



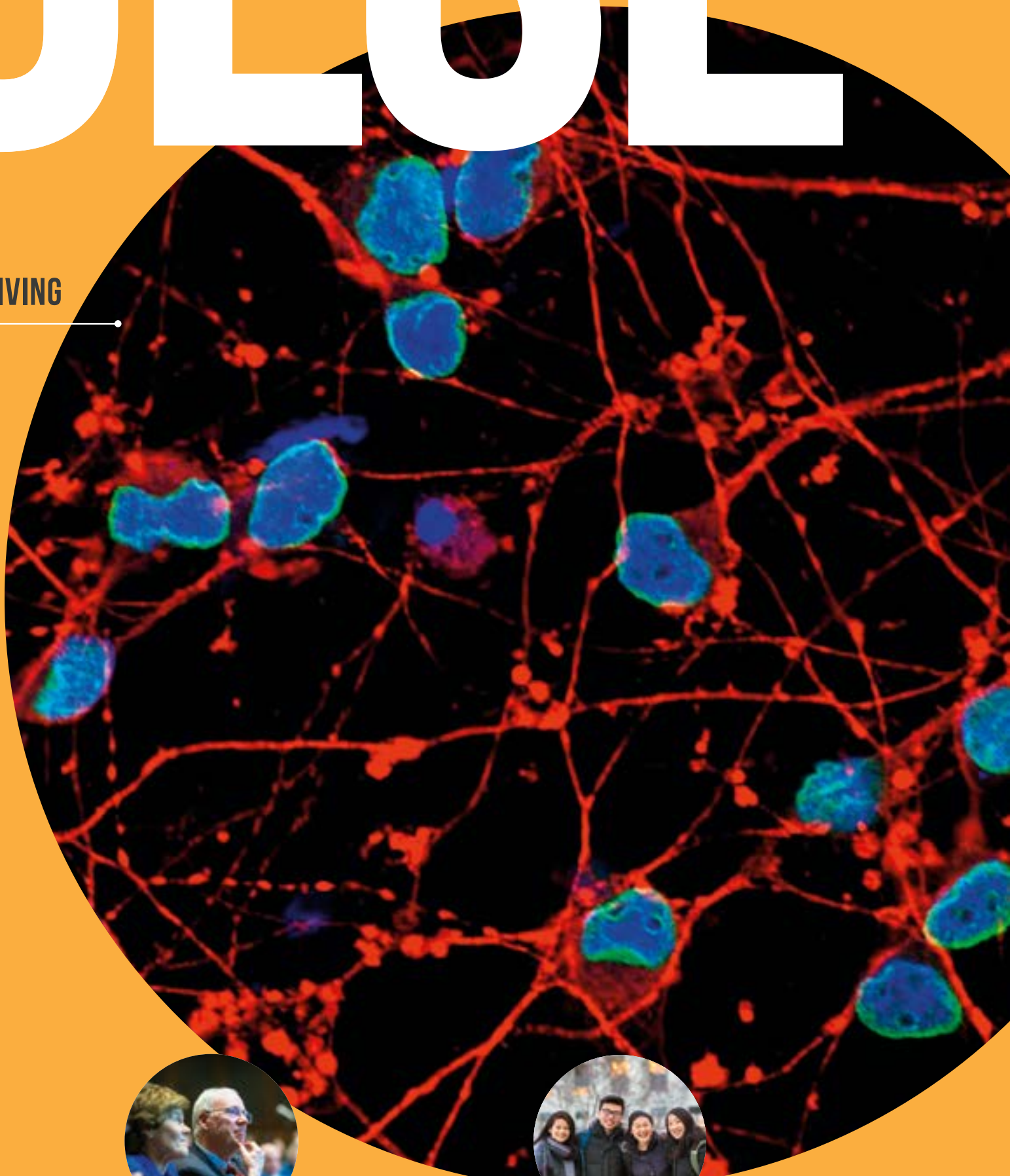
PULSE

FEATURED STORY

EXTENDING HEALTHY LIVING

The Glenn Center at Harvard continues its cutting-edge work on the biology of aging

20



LIFELONG DEDICATION

Power couple in science and medicine share their commitment to cell biology education and research

02



HONORING A PIONEER

Family, friends, and colleagues surprise Christopher T. Walsh with a professorship in his name

11



INVESTING IN THE NEXT GENERATION

Two philanthropic families hope to inspire students to become excellent caregivers and innovators

16

HMS CELL BIOLOGY PROFESSOR
FRED GOLDBERG AND HIS WIFE,
JOAN, A FORMER CLINICAL
INSTRUCTOR AT HMS



CUTTING-EDGE RESEARCH

LIFELONG DEDICATION

➔ Alfred “Fred” Goldberg and his wife, Joan, are a power couple in science and medicine. Since meeting 49 years ago in the Vanderbilt Hall cafeteria at Harvard Medical School (and marrying seven months later), they have dedicated their lives to advancing basic scientific knowledge, teaching, and improving patients’ lives.

Joan Goldberg, AB ’66, MD ’70, is a practicing hematologist at Harvard Vanguard, formerly Harvard Community Health Plan (HCHP), where she has been honored twice as an outstanding physician and received its Lifetime Achievement Award. She was medical director of the HIV Program at Harvard Vanguard for 25 years during the height of the AIDS epidemic, organized the Introduction to Clinical Medicine course at HCHP in the 1980s, and served until recently as a clinical instructor at HMS.

After attending HMS for two years, Fred Goldberg, AB ’63, PhD ’68, took a leave of absence—which he says has now lasted 53 years—to do research in physiology in Building C, where he went on to earn a PhD and still works today as a professor of cell biology in the Blavatnik Institute at HMS. He has mentored hundreds of students and postdoctoral fellows along the way and has received multiple honors for his research.

“Somehow I’ve gone from being the youngest member of the faculty to about the oldest one still running an active lab,” he says.

Fred’s research has focused on understanding why and how cells continually destroy their own proteins. Among his notable achievements, he first showed that cells selectively eliminate misfolded, potentially toxic proteins, and that this process involves novel biochemical mechanisms.

Together with his colleagues, Fred also demonstrated the existence of the proteasome, the major site in the cell for destroying proteins. They then developed proteasome-inhibiting compounds, which have been used by thousands of researchers worldwide to glean their own insights into the central role of the proteasome pathway in different biological processes, from muscle atrophy to immune recognition to cancer.

Based on these insights, Fred cofounded the company that developed the proteasome inhibitor bortezomib, now a front-line drug that has extended the lives of hundreds of thousands of patients with the blood cancer multiple myeloma.

**“SINCE I WAS A STUDENT,
HARVARD MEDICAL SCHOOL
HAS LET ME PURSUE MY
UNUSUAL INTERESTS FREELY.”**

FRED GOLDBERG

“This has been a very stimulating environment to work in,” says Fred. “Since I was a student, Harvard Medical School has let me pursue my unusual interests freely.” Joan adds, “I’ve always had a relationship with the medical school even though I’ve been in clinical practice instead of academia. Harvard has had an important influence on my life.”

Now, the couple are showing their gratitude and sharing their commitment to education and research by giving \$4.5 million to establish the Cell

Biology Education and Fellowship Fund at HMS. The fund will support outstanding postdoctoral fellows, enabling them to advance their research, and will also underwrite lectures and symposia on major developments in cell biology and related areas of physiology and medicine.

For Fred, the Department of Cell Biology, which was formed through the merger of the departments of physiology and anatomy, has been a particularly congenial, innovative, and exciting place for him to be.

“Joan and I are now financially comfortable in a way we never anticipated, so we wanted to share these benefits. Basic research and scientific education have been the focus of my professional life, and our department at HMS felt like the ideal place to continue to foster this work,” he says.

Joan adds, “Since Freddie has devoted his life to basic research that has benefited clinical practice, especially hematology-oncology, we also saw this as a good use of our resources.”

Wade Harper, PhD, Bert and Natalie Vallee Professor of Molecular Pathology and chair of the Department of Cell Biology at HMS, said he was very excited to hear about the Goldbergs’ generous gift to support outstanding postdoctoral fellows, allowing them to pursue curiosity-driven science at the highest level.

“Fundamental discoveries often occur through deep examination of biological processes without a direct therapeutic goal. These are precisely the types of mechanisms for support that will allow our trainees the freedom to make breakthroughs,” says Harper.

TRANSFORMING TRANSGENDER CARE

➔ When Perry Cohen experienced an urgent health concern last year, his town's only care provider specializing in working with LGBTQ (lesbian, gay, bisexual, transgender, and queer) patients wasn't available to see him. He went to a different doctor, then to a second. Both times, when the providers learned that Cohen is transgender, "their faces fell," he recalled.

"It wasn't about malice; it wasn't about not affirming me," he said, "but rather, they had this look of, 'Oh, no, I don't know if I'll be able to help this patient.' They didn't want to get it wrong, but they were out of their element."

Cohen's confidence in both doctors ebbed. "I felt that their fear of messing up on a cultural or emotional level hampered their ability to do their usual rigorous critical thinking," he said.

Too often, for Cohen and other LGBTQ patients across the country, the problem begins not in the exam room but in the classroom: Physicians lack sufficient training in how to provide competent, affirming care for people who identify as members of sexual and gender minority (SGM) groups—especially transgender people. This has led to alarming health disparities for SGM patients, experts say.

Now, Harvard Medical School students, faculty, and staff are joining forces to close this disparity gap. Last fall, HMS launched the Sexual and Gender Minorities Health Equity Initiative, a three-year plan to amend the core MD curriculum so that all students and faculty clinicians can become superbly well-equipped to provide high-quality, holistic health care for SGM patients of all ages.

The plan encompasses curriculum reform, faculty development, continuous quality assessment, and global dissemination, as well as increased efforts to recruit and support students, faculty, and staff with interests or experience in SGM health.

"The most powerful vehicle to effect durable, meaningful change across current and future generations of clinicians in all specialties caring for LGBTQ patients is singular: education," says Edward M. Hundert, MD '84, dean for medical education at HMS. "We are immensely grateful to be able to embark on this exciting and important initiative."

"WE'RE HOPING THIS BECOMES PART OF A BROADER WAY OF LOOKING AT TRANSGENDER PEOPLE AND TRANSGENDER HEALTH CARE ACROSS THE U.S."

PERRY COHEN

According to Healthy People 2020, a program of the U.S. Department of Health and Human Services, transgender people alone experience disproportionate rates of suicide, homelessness, substance use, HIV and other sexually transmitted diseases, mental health disorders, and victimization, yet they also confront barriers to accessing effective health care.

The initiative was made possible by a \$1.5 million gift from the Cohen and Bull-Cohen families. "We're hoping this becomes part of a broader way of looking at transgender people and transgender health care across the U.S.," says Cohen. "If we can train medical students, then they can go out into not just the few major hospitals that are doing great work for transgender patients but also into local community hospitals and places further afield and bring high-quality care to transgender patients who might not live on the coasts."

John Dalrymple, MD '91, the Dr. Mark and Karen Lawrence Director of Humanism in Medicine and associate dean for medical education quality improvement at HMS, will lead the initiative. The leadership team also includes co-faculty directors Jennifer Potter, MD '87, advisory dean and director of the William Bosworth Castle Society at HMS and co-chair of the Fenway Institute in Boston, and Alex Keuroghlian, MD, MPH '16, director of the psychiatry gender identity and sexual orientation program at Massachusetts General Hospital, course director for the fourth-year clerkship Care for Patients with Diverse Sexual Orientations and Gender Identities at HMS, and director of the National LGBT Health Education Center at the Fenway Institute, as well as LGBT Program Director Jessica Halem, MBA.

When Dalrymple came to HMS as an LGBT student 30 years ago, there was no curriculum about LGBT health. He says just being "out" was a difficult circumstance. "It means a lot to me to see how far HMS has come and how far medical education has evolved, to the point that we're not adding small components on sexual and gender minority health but doing it in a global, transparent, candid, integrated, and meaningful way," he says.



JOHN DALRYMPLE LEADS THE NEW SEXUAL AND GENDER MINORITIES HEALTH EQUITY INITIATIVE AT HMS.



CUTTING-EDGE RESEARCH

RESEARCHERS VENTURE OUTSIDE COMFORT ZONES

NEUROBIOLOGY
PROFESSOR
CHENGHUA GU

➔ In science—and nearly all other problem-solving endeavors—an outside perspective can often shed new light, leading to creative solutions that wouldn't be possible otherwise. Two researchers in the Blavatnik Institute at Harvard Medical School will be able to offer this perspective thanks to a pair of Allen Distinguished Investigator awards from The Paul G. Allen Frontiers Group. The researchers will tackle projects that are a departure from their typical work but hold significant promise in making progress in completely new directions.

"So much isn't known and is in need of exploration," says Kathy Richmond, PhD, MBA, director of the Frontiers Group. "Both of these grants explore fundamental biological relationships, and through this funding, we aim to move the needle forward toward understanding health and disease in a whole new way."

The Frontiers Group is a division of the Allen Institute, which was founded by philanthropist Paul G. Allen, who died Oct. 15. Nine new Allen Distinguished Investigator awards were announced in all, with each award conferring \$1.5 million in research support over three years.

One of the awards will fund work led by Neurobiology Professor Chenghua Gu, PhD, who studies the selectively permeable blood-brain barrier, which allows some beneficial

molecules to access the brain while preventing other noxious substances from passing through.

Gu's work has long focused on the basics of this permeability. With this new support, she'll be able to study a related area: how the immune system converses with the brain. This type of communication is pivotal for launching fevers during infections or responding to peripheral inflammation—known to exacerbate Alzheimer's and other neurodegenerative diseases. But how it works remains largely unknown.

"If you think about the neuro-immune interface, it must be through the blood-brain barrier," says Gu, "but we know very little about it. That's the black box."

Gu plans to use the funds to test how various immune challenges, such as transient infections, changes to microbiota, and aging, affect the activity of genes in the brain vasculature to start deciphering how the immune system and neurons communicate. She is also examining how immune signaling might affect brain vascular regions known as circumventricular organs, which, unlike the blood-brain barrier, are open to blood-borne substances.

Marc Kirschner, PhD, John Franklin Enders University Professor of Systems Biology and former chair of the Department of Systems Biology, will use his award funding to decipher the biological circuits that underlie development and aging and better understand where they overlap. To study this, he'll be using *Daphnia magna* as a model.

Because this small freshwater crustacean is sensitive to chemicals in its environment, it's often used as a monitor for toxins in the water supply. This trait, and its 30-day lifespan, make it an ideal model for using pharmaceuticals in its media to decipher the different components in biological pathways involved in development and aging and learn how they intersect. The extreme complexity of this problem will require a focus on systems biology, Kirschner's longtime area of expertise. But development and aging, as well as this model organism, are completely new areas for Kirschner.

"It's a risk," says Kirschner. "But many great scientific advances happen because someone applied outside knowledge to a new field."



JOHN FRANKLIN ENDERS
UNIVERSITY PROFESSOR
OF SYSTEMS BIOLOGY
MARC KIRSCHNER

The nine new Allen Distinguished Investigator awards will support 10 investigators from several different research organizations in the U.S., Canada, and Portugal. The research focus areas—lymphoma, neuroscience, the immune system, aging and development, and basic biology—were selected through a series of in-depth workshops guided by Paul G. Allen and other scientific advisers.

EDUCATING FUTURE GLOBAL HEALTH LEADERS

➔ Rhona S. Applebaum, PhD, considers herself fortunate to have worked with people who are experts in science and research and who believe in the humanitarian aspects of business. Having served as chief science and regulatory officer for a variety of food and beverage organizations, including the Chocolate Manufacturers Association, the National Food Processors Association, and The Coca-Cola Co., Applebaum is a strong proponent of the “train the trainer” approach to improving health and safety worldwide.

“I AM A BELIEVER IN HARVARD MEDICAL SCHOOL’S VISION BECAUSE I HAVE SEEN WHAT THE PEOPLE ASSOCIATED WITH, TRAINED BY, AND WORKING FOR THE SCHOOL CAN ACHIEVE.”

RHONA S. APPLEBAUM

“There is a humanitarian benefit in supporting the education and training of young scientists,” she says. “I am a believer in Harvard Medical School’s vision because I have seen what the people associated with, trained by, and working for the School can achieve.”

With her recent \$150,000 gift to HMS, Applebaum is establishing the Applebaum-Peabody Financial Aid Fund to support the Master of Medical Sciences in Global Health Delivery (MMSc-GHD) program. The program instructs students on the design, implementation, evaluation, and improvement of health programs in resource-poor settings. Many students enroll with advanced degrees from the countries in which they live and work, and they hope to return to their home countries to serve as leaders in education, research, and policymaking.

Applebaum, who has served on the HMS Advisory Council on Global Health and Service, traveled to Rwanda with Paul Farmer, MD ’90, PhD ’90, and been involved with Partners In Health, views her gift as a smart investment in the future. She says that helping young professionals “get the basics right” by supporting excellence in training and capacity building will lead to long-term benefits in health care and other sectors of society.

“Our students share a commitment to improving health for the world’s most vulnerable people,” says Farmer, Kolokotronis University Professor and chair of the Department of Global Health and Social Medicine in the Blavatnik Institute at HMS. “However, for many of them, the cost of attending HMS is prohibitive. Philanthropic support from friends like Rhona is imperative in our work to prepare future leaders to effectively deliver high-quality care to those in greatest need.”



EVARD NAHIMANA WORKED TO IMPROVE NEONATAL CARE IN RWANDA WHILE PARTICIPATING IN THE MMSC-GHD PROGRAM.

STRENGTHENING HIS COMMITMENT TO STUDENTS



➔ There’s a sense of urgency when Harvard Medical School Dean George Q. Daley, AB ’82, MD ’91, PhD, calls for enhancing access to education. Arthur L. Herbst, AB ’53, MD ’59, heeded that call after hearing Daley speak at the annual Spotlight on Medical Education event, which celebrates the students and the people who have invested in teaching, learning, and financial aid at HMS.

The event inspired Herbst—a scholarship recipient as an undergrad and a GI Bill beneficiary as a medical student—to give an additional \$100,000 to his endowed scholarship fund at HMS.

“Dean Daley’s desire to free students of debt aligns with my values, so I hope my gift makes a little difference to somebody who needs it,” says Herbst.

For Herbst, who has formed close friendships with his classmates and plans to attend his 60th Reunion in June, staying connected to HMS and its students, faculty, and alumni is “food for the

soul.” He wants the next generation of students to experience those same meaningful connections and to follow their passions, free of the stress that accompanies a large debt burden.

“I HOPE MY GIFT MAKES A LITTLE DIFFERENCE TO SOMEBODY WHO NEEDS IT.”

ARTHUR L. HERBST

“The expectation is that HMS students will contribute to society at a high level in some meaningful way,” says Herbst. “If we can get them through medical school with minimal debt and give them the freedom to make career decisions uninfluenced by financial pressures, we will advance more quickly the School’s mission to improve health and well-being for everyone.”

HUNDREDS ATTEND BLAVATNIK INSTITUTE DEDICATION CEREMONY

➔ The Blavatnik Institute at Harvard Medical School was formally dedicated before a crowd of hundreds in the Tosteson Medical Education Center on Feb. 5, as global industrialist and philanthropist Len Blavatnik, MBA '89, was thanked in person for the transformative \$200 million commitment the Blavatnik Family Foundation made to HMS last fall.

Harvard University President Lawrence Bacow, JD '76, MPP '76, PhD '78; HMS Dean George Q. Daley, AB '82, MD '91, PhD; former University President Lawrence Summers, PhD '82; Rachel Wilson, AB '96, PhD, the Martin Family Professor of Basic Research in the Field of Neurobiology at

HMS; and Blavatnik all spoke at the dedication ceremony.

"One of the lessons from business I acquired is that if you invest in the best people, you will probably get better than average results. You might get the best results," Blavatnik said.

A framed citation was unveiled naming the Blavatnik Institute in recognition of the Blavatnik Family Foundation's commitment and the new scientific research it will make possible. The institute encompasses the School's 11 basic and social science departments.



HMS DEAN GEORGE Q. DALEY (RIGHT) AND HARVARD UNIVERSITY PRESIDENT LAWRENCE BACOW (CENTER) TOAST LEN BLAVATNIK.

FINANCIAL AID AND EDUCATION

A STEADFAST SUPPORTER OF STUDENTS



GEORGE BRAY ATTENDS THE SAN FRANCISCO MEET THE DEAN EVENT IN OCTOBER 2017.

➔ George Bray, MD '57, felt inspired to give more to Harvard Medical School after attending his 60th Reunion in 2017. Already a generous supporter of financial aid at HMS through his gifts to the Amphitheater Chair Program and the Class of 1957 Endowed Scholarship Fund, he decided to boost his commitment with a \$100,000 gift establishing an endowed financial aid fund named after his parents, who had convinced him to choose HMS over other medical schools.

"UNTIL WE AS A COUNTRY COME TO VALUE EDUCATION SO THAT IT HAS A MUCH LOWER COST, THOSE OF US WHO BENEFITED NEED TO HELP THOSE WHO WERE LESS FORTUNATE."

GEORGE BRAY

Now, Bray is increasing his support again, this time with a \$250,000 gift establishing the endowed Bray Family Scholarship Fund. He says this latest

gift is a reflection of the important lessons Harvard taught him.

"Until we as a country come to value education so that it has a much lower cost, those of us who benefited need to help those who were less fortunate," Bray says.

Gifts supporting financial aid are key to helping HMS keep its average graduating debt well below the national average. For example, students in the Class of 2018 graduated with an average medical debt of \$110,548, which compares favorably with the \$186,407 national average at private medical schools.

Bray lives in San Francisco and attended the Meet the Dean event held there in October 2017. He said he had a chance to meet Lloyd Hollingsworth "Holly" Smith Jr., MD '48, who was the chief resident at Massachusetts General Hospital when Bray was a student and would later help transform the UCSF School of Medicine into a world-class institution. (Smith died in June 2018.) Bray also had the opportunity to hear HMS Dean George Q. Daley, AB '82, MD '91, PhD, discuss his priorities, including making HMS as debt-free as possible.

"I agree with Dean Daley's assessment on the need to enhance access to education. It was a pleasure to hear him articulate his vision for the School," Bray says.



GLOBAL HEALTH AND SERVICE

ENACTING CHANGE IN HEALTH POLICY

➔ For more than 30 years, the Department of Health Care Policy (HCP) in the Blavatnik Institute at Harvard Medical School has been at the forefront of health care policy research, performing work that affects all Americans, regardless of age, ethnicity, race, or income. The department's productive research programs are matched only by its robust teaching programs, which guide those who will shape future policy decisions.

Anupam Bapu Jena, MD, PhD, joined HCP in 2013 and has carried out research that's had wide-ranging impact. For example, Jena and his colleagues recently made headlines worldwide with their research showing that the month of a child's birth strongly predicts the likelihood of later being diagnosed with attention deficit hyperactivity disorder (ADHD), owing in part, Jena says, to how subjective this diagnosis can be when health care providers are confronted with the possibility of it.

“THIS GIFT IS A RECOGNITION OF THE WORK BEING DONE BY MY COLLEAGUES AND ME IN HEALTH CARE POLICY, WHICH HAS ALWAYS BEEN MULTIDISCIPLINARY AND AT THE CUTTING EDGE OF HEALTH POLICY RESEARCH.”

ANUPAM BAPU JENA

Jena was installed in 2016 as the inaugural incumbent of the Ruth L. Newhouse Associate Professorship in Health Care Policy, which was established by the department and is named after the mother of HMS professor of health care policy Joseph Newhouse, AB '63, PhD, '69, the John D. MacArthur Professor of Health Policy and Management at Harvard University. Now, a donor who chooses to remain anonymous has given \$2 million to convert this to a full professorship.

That's exciting news for Jena, who says the additional funding gives him the flexibility to pursue a broader, more novel, and more timely research agenda that he says would not have been possible otherwise.

“This gift is a recognition of the work being done by my colleagues and me in Health Care Policy, which has always been multidisciplinary and at the cutting edge of health policy research,” Jena says. “This professorship holds special meaning to me and the department at large, given Professor Newhouse's incredible and ongoing contributions to our field.”

The professorship will be renamed for Newhouse, whom Jena calls “arguably the foremost health economist in the world,” upon his retirement.

The department's founding chair, Barbara J. McNeil, MD '66, PhD '72, AMP '86, the Ridley Watts Professor of Health Care Policy at HMS, says, “Endowments like this acknowledge the spectacular contributions of the holder of the chair and the donor's recognition of the importance of policy research to the country.”

Jena says his recent work has focused on the economics of physician behavior, the economics of new medical technologies, and the causes and consequences of the opioid epidemic.

“My broad goal is to use natural experiments that occur in the real world to better understand what works and doesn't work in health care, with the hope that this understanding can help organizations and providers within those organizations enact change,” he says.

A December symposium at HMS celebrated the 30th anniversary of the founding of the Department of Health Care Policy at HMS. The symposium focused on personal reflections and research findings on several key facets of the implementation of the Affordable Care Act. In a letter, former President Barack Obama sent his thanks and congratulations to the department.



RUTH L. NEWHOUSE ASSOCIATE
PROFESSOR OF HEALTH CARE
POLICY ANUPAM BAPU JENA



READ MORE ABOUT
JENA'S ADHD STUDY AT
[HMS.HARVARD.EDU/NEWS/
MATTER-AGE](https://hms.harvard.edu/news/matter-age)

CUTTING-EDGE RESEARCH

EMOTIONALLY INVESTED IN ALZHEIMER'S RESEARCH

➔ When Edward B. “Ned” Goodnow gave \$500,000 to Harvard Medical School in 2015, his motivation was very personal: His wife, Dianne, had been diagnosed with Alzheimer’s disease (AD) in 2007 at age 78. Goodnow wanted to support basic research at HMS, believing it offered the best path to developing impactful treatments someday for AD and related neurodegenerative diseases.

His gift formed a research team led by two department chairs in the Blavatnik Institute at HMS: Stephen Blacklow, AB ’83, MD ’91, PhD ’91, the Gustavus Adolphus Pfeiffer Professor and chair of the Department of Biological Chemistry and Molecular Pharmacology, and Wade Harper, PhD, the Bert and Natalie Vallee Professor and chair of the Department of Cell Biology. Their laboratories have been highly successful along two lines of research in pursuit of a common goal: identifying new approaches to treating AD and other neurodegenerative diseases.

“MY HOPE IS THIS WORK WILL ONE DAY LEAD TO EARLY DIAGNOSIS AND DRUGS THAT CAN SLOW ALZHEIMER’S DEVELOPMENT BEFORE IT’S INCAPACITATING.”

EDWARD B. “NED” GOODNOW

Work led by the Blacklow Laboratory revealed the atomic structure of ADAM10, a molecule that plays a critical role in healthy cell-to-cell communication but whose malfunction has also been implicated in neurodegeneration. Seeing the detailed shape of ADAM10 deepened researchers’ understanding of how it works normally and provided a foundation for probing how it goes awry. The findings, published in *Cell*, opened the door for the development of drugs that act specifically on ADAM10 to treat the diseases it fuels.

The Harper Lab has led work zeroing in on the function of genes linked to both AD and Parkinson’s disease (PD), including the development of a new system for examining the function of the PD gene called Parkin using quantitative proteomics. (These findings were published in *Molecular Cell*.) The Harper Lab is continuing to develop analogous methodology in the context of AD with support from Goodnow, who recently gave \$1 million to HMS to boost both labs’ efforts.

“Many mysteries still exist concerning how genes implicated in neurodegenerative diseases function normally within cells in the brain,” says Harper. “Our work seeks to provide a detailed cell biological understanding of the functions of these key genes. This information represents an important starting point for the development of therapeutics.”

Blacklow says that a major focus of the work in his lab is to understand how ADAM10, part of an enzyme family known as alpha secretases, is regulated.

“This understanding is important because alpha-secretase cleavage of the amyloid precursor protein protects against the accumulation of beta amyloid, which is the dominant component of Alzheimer’s plaques and aggregates,” he says. “Any structural advances in understanding can then be tested in models being developed by the Harper Laboratory.”

Goodnow, whose wife of 62 years died in 2017, says he’s not seeking a miracle solution and realizes that this work is part of a “step-by-step process” toward a better understanding of Alzheimer’s.

“I’m aware of the terrible consequences of this disease. The damage is irreversible; the brain has been destroyed. My hope is this work will one day lead to early diagnosis and drugs that can slow Alzheimer’s development before it’s incapacitating,” Goodnow says.

He says he has been impressed by the labs’ collaborative interactions, which Harper says are necessary to push AD research further.

“The collaboration with the Blacklow Lab provides a means by which to understand both the cell biology and structural biology of important proteins implicated in neurodegenerative disease, offering a much deeper understanding than can be achieved by either approach in isolation,” Harper says.

An estimated 5.7 million Americans are living with Alzheimer’s disease, according to the Centers for Disease Control and Prevention, which expects that number to reach 14 million by 2060.

FACES OF HMS

PULSE • SPRING 19 • 09

01



02



03



04



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08



07



06



06

Reunion Committee volunteer Richard Schwartzstein, MD '79, director of educational scholarship at HMS and the Ellen and Melvin Gordon Professor of Medical Education, chats with Alumni Council member Jacqueline Boehme, MD '16, a resident at Massachusetts General Hospital, during February's Annual Appreciation Dinner for HMS volunteers and leadership donors.

07

Board of Fellows members John Kaneb, AB '56, and Virginia Kaneb (center) join the newest Kaneb Fellows, A. Sloan Devlin, AB '06, PhD (right), assistant professor of biological chemistry and molecular pharmacology, and Sandeep Robert "Bob" Datta, MD '04, PhD '04 (left), assistant professor of neurobiology, at a February luncheon.

08

Novelist, philosopher, and scholar K. Anthony Appiah delivers the George W. Gay Lecture in December. At left is Robert Truog, MD, director of the Center for Bioethics and the Frances Glessner Lee Professor of Medical Ethics, Anaesthesia & Pediatrics at HMS.

09

At the annual Daniel D. Federman Teaching Awards ceremony, Jane Neill (left), HMS associate dean for medical education planning and administration, presents the L. James Wiczai Award for Leadership, Excellence, and Innovation in Medical Education to Lisa Neville, an associate program administrator in the Department of Medicine at Massachusetts General Hospital.

09



01

Bay Area alumni celebrated their ties to HMS and connected with friends during a January event hosted by Erik Gaensler, AB '79, MD '84, at his San Francisco home. From left are Richard Sogg, AB '52, MD '56; Nina Vasan, AB '06, MD '13; Laurie Green, AB '72, MD '76; Kenneth Bridges, MD '76; and Bridges' daughter Camille Bridges, MBA '15.

02

From left: At the first HMS Alumni in Industry Summit, Alise Reicin Boiarsky, MD '86, president and global head of clinical development at Celgene, moderates a panel discussion featuring Reena Pande, AB '96, MD '01, SM '12, chief medical officer of AbleTo; Christoph Westphal, MD '98, PhD '98, co-founder and partner at Longwood Fund; and Geoff McDonough, MD '97, president and CEO of Generation Bio.

03

David Reich (left), AB '96, DPhil, a professor of genetics in the Blavatnik Institute at HMS, delivered the keynote speech in November at the inaugural Gilbert S. Omenn Lecture, hosted by the Department of Biomedical Informatics. Omenn, MD '65, PhD (center), was central to the formation of the department, which is chaired by Isaac Kohane, MD, PhD (right).

04

Giuliano Iurilli, PhD, the latest recipient of the Giovanni Armenise-Harvard Foundation's Career Development Award, recently moved from Boston to Italy, making the transition from HMS postdoctoral research fellow to principal investigator.

05

At the annual conference of the National Center for Complex Health and Social Needs, held in Chicago, Lisa Rotenstein, AB '11, MBA '17, MD '17, a resident at Brigham and Women's Hospital, talked to attendees about the importance of the center's work and how the center impacted her decision to go into primary care.

PROMOTING HEALTHY AGING

➔ The number of Americans age 65 and older will more than double by 2060, according to the Population Reference Bureau. That's why understanding how we age—and what actions may promote healthy aging—is among the most important pursuits in medicine.

Harvard believes it is uniquely equipped to play a leading role in easing the burden of disease and disability that will soon confront our aging society. Through the new Healthy Aging Initiative, a cross-institutional collaboration led by Harvard Medical School, Harvard researchers seek to better understand the biology of healthy aging and identify interventions that promote longevity and wellness.

The Dr. M. Lee Pearce Foundation, Inc.—established by the late M. Lee Pearce, MD, a longtime member of the HMS Board of Fellows—is among the first philanthropic supporters of this project, with gifts totaling \$357,000 to the Healthy Aging Initiative Fund at HMS.

“M. Lee Pearce was that rare combination of medical doctor, lawyer, entrepreneur, and financial wizard who brought rigorous thought, persistence, and intense concentration to overcome seemingly impossible challenges,” says Charles W. Douglas, JD '74, chairman and president of the foundation. “What could be more in keeping with his example than bringing together the resources of the Harvard Medical School and its affiliates to promote healthy aging?”

This funding supports two key programs: a symposium focused on new research that explores the most promising innovations toward healthy longevity, and a pilot grant program to support interdisciplinary collaborations across Harvard's schools, departments, and laboratories.

“THIS FUNDING FROM THE M. LEE PEARCE FOUNDATION EXTENDS [DR. PEARCE’S] LEGACY, AS WE WORK TO HELP MILLIONS OF PEOPLE LEAD MORE PRODUCTIVE, HEALTHIER, AND LONGER LIVES.”

GEORGE Q. DALEY

“Dr. Pearce was a longstanding benefactor to HMS who believed in the power of what is possible when we align our collective strengths toward improving human health. This funding from the M. Lee Pearce Foundation extends his legacy, as we work to help millions of people lead more productive, healthier, and longer lives,” says HMS Dean George Q. Daley, AB '82, MD '91, PhD.



BROADENING THE PLAYING FIELD

➔ Husband and wife John F. Cramer III, AB '70, MD '74, and Suzanne Poppema, MD '74, have firsthand experience about how financial aid can change the trajectory of one's life. Neither would have attended Harvard Medical School without philanthropic support, and both feel compelled to pay it forward.

“I THINK IT’S IMPORTANT FOR OUR MEDICAL SCHOOL POPULATION TO REFLECT OUR COUNTRY.”

SUZANNE POPPEMA

Cramer and Poppema have been giving back to HMS since their graduation, both as loyal donors and as volunteers. While helping plan their upcoming 45th Reunion, they decided to stretch their giving, establishing a current-use REACH

scholarship fund in their name using a charitable IRA rollover. The REACH program provides funding to reduce the loan component of a student's financial aid package, making it more feasible for those who are historically underrepresented in the medical profession to accept their offers of admission.

“I want to increase diversity and have HMS be competitive with other schools when admitted students are making their choices on where to attend. I think it's important for our medical school population to reflect our country,” says Poppema. “I would say we're trying to broaden, rather than level, the playing field. It's about giving people the opportunity to step on the playing field in the first place.”

Cramer echoes his wife's sentiments, adding that he feels strongly about helping students graduate with less debt so that they have the flexibility to pursue any medical field where their contribution will be greatest, including primary care and public service.



FIRST-YEAR STUDENT LEEN AL KASSAB, A REACH AWARD RECIPIENT, SPEAKS IN AUGUST DURING A GET-TO-KNOW-YOU LUNCH WITH HER ACADEMIC SOCIETY, AT WHICH SHE RECEIVED HER HMS WHITE COAT.



FROM LEFT: GEORGE Q. DALEY, STEPHEN BLACKLOW, CHRISTOPHER T. WALSH, WALSH'S GRANDSON SEAN KURIAN, DIANA CHAPMAN WALSH, ALLISON WALSH KURIAN, AND THOMAS KURIAN

CUTTING-EDGE RESEARCH

AN EXEMPLAR & AN INSPIRATION

➔ Christopher T. Walsh, AB '65, PhD, has built an extraordinary scientific legacy. The founding chairman of the Department of Biological Chemistry and Molecular Pharmacology (BCMP) in the Blavatnik Institute at HMS, Walsh is an internationally renowned scholar of mechanistic enzymology and a pioneer at the interface of chemistry and biology.

But to define Walsh by his scientific achievements alone would be misguided. His broader impact was made clear in March when, at an HMS symposium held in his honor, a surprise announcement was made: Some 150 of Walsh's family, friends, and colleagues had raised more than \$4 million to establish an endowed professorship in his name.

“THE MOST IMPORTANT THING TO ME IS THAT THIS GIFT MEANS SOME LONG LINE OF SCHOLARS WILL GET TO LEARN FOR A LIVING AND PUT THAT KNOWLEDGE IN THE SERVICE OF HUMAN HEALTH.”

CHRISTOPHER T. WALSH

In the lead-up to the announcement, Walsh's wife, Diana Chapman Walsh, PhD, former president of Wellesley College and former chair of the Department of Health and Social Behavior at the Harvard T.H. Chan School of Public Health, says that scores of Walsh Lab colleagues took her aside “to bear witness to his imprint on their work and on their lives, on a wide field of inquiry, and, with it, a way of thinking, and of leading, and of

being. The women, in particular, have said that he has offered an alternative to a hierarchical system of apprenticeship, rooted in patriarchy.”

While serving as BCMP's founding chair from 1987 to 1995, Walsh, the Hamilton Kuhn Professor of Biological Chemistry and Molecular Pharmacology, Emeritus, established a new HMS presence in structural biology by recruiting experts in nuclear magnetic resonance spectroscopy and X-ray crystallography. BCMP's current chair, Stephen Blacklow, AB '83, MD '91, PhD '91, expresses immense personal and professional respect for his predecessor.

“Chris has been an inspiration to me for more than 25 years,” Blacklow says. “I have benefited from his wisdom ever since I first met him when I was a young MD-PhD trainee, and his positivity and encouragement gave me confidence to commit fully to a rewarding research and academic career, for which I will be forever grateful.”

It is Walsh, though, who feels grateful. He says mentoring students and postdoctoral fellows has given him the greatest satisfaction during his career.

“To see the 260 people who worked with me in a very intensive one-on-one setting, almost familial, succeed and go in very different directions and push ideas, concepts, and truths way beyond where I would have been, that's by far my deepest satisfaction,” he says.

Walsh's most devoted mentee didn't work in his lab. His daughter, Allison Walsh Kurian, MD '99, an associate professor of medicine and of health research and policy at Stanford University School of Medicine, says she has always found her father's company to be “uniquely entertaining, invigorating, and rewarding. It has been a privilege to know him as a friend and mentor, as well as a parent. It has been one of the great joys of my life.”

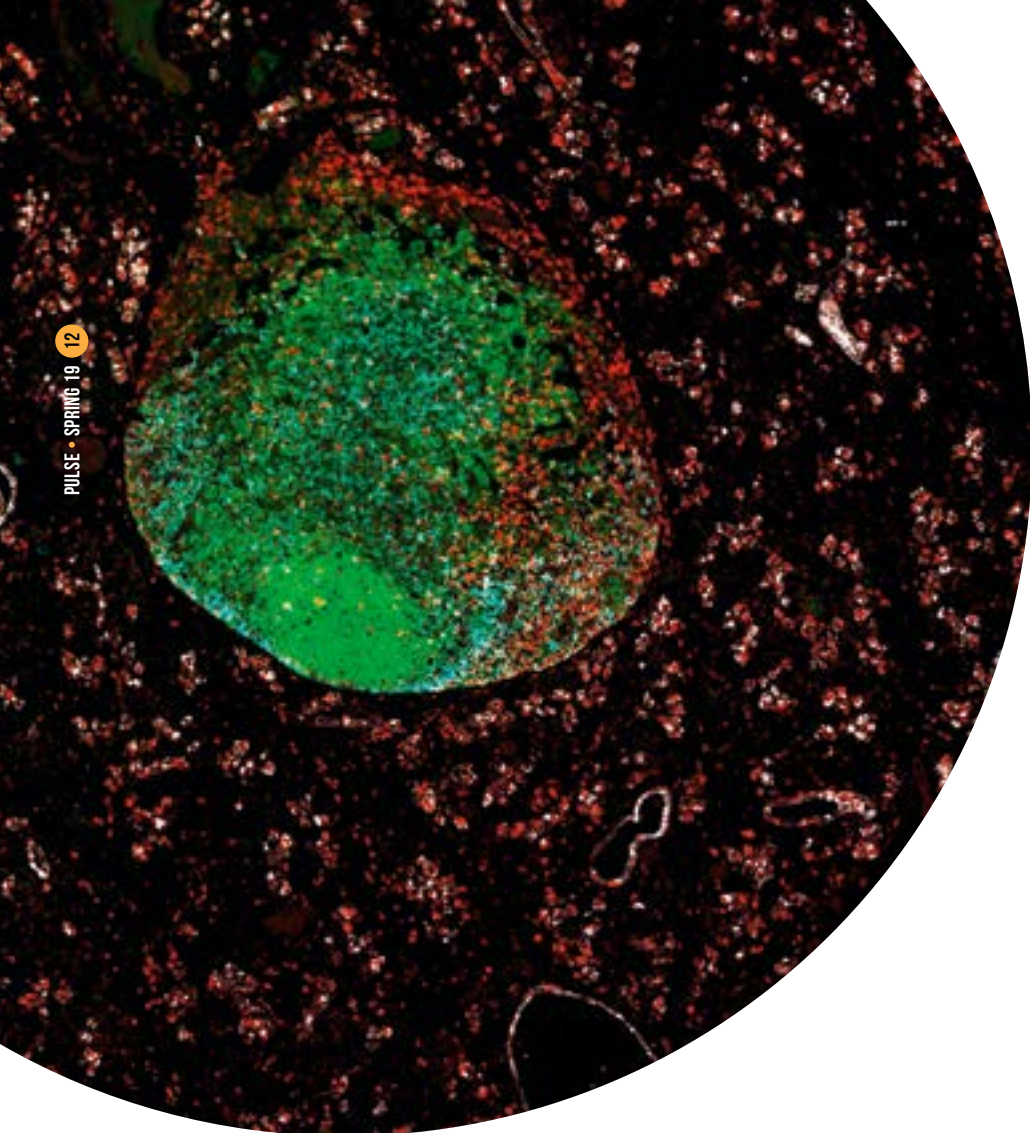


FORMER ABC EVENING-NEWS ANCHOR CHARLIE GIBSON (LEFT) INTERVIEWS CHRISTOPHER T. WALSH AT A POST-SYMPOSIUM DINNER.

Kurian and her mother expressed a deep appreciation for those who helped make the professorship a reality, as it means the Walsh name will be permanently associated with work of the highest caliber in biological chemistry and molecular pharmacology.

HMS Dean George Q. Daley, AB '82, MD '91, PhD, who calls Walsh a “truly great scientist, teacher, mentor, and colleague,” says the professorship's incumbents “will become a lineage of scholarship, honor, and contributions worthy of the man whose name they uphold.”

Walsh ponders those scientists when reflecting on the magnitude of the gift. “The most important thing to me is that this gift means some long line of scholars will get to learn for a living and put that knowledge in the service of human health,” he says.



ARCHITECTURE AND IMMUNE LANDSCAPE OF MAMMARY PAD, INCLUDING LYMPH NODE FROM A HEALTHY MOUSE, IMAGED USING T-CYCIF. THIS IMAGE HIGHLIGHTS KEY FEATURES OF THE TISSUE, INCLUDING DUCT EPITHELIA (WHITE: CYTOKERATIN), MACROPHAGES (RED: CD68), B CELLS (GREEN: B220), AND CD4+ T CELLS (CYAN: CD4).

➔ At the 2017 Ludwig Center at Harvard retreat, Peter Sorger, AB '83, PhD, the Otto Kraye Professor of Systems Pharmacology in the Blavatnik Institute at Harvard Medical School, spoke about a method his lab was using to construct sub-cellular resolution, highly multiplexed images of tumors and tissue. He wanted to develop a tumor atlas describing the locations and identities of cancer and immune cells based on these high-dimensional images, as part of a larger international effort to understand the cancer micro-environment—critical for immunotherapy—and improve cancer diagnosis and treatment.

This “remarkable” presentation, says Chi Van Dang, MD, PhD, scientific director of the Ludwig Institute for Cancer Research, was the genesis of the recent \$1.5 million in funding from Ludwig Cancer Research to support the development of a Ludwig Tumor Atlas within the Harvard Program in Therapeutic Science (HiTS) at HMS, which Sorger leads.

“The platform is innovative and has the potential to contribute to research throughout the Ludwig Cancer Research community,” Dang says. “Given Dr. Sorger’s willingness to expand the technology beyond Harvard, we felt confident that support for the technology would also help catalyze collaboration between the Ludwig Center at Harvard and other Ludwig branches and centers.”

Ludwig Cancer Research is a community of the world’s leading scientists, all pursuing innovative ways to prevent and control cancer. This community includes the Ludwig Institute for Cancer Research, which is headquartered in New York City and has branches and collaborative laboratories around the world, and the Ludwig Centers, which are scientific partners operating independently at six U.S. institutions. The HiTS team is already working closely with oncologists from multiple Harvard hospitals and with a group from the Ludwig branch in Lausanne, Switzerland.

The technology used by Sorger’s Lab is called t-CycIF, or tissue-based cyclic immunofluorescence. Sorger

The Ludwig Tumor Atlas will be placed in the public domain so a broad community of scientists and physicians can participate in its interpretation.

THERAPEUTIC INNOVATION

CHARTING A COURSE FOR IMPROVED CANCER TREATMENT

says it is performed using existing instruments and reagents, making it easy for others to implement the approach. He says that, for now, it is the primary method of data collection for the Ludwig Tumor Atlas project, but his team is already marrying it with single-cell sequencing techniques and other emerging technologies.

“The spirit of the program,” Dang says, “is to further improve the platform technology and to stimulate collaboration to advance cancer science, with the hope that this will lead to discoveries that improve patients’ lives in the near future.”

“THE PLATFORM IS INNOVATIVE AND HAS THE POTENTIAL TO CONTRIBUTE TO RESEARCH THROUGHOUT THE LUDWIG CANCER RESEARCH COMMUNITY.”

CHI VAN DANG

Sorger and his Ludwig Center colleague Sandro Santagata, MD, PhD, associate professor of pathology at Brigham and Women’s Hospital, say that no activity is more important in the routine diagnosis of cancer than the acquisition of biopsies and their examination by pathologists, but the methods currently in use are nearly 100 years old.

“The Ludwig Tumor Atlas project will develop and deploy new approaches to pathology that promise to revolutionize our understanding of basic cancer biology by providing highly detailed information on the molecular states of tumor, stromal, and immune cells,” Sorger says. “These research applications will also drive innovations in diagnostic pathology, which we expect to impact clinical trials and patient care within the next two to three years.”

Some material in this article was taken from Peter Sorger’s interview with Ludwig Cancer Research about the Ludwig Tumor Atlas project. The full interview can be found at tinyurl.com/Ludwig-Sorger-QA.

PRODUCING DONOR ORGANS FROM SCRATCH



➔ Soon after Martine Rothblatt founded the satellite communications company that would eventually become Sirius XM, her daughter, Jenesis, was diagnosed with a rare condition called pulmonary arterial hypertension, which narrows the blood vessels leading from the heart to the lungs.

Told that Jenesis had only a few months to live, Rothblatt switched careers to found United Therapeutics, a biotech company that's since developed four different drugs approved by the U.S. Food and Drug Administration to fight various types of pulmonary hypertension. The company has also made significant progress toward other ways to treat lung disease, such as a method to revitalize lungs for transplant that otherwise would have been discarded and a potential way to grow organs in pigs for human transplant.

But none of this is enough, Rothblatt says. That's why United Therapeutics recently gave \$250,000 to George Church, PhD '84, Robert Winthrop Professor of Genetics in the Blavatnik Institute at Harvard Medical School, to study induced pluripotent stem cells—a type of stem cell produced from adult cells and then molded to create other various cell types. Such cells might eventually be used to create whole new organs that match the recipients' genetics, preventing problems with rejection that plague conventional donor organs.

"The gift requires no mandates or milestones," says Church, "reflecting Martine's great trust in the judgment and expertise of our lab."

For more than 15 years, Jenesis has successfully taken one of the drugs developed by United Therapeutics, but Rothblatt says having an unlimited supply of lungs and other donor organs could benefit countless patients around the globe.

"EVENTUALLY, IF WE CAN PROVIDE AN UNLIMITED SUPPLY OF PERSONALIZED ORGANS, PEOPLE WITH END-STAGE ORGAN DISEASE WILL NO LONGER LOOK AT IT AS A DEATH SENTENCE."

MARTINE ROTHBLATT

"Eventually, if we can provide an unlimited supply of personalized organs," she says, "people with end-stage organ disease will no longer look at it as a death sentence, but as the time to replace a particular organ and continue with their lives."

CAMPUS REVITALIZATION

EXAM ROOM NAMED IN MEMORY OF HUSBAND

➔ James H. Shelton, AB '66, MD '70, was a Dallas-based cardiologist and one of the earliest practitioners of invasive cardiology in the area. Prior to his death in 2015, he considered making a gift to Harvard Medical School to name an examination room in the Clinical Skills Center, housed in the Tosteson Medical Education Center (TMEC).

"HE LOVED HARVARD COLLEGE AND THE MEDICAL SCHOOL, AND I'M TRYING TO HONOR HIM WITH THESE GIFTS."

NANCY SHELTON

Now, his wife, Nancy, is fulfilling her husband's wishes by making a significant gift to establish the James H. Shelton, MD '70, Examination Room Fund. This adds to her previous gift to name a chair in memory of her husband in the

Joseph B. Martin Conference Center Amphitheater at HMS.

"He loved Harvard College and the Medical School, and I'm trying to honor him with these gifts," Shelton says.

The 150-square-foot exam rooms inside TMEC are used for teaching medical students and their practice of clinical skills. A plaque will be installed prominently outside one of these rooms to recognize Dr. Shelton.

Nancy Shelton says Harvard has always been a big part of her life—one of her sons is an alumnus of the College—and she tries to stay connected through the Harvard Club of Dallas. She's considering coming to HMS next year for what would have been her husband's 50th Reunion, and she hopes to visit when the named examination room is unveiled.

"I would love for my grandchildren to see it," she says.



OBSERVATION AREAS ARE POSITIONED OUTSIDE EACH EXAMINATION ROOM IN THE CLINICAL SKILLS CENTER.

PROFESSORSHIP CELEBRATIONS

The following recently established Harvard Medical School professorships were celebrated between July 1, 2018, and March 1, 2019, recognizing the generosity of their respective benefactors and the accomplishments of their inaugural incumbents.



01 ADELSTEIN PROFESSORSHIP OF HEALTH CARE POLICY

Sharon-Lise Normand, PhD, was recognized for her appointment as the S. James Adelstein Professor of Health Care Policy at HMS.



02 TOSTESON PROFESSORSHIP OF HEALTH CARE POLICY

Alan M. Zaslavsky, AB '68, PhD, hugs his daughter Clara Zaslavsky Correia at the celebration recognizing his appointment as the Daniel C. Tosteson Professor of Health Care Policy at HMS.



03 THIBAUT ACADEMY PROFESSORSHIP

David A. Hirsh, MD, director of the HMS Academy, connects with Holly Humphrey, MD, president of the Josiah Macy Jr. Foundation, at the celebration of his appointment as the George E. Thibault Academy Associate Professor. Established by the Josiah Macy Jr. Foundation, the professorship honors a decade of impactful leadership by George E. Thibault, MD '69, who stepped down as the foundation's president last year.



04 NEUTRA PROFESSORSHIP OF PEDIATRICS

Jonathan C. Kagan, PhD, was honored as the inaugural incumbent of the Marian R. Neutra, PhD Professorship of Pediatrics at HMS and Boston Children's Hospital (BCH). The professorship will ultimately be named for Christopher A. Walsh, MD, PhD, chief of the Division of Genetics and Genomics at BCH and the Bullard Professor of Pediatrics and Neurology at HMS and BCH.



05 CANELLOS PROFESSORSHIP IN MEDICINE

From left: Blood cancer expert Benjamin Ebert, MD '99, PhD; Jean Canellos, MAT '58, former president of the Friends of Dana-Farber Cancer Institute (DFCI); and George Canellos, AB '56, founding chief of medical oncology at DFCI from 1975 to 1995 and the William Rosenberg Professor of Medicine, Emeritus, at HMS, celebrate Ebert's installation as the George P. Canellos, MD, and Jean S. Canellos Professor of Medicine at HMS.



06 WADDINGTON PROFESSORSHIP IN PEDIATRICS

Yang Shi, PhD (left), professor of cell biology at Boston Children's Hospital (BCH), and Stella Kourembanas, MD, the Clement A. Smith Professor of Pediatrics at BCH, celebrate Shi's appointment as the C.H. Waddington Professor of Pediatrics at HMS. The professorship will be renamed for Kourembanas upon her retirement.



07 SHELBY MEMORIAL PROFESSORSHIP IN CANCER THERAPEUTICS

From left: Davi-Ellen Chabner, MAT '65; her husband, Bruce A. Chabner, MD '65, HMS professor of medicine and director of clinical research at the Massachusetts General Hospital (MGH) Cancer Center; David Ryan, MD, MMSc '00, chief of the Division of Hematology/Oncology at MGH; and Nancy Tarbell, MD, dean for academic and clinical affairs and the C.C. Wang Professor of Radiation Oncology at HMS, celebrate Ryan's appointment as the Shelby Memorial Professor of Medicine in the Field of Cancer Therapeutics at HMS. The professorship will be renamed for the Chabners upon Bruce Chabner's retirement.



ALUMNUS PROVIDES SUPPORT FOR STUDENTS UNDERREPRESENTED IN MEDICINE

STUDENTS ENJOY AN OFFICE OF RECRUITMENT AND MULTICULTURAL AFFAIRS EVENT DURING THE ANNUAL HMS REVISIT WEEKEND, WHICH PROVIDES AN OPPORTUNITY FOR ACCEPTED STUDENTS TO COME BACK TO HMS TO GET A SECOND LOOK BEFORE MAKING THEIR FINAL DECISIONS.

→ While Luis A. Moreno Jr., MD '98, is very grateful for the financial aid he received as a Harvard Medical School student, he says he's just as grateful for the encouragement and assistance he received from the Office of Recruitment and Multicultural Affairs (ORMA). To show his gratitude, he established the Luis A. Moreno Jr., MD, Fund for the Office of Recruitment and Multicultural Affairs with a gift of \$160,000.

Founded in 1969, ORMA recruits and provides support services to students from groups underrepresented in medicine and students who are economically disadvantaged.

"ORMA's role is vital to the sense of community life at HMS," says Moreno, who encourages current students to take advantage of the personal and academic counseling provided by ORMA faculty and staff.

When Moreno was a student, he received a Fulbright Scholarship recommendation from ORMA's director, Alvin Poussaint, MD, professor of psychiatry and faculty associate dean for student affairs at HMS. And with the help of HMS Director of Student Affairs Rosa Soler, who provides administrative oversight of ORMA,

Moreno created the Latinos in Medicine High School Conference.

"As auspicious and joyful as your acceptance letter to HMS can make you feel, it can also be challenging—and even lonely and stressful—without the trust, confidence, and overall support that ORMA faculty can provide," says Moreno. "I hope my gift ensures that students and faculty continue to have the resources they need."

"ORMA'S ROLE IS VITAL TO THE SENSE OF COMMUNITY LIFE AT HMS."

LUIS A. MORENO JR.

Poussaint says that increasing diversity is a priority for HMS and that philanthropic support for ORMA is instrumental in nurturing an inclusive community. "This gift is even more meaningful to us because it's coming from Luis. He overcame many obstacles to achieve his dream of becoming a doctor, and it was a joy to have him at HMS," he says.

DALEY VISITS RWANDA, CELEBRATES WORK TOWARD HEALTH EQUITY

→ On Jan. 24, George Q. Daley, AB '82, MD '91, PhD, became the first dean of Harvard Medical School to travel to Africa to witness the life-changing work of his colleague Paul Farmer, MD '90, PhD '90, the Kolokotronis University Professor and chair of the Department of Global Health and Social Medicine in the Blavatnik Institute at HMS. Daley and Farmer, along with a group of HMS faculty, staff, advisers, alumni, and supporters, visited Rwanda to celebrate the completion of the campus of the University of Global Health Equity (UGHE), an initiative of Partners In Health (PIH), of which Farmer is co-founder and chief strategist.

The new home of UGHE is in Butaro, which in 2008 was one of the poorest regions in Rwanda and the last district in Rwanda without a hospital. When Butaro Hospital was completed in 2011, it led to a seismic change in health care in the region.

Seeing the hospital and university in Butaro and learning more about the work of building global

HMS DEAN GEORGE Q. DALEY TALKS WITH DIANE GASHUMBA, RWANDA'S MINISTER OF HEALTH.



health equity in Rwanda, Daley said, gave him an unparalleled chance to learn what is being done to advance the human right to health and the role that the Harvard community is playing in that effort.

"It is also giving me hope that the astonishing promise of modern medicine and biomedical science can and will reach all people," he said.

The new school was built with the leadership and support of Farmer and many other HMS faculty, alumni, students and trainees from Harvard-affiliated hospitals. It aims to help fill shortages of health care providers and researchers in low-resourced settings. Such shortages are critical drivers of health inequity worldwide.

UGHE's academic programs launched in 2015 with a master's program in global health delivery, modeled on the HMS Master of Medical Sciences in Global Health Delivery program. The first cohort of medical students was scheduled to begin classes in spring 2019.

IMPACTING STUDENTS AND THEIR FUTURE PATIENTS



FROM LEFT: SF (MNT) SCHOLARSHIP RECIPIENTS CONNIE ZHONG, ALLEN ZHOU, JIE JANE CHEN, AND ABRA SHEN

This academic year, HMS will award over \$36.5 million in scholarship, loans, and employment funding from various charitable, federal, and school sources to approximately 76 percent of its student body.

➔ Medical student financial aid has a palpable ripple effect. It not only creates opportunities for the promising students who come to study at Harvard Medical School but also impacts countless patients whose lives will be improved through the beneficiaries' contributions in the classroom, clinic, and laboratory.

Understanding this acutely, two philanthropic families who wish to remain anonymous have given \$7.5 million to HMS to establish the SF (MNT) Fund Scholarship. This scholarship provides financial aid to deserving students enrolled in the MD program or Harvard/MIT MD-PhD Program, with a preference for students who are residents of China or of Chinese descent.

According to the representative of the families, the quality of medical care available to the Chinese community is a primary area of focus. They believe that education is the most essential element toward preparing future doctors and scientists to both deliver the highest-quality care and to innovate in how that care is delivered.

"We hope that the recipients will not only become excellent caregivers and innovators in the medical field but also be inspired by the scholarship to seek opportunities to use their educations to support communities where medical care is not at the highest standards, as well as to support aspiring caregivers," says the representative of the families.

HMS Dean George Q. Daley, AB '82, MD '91, PhD, says that the families' goals align perfectly with some of his most urgent priorities for the School, including increasing funding for MD-PhD students, reducing student indebtedness, and ensuring access for students globally, regardless of their financial circumstances.

"This is an enormous investment in the next generation of physicians and physician-scientists,

and I am thrilled that this fund will provide support to our superbly deserving and talented students," says Daley.

Second-year MD student Allen Zhou is among the 35 MD students and two MD-PhD students named SF (MNT) Fund Scholars or Fellows this academic year. When he was growing up, Zhou says his parents would tell him the story of how they had immigrated to the United States from China with little more than a few dollars in their pockets and a vague understanding of English.

"When I was accepted to Harvard Medical School, I immediately thought of my parents because each success in my life is truly a testament to the sacrifices and challenges they have gone through," says Zhou. "Thanks to the incredible kindness of these families, I have been able to continue my path to becoming a physician and live out my parents' and my American dream."

"THANKS TO THE INCREDIBLE KINDNESS OF THESE FAMILIES, I HAVE BEEN ABLE TO CONTINUE MY PATH TO BECOMING A PHYSICIAN AND LIVE OUT MY PARENTS' AND MY AMERICAN DREAM."

ALLEN ZHOU

Rising fourth-year MD student Connie Zhong, who's spending this academic year conducting dermatology research, says she is grateful for the generosity of the anonymous donor families because her experiences at HMS would not have been possible without this support.

"I wanted to be a doctor because of my personal experience with physicians when my parents were ill. The doctors I encountered were extremely supportive, and I aspire to be like them, providing hope and comfort to others," says Zhong.



GLOBAL HEALTH AND SERVICE

EXTENDING HER FAMILY'S SWEET SUPPORT

➔ The Gordon family is as iconic as the Harvard Medical School building that bears its name. Ellen R. Gordon, GSