8247 or rebecca.fink@pitt.edu

**DEANS**

SENIOR VICE CHANCELLOR FOR THE HEALTH  
SCIENCES AND JOHN AND GERTRUDE PETERSEN  
DEAN OF MEDICINE: Anantha Shekhar, MD, PhD  
VICE DEAN: Ann E. Thompson, MD, MCCM

**ASSOCIATE DEANS**

Academic Affairs—Saleem Khan, PhD  
Admissions and Financial Aid—Beth M. Piraino, MD  
Continuing Medical Education—Barbara E.  
Barnes, MD, MS  
Diversity, Equity, and Inclusion and Student Affairs —  
Chenits Pettigrew, EdD  
Faculty Affairs—Joseph E. Losee, MD  
Faculty Development—Ora A. Weisz, PhD  
Global Health Education and Medical Student  
Research—Peter J. Veldkamp, MD, MS  
Graduate Medical Education—Gregory M. Bump, MD  
Graduate Studies—John P. Horn, PhD  
Learning Environment — Evelyn C. Reis, MD  
Medical Education—Jason Rosenstock, MD  
Medical Scientist Training Program—  
Richard A. Steinman, MD, PhD  
Medical Student Research—Donald B. DeFranco, PhD  
Postdoctoral Affairs—Darlene F. Zellers, PhD  
Student Affairs—Alda Maria Gonzaga, MD, MS  
Women's Health Research and Reproductive  
Sciences — Yoel Sadovsky, MD

**ASSISTANT DEANS**

Admissions—Kanchan H. Rao, MD  
Clinical Education — Raquel A. Buranosky, MD, MPH  
Human-Based Simulation Education —  
Reed Van Deusen, MD, MS  
Learning Environment — Wendy Mars, PhD  
Medical Education—Cynthia Lance-Jones, PhD  
Medical Education Technology—James B.  
McGee, MD  
Medical Scientist Training Program—  
JoAnne L. Flynn, PhD;  
Satdarshan S. (Paul) Monga, MD  
Medical Student Research—  
Judy C. Chang, MD, MPH; Brad Dicianno,  
MD, MS; John R. Fowler Jr., MD; Janel  
Hanmer, MD, PhD; Rebecca P. Hughey, PhD;  
Cynthia Lance-Jones, PhD  
Veterans Affairs—Ali F. Sonel, MD

**INSTITUTES AND CENTERS****AGING INSTITUTE**

DIRECTOR: Toren Finkel, MD, PhD

**BRAIN INSTITUTE**

SCIENTIFIC DIRECTOR: Peter L. Strick, PhD  
EXECUTIVE DIRECTOR: Arthur S. Levine, MD

**CENTER FOR MILITARY MEDICINE RESEARCH**

DIRECTOR: Ronald K. Poropatich, MD

**CENTER FOR VACCINE RESEARCH**

DIRECTOR: W. Paul Duprex, PhD

**CLINICAL AND TRANSLATIONAL  
SCIENCE INSTITUTE**

DIRECTOR: Steven E. Reis, MD

**DRUG DISCOVERY INSTITUTE**

DIRECTOR: D. Lansing Taylor, PhD

**INSTITUTE FOR CLINICAL  
RESEARCH EDUCATION**

DIRECTOR: Doris Rubio, PhD

**INSTITUTE FOR PRECISION MEDICINE**

DIRECTOR: Adrian Lee, PhD

**MAGEE-WOMENS RESEARCH INSTITUTE**

DIRECTOR: Yoel Sadovsky, MD

**McGOWAN INSTITUTE FOR  
REGENERATIVE MEDICINE**

DIRECTOR: William R. Wagner, PhD

**PITTSBURGH INSTITUTE FOR  
NEURODEGENERATIVE DISEASES**

DIRECTOR: J. Timothy Greenamyre, MD, PhD

**THOMAS E. STARZL TRANSPLANTATION INSTITUTE**

SCIENTIFIC DIRECTOR: Fadi G. Lakkis, MD

**UPMC HILLMAN CANCER CENTER**

DIRECTOR: Robert L. Ferris, MD, PhD

**VASCULAR MEDICINE INSTITUTE**

DIRECTOR: Stephen Chan, MD, PhD

**DEPARTMENTS****DEPARTMENT OF ANESTHESIOLOGY  
AND PERIOPERATIVE MEDICINE**

CHAIR: Aman Mahajan, MD, PhD, MBA  
EXECUTIVE VICE CHAIR: Mark E. Hudson, MD, MBA

**VICE CHAIRS:**

Basic Science—Yan Xu, PhD  
Clinical Operations—Mark E. Hudson, MD, MBA  
Clinical Research—Jonathan H. Waters, MD  
Faculty Affairs and Education —David Metro, MD  
Pain Medicine—Ajay D. Wasan, MD, MSc  
Professional Development —  
Tetsuro Sakai, MD, PhD, MHA

**DEPARTMENT OF BIOMEDICAL INFORMATICS**

CHAIR: Michael J. Becich, MD, PhD  
VICE CHAIR: Gregory F. Cooper, MD, PhD

**DEPARTMENT OF CARDIOTHORACIC SURGERY**

CHAIR: James D. Luketich, MD

**VICE CHAIRS:**

Benign Lung Diseases — Pablo Sanchez, MD, PhD  
Cardiovascular Services—Victor O. Morell, MD  
Clinical Affairs—Inderpal Sarkaria, MD

**DEPARTMENT OF CELL BIOLOGY**

CHAIR: Alexander D. Sorkin, PhD  
VICE CHAIR: Simon C. Watkins, PhD

**DEPARTMENT OF COMPUTATIONAL AND  
SYSTEMS BIOLOGY**

CHAIR: Ivet Bahar, PhD  
VICE CHAIRS:  
Educational Programs—James R. Faeder, PhD  
Faculty Affairs—Panayiotis V. (Takis) Benos, PhD

**DEPARTMENT OF CRITICAL CARE MEDICINE**

CHAIR: Derek C. Angus, MD, MPH  
EXECUTIVE VICE CHAIR: Rachel Sackrowitz, MD, MBA

**VICE CHAIRS:**

Academic Affairs—Jeremy M. Kahn, MD, MS  
Clinical Affairs and Quality Improvement —  
Scott Gunn, MD  
Education—Lori Shutter, MD  
Faculty Development—Douglas White, MD, MAS  
Pediatric Critical Care — Robert Clark, MD  
Research—John Kellum, MD  
Resuscitation Research—Patrick Kochanek, MD  
VICE CHAIR—Sachin Yende, MD, MS  
VICE CHAIR EMERITUS—Michael Pinsky, MD

---

**DEPARTMENT OF DERMATOLOGY**

CHAIR: Louis D. Faló Jr., MD, PhD

**DEPARTMENT OF DEVELOPMENTAL BIOLOGY**

CHAIR: Cecilia Lo, PhD

VICE CHAIR: Neil Hukriede, PhD

**DEPARTMENT OF EMERGENCY MEDICINE**

CHAIR: Donald M. Yealy, MD

**EXECUTIVE VICE CHAIRS:**

Clifton W. Callaway, MD, PhD

Community Emergency Medicine—

Richard J. Wadas, MD

**VICE CHAIRS:**

Clinical Operations—Charissa B. Pacella, MD

Community Clinical Operations—

Marek A. Radomski, DO

Compliance and Medical Documentation —

F. Richard Heath, MD

Education—Allan B. Wolfson, MD

Patient Safety and Quality—Paul E. Phrampus, MD

**DEPARTMENT OF FAMILY MEDICINE**

INTERIM CHAIR: Marshall W. Webster, MD

EXECUTIVE VICE CHAIR: Tracey Conti, MD

**DEPARTMENT OF IMMUNOLOGY**

CHAIR: Mark J. Shlomchik, MD, PhD

VICE CHAIR: Dario A.A. Vignali, PhD

**DEPARTMENT OF MEDICINE**

CHAIR: Mark T. Gladwin, MD

**EXECUTIVE VICE CHAIRS:**

Academic Affairs—Christopher O'Donnell, PhD

Clinical Affairs—Michael Donahoe, MD

**VICE CHAIRS:**

Clinical Research—Oliver Eickelberg, MD

Diversity and Inclusion — Naudia Jonassaint, MD, MHS

Education—Melissa A. McNeil, MD, MPH

Faculty Development—Ora A. Weisz, PhD

Veterans Affairs—Patrick J. Strollo Jr., MD

**DEPARTMENT OF MICROBIOLOGY  
AND MOLECULAR GENETICS**

CHAIR: Thomas E. Smithgall, PhD

**DEPARTMENT OF NEUROBIOLOGY**

CHAIR: Peter L. Strick, PhD

**DEPARTMENT OF NEUROLOGICAL SURGERY**

CHAIR: Robert M. Friedlander, MD, MA

EXECUTIVE VICE CHAIR: Surgical Services —

Paul Gardner, MD

**VICE CHAIRS:**

Academic Affairs—Ian F. Pollack, MD

Quality Improvement—Peter C. Gerszten, MD, MPH

Research—C. Edward Dixon, PhD

UPMC Central PA—Raymond Sekula, MD, MBA

UPMC Community Medicine—Joseph C. Maroon, MD

**DEPARTMENT OF NEUROLOGY**

INTERIM CHAIR: David A. Lewis, MD

INTERIM EXECUTIVE VICE CHAIR: Kenneth C. Nash, MD

**VICE CHAIRS:**

Academic Affairs—J. Timothy Greenamyre, MD, PhD

Education—Laurie Knepper, MD

Research—Steven H. Graham, MD, PhD

Safety and Quality — Partha Thirumala, MD

Veterans Affairs—Paula R. Clemens, MD

**DEPARTMENT OF OBSTETRICS, GYNECOLOGY,  
AND REPRODUCTIVE SCIENCES**

CHAIR: Robert P. Edwards, MD

**EXECUTIVE VICE CHAIR:**

Obstetrical Services—Hyagriv Simhan, MD

**VICE CHAIRS:**

Clinical Operations—John Fisch, MD

Community Practices—David Badway, MD

Diversity — Alexander Olawaiye, MD

Education—Gabriella Gosman, MD

Faculty Affairs—Sharon Hillier, PhD

Faculty Affairs — Isabelle Wilkins, MD

Gynecological Services—Harold Wiesenfeld, MD

Gynecologic Specialty Services and Referral

Physician Relations — John Comerchi, MD

Research—Yoel Sadovsky, MD

**DEPARTMENT OF OPHTHALMOLOGY**

CHAIR: José-Alain Sahel, MD

**EXECUTIVE VICE CHAIR:**

Global, Clinical, and International — Ken Nischal, MD

**VICE CHAIRS:**

Clinical Operations (including Quality and Clinical

Research) — Vishal Jhanji, MD

Digital Ophthalmology — Kunal Dansingani, MD

Education—Evan L. Waxman, MD, PhD

Inpatient Care—S. Tonya Stefko, MD

Patient Experience and Access—

Joseph Martel, MD, PHD

Research—Jeffrey Gross, PhD

**DEPARTMENT OF ORTHOPAEDIC SURGERY**

CHAIR: Freddie H. Fu, MD, DSci (Hon), DPs (Hon)

**EXECUTIVE VICE CHAIRS:**

Clinical Services—William Donaldson III, MD

**VICE CHAIRS:**

Clinical Outcomes Research—James Irrgang, PhD

Community Outreach—Mark E. Baratz, MD

Education—MaCalus Hogan, MD

Pediatric Orthopaedic Surgery—W. Timothy Ward, MD

Quality Management—Adolph Yates, MD

Translational Research — Kurt R. Weiss, MD

**DEPUTY VICE CHAIR:**

Orthopaedic Research—Nam Vo, PhD

**DEPARTMENT OF OTOLARYNGOLOGY**

CHAIR: Jonas T. Johnson, MD

**VICE CHAIRS:**

Clinical Operations—Eric Wang, MD

Education—Melonie Nance, MD

Quality and Patient Safety—

Carl H. Snyderman, MD, MBA

Research—Thanos Tzounopoulos, PhD

**DEPARTMENT OF PATHOLOGY**

CHAIR: George K. Michalopoulos, MD, PhD

**EXECUTIVE VICE CHAIRS:**

Anatomic Pathology—Samuel A. Yousem, MD

Laboratory Medicine—Alan Wells, MD, DMSc

**VICE CHAIRS:**

Entrepreneurial and International Affairs —

Rajiv Dhir, MD

Experimental Pathology —

Satdarshan S. (Paul) Monga, MD

Medical Education — Marie DeFrances, MD, PhD

Molecular and Genomic Pathology —

Yuri Nikiforov, MD, PhD

---

*Departments continued*

Departments continued

**DEPARTMENT OF PEDIATRICS**

CHAIR: Terence Dermody, MD

VICE CHAIRS:

Basic Research—Carl Bates, MD  
 Clinical Affairs—Jeffrey Rudolph, MD  
 Clinical Research—Alejandro Hoberman, MD  
 Diversity, Equity, and Inclusion — Loreta Matheo, MD  
 Education— Noel Zuckerbraun, MD  
 Faculty Development—Dena Hofkosh, MD, MEd  
 International Affairs—A. Kim Ritchey, MD

ASSOCIATE VICE CHAIRS:

Clinical Affairs — Gaurav Arora, MD  
 Diversity, Equity, and Inclusion —  
 Sylvia Owusu-Ansah, MD, MPH  
 Education — Sunder Sims-Lucas, PhD  
 Education — Arvind Srinath, MD, MS  
 Faculty Development — Erika Friebling, MD  
 Faculty Development — Rick Saladino, MD  
 Faculty Development — Melissa Tavarez, MD

**DEPARTMENT OF PHARMACOLOGY AND CHEMICAL BIOLOGY**

CHAIR: Bruce A. Freeman, PhD

VICE CHAIRS:

Academics—Sruti Shiva, PhD  
 Biotechnology Development—  
 Francisco J. Schopfer, PhD  
 Faculty Affairs—Michael J. Palladino, PhD  
 Graduate Education—Tija C. Jacob, PhD  
 Medical Education—Donald B. DeFranco, PhD  
 Precision and Translational Pharmacology—  
 Steffi Oesterreich, PhD  
 Research—Ferruccio Galbiati, PhD  
 Research Operations — Edwin S. Levitan, PhD

**DEPARTMENT OF PHYSICAL MEDICINE AND REHABILITATION**

CHAIR: Gwendolyn A. Sowa, MD, PhD

VICE CHAIRS:

Clinical Outcomes and Quality Care —  
 Amy Houtrow, MD, PhD, MPH  
 Faculty Development—Amy K. Wagner, MD  
 Medical Education—Wendy Helkowski, MD  
 Outpatient Services—Christopher Standaert, MD  
 Pediatric Rehabilitation Medicine—  
 Amy Houtrow, MD, PhD, MPH  
 Research—Brad Dicianno, MD  
 Strategic Planning and Development—  
 Michael Munin, MD

**DEPARTMENT OF PLASTIC SURGERY**

CHAIR: J. Peter Rubin, MD  
 EXECUTIVE VICE CHAIR: Joseph E. Losee, MD  
 VICE CHAIR: Research — Kacey G. Marra, PhD

**DEPARTMENT OF PSYCHIATRY**

CHAIR: David A. Lewis, MD  
 VICE CHAIR: Clinical Affairs—Kenneth C. Nash, MD

**DEPARTMENT OF RADIATION ONCOLOGY**

CHAIR: Joel S. Greenberger, MD

**DEPARTMENT OF RADIOLOGY**

CHAIR: Jules Sumkin, DO  
 EXECUTIVE VICE CHAIR: Mitchell Tublin, MD  
 VICE CHAIRS:  
 Clinical and Academic Affairs—Mitchell Tublin, MD  
 Clinical and Translational Imaging Research—  
 Ashok Panigrahy, MD  
 Community Radiology—Kevin Auerbach, MD  
 Education — Vikas Agarwal, MD  
 Faculty Affairs — Frank Lexa, MD, MBA  
 Quality Assurance and Strategic  
 Development—Margarita Zuley, MD

**DEPARTMENT OF STRUCTURAL BIOLOGY**

CHAIR: Angela Gronenborn, PhD

**DEPARTMENT OF SURGERY**

CHAIR: Timothy R. Billiar, MD  
 EXECUTIVE VICE CHAIR: Andrew B. Peitzman, MD  
 ASSOCIATE EXECUTIVE VICE CHAIR: Brian S. Zuckerbraun, MD  
 VICE CHAIRS:  
 Academic Training—Matthew R. Rosengart, MD, MPH  
 Clinical Services—Andrew B. Peitzman, MD  
 Diversity and Inclusion—Emilia J. Diego, MD  
 Graduate Medical Education—Kenneth K. W. Lee, MD  
 Quality Integration—Jennifer Holder-Murray, MD  
 Research (Faculty)—Michael T. Lotze, MD  
 Surgical Oncology Services—Amer H. Zureikat, MD

**DEPARTMENT OF UROLOGY**

CHAIR: Joel B. Nelson, MD

VICE CHAIRS:

Clinical Operations—Ronald M. Benoit, MD  
 Pediatric Urology—Glenn Cannon, MD  
 Vice Chair — Stephen V. Jackman, MD

**CREDITS**

This report was produced by the Office of Academic and Global Affairs, Health Sciences.

Margaret C. McDonald, PhD, MFA  
*Associate Vice Chancellor for Academic and Global Affairs*

Lisa Lorence  
*Director of Academic Programs*

**STAFF**

Michele Baum  
 Brandon Copp-Millward  
 Keith Gillogly, MA  
 Megan Hall, MPPM  
 Robert Mendelson  
 Maureen Passmore, MA, MFA  
 Teekie Smith, MSW  
 Cathy Steinitz  
 William Tanner

Special production assistance was provided by Jaime Doswell and Karen Steffey, Office of Faculty Affairs, School of Medicine, and Rebecca Fink, Philanthropic and Alumni Engagement, University of Pittsburgh.

University of Pittsburgh  
 School of Medicine  
 401 Alan Magee Scaife Hall  
 3550 Terrace Street  
 Pittsburgh, PA 15261

412-648-8975  
[www.medschool.pitt.edu](http://www.medschool.pitt.edu)

The University of Pittsburgh is an affirmative action, equal opportunity institution.

#### PHOTOGRAPHERS AND ILLUSTRATORS

John Altdorfer, page 46  
Francesco Ciccolella, pages IFC, 25, 37  
Ariella Coler-Reilly, page 10  
Ada daSilva, page 9  
Joshua Franzos, pages 8 (top), 24  
Alessandro Gottardo, page 15  
Klaus Kremmerz, cover  
Erica Lansner, pages 1 (right), 38  
Elan Mizrahi, page 3  
Aimee Obidzinski/University of Pittsburgh,  
pages 4–5, 21  
Rob Rogers, page 28  
Gabrielle Rovegno/The Washington Post, page 18  
Harriet Russell, pages 23, 33 (bottom right)  
Maria Zaikina, pages 27, 32, 35

#### OTHER IMAGES COURTESY OF:

Pages 1 (left), 13, 34: Getty Images  
Page 6, 8 (bottom): University of Pittsburgh  
Page 7: Boris Birmaher (left) and  
Timothy Girard (right)  
Page 10: Ariella Coler-Reilly, c.design  
Page 11: UPMC  
Page 16: Stephanie Varelas  
Page 17: Joe Murphy  
Page 22 (lower left): Julia Knight  
Page 22: Camille Davis (top left),  
Victoria Humphrey (top right)  
Page 26: NASA  
Page 31: Ivet Bahar  
Page 33 (top left and middle): Kacey Marra  
Page 36: Fadi Lakkis and Martin Oberbarnscheidt  
Page 43: John Tippins

Primary photography was taken prior to the pandemic. New photography was taken following mandatory physical-distancing and face-covering protocols.

Designed by Landesberg Design,  
Pittsburgh, Pa.

The report is printed on environmentally  
responsible, FSC Domtar Cougar paper.

Printing by RR Donnelley,  
Pittsburgh, Pa.

#### BOARD OF VISITORS (as of December 2020)

##### **Robert J. Alpern, MD**

*Ensign Professor of Medicine (Nephrology) and Professor of Cellular and Molecular Physiology, Yale School of Medicine*

##### **Jeffrey R. Balsler, MD, PhD**

*President and CEO, Vanderbilt University Medical Center  
Dean, Vanderbilt University School of Medicine*

##### **Edward J. Benz Jr., MD**

*President and Chief Executive Officer Emeritus, Dana-Farber Cancer Institute*

##### **Emery Neal Brown, MD, PhD**

*Edward Hood Taplin Professor of Medical Engineering, Institute for Medical Engineering and Science; Professor of Computational Neuroscience, Picower Institute for Learning and Memory, Department of Brain and Cognitive Sciences, Massachusetts Institute of Technology*

##### **Dennis S. Charney, MD**

*Anne and Joel Ehrenkranz Dean, Professor of Psychiatry, of Neuroscience, and of Pharmacological Sciences, Icahn School of Medicine at Mount Sinai; President for Academic Affairs, Mount Sinai Health System*

##### **Julie A. Freischlag, MD**

*Chief Executive Officer, Wake Forest Baptist Medical Center*

##### **J. Larry Jameson, MD, PhD**

*Executive Vice President, University of Pennsylvania for the Health System; Dean, Raymond and Ruth Perelman School of Medicine, University of Pennsylvania*

##### **Steven L. Kanter, MD**

*President and Chief Executive Officer, Association of Academic Health Centers*

##### **Mary E. Klotman, MD**

*Dean and Vice Chancellor for Health Affairs, and R. J. Reynolds Professor, Duke University*

##### **Vivian S. Lee, MD, PhD, MBA**

*President, Health Platforms, Verily Life Sciences*

##### **Lloyd B. Minor, MD**

*Carl and Elizabeth Naumann Dean, School of Medicine; Professor of Otolaryngology—Head and Neck Surgery, of Bioengineering, and of Neurobiology, Stanford University*

##### **Arthur H. Rubenstein, MBBCh**

*Professor of Medicine, Division of Endocrinology, Diabetes, and Metabolism, Raymond and Ruth Perelman School of Medicine, University of Pennsylvania*

##### **Jack D. Smith, MD**

*Director of Orthopedics, Excelsa Health; Chair, Excelsa Health Orthopedic Surgery*

##### **Allen M. Spiegel, MD**

*Dean Emeritus, Professor of Medicine, and Professor of Molecular Pharmacology, Albert Einstein College of Medicine*

**p.17**



**With the cancellation of most in-person events during the COVID-19 pandemic, the School of Medicine has reinvented how it celebrates its traditional milestone events.**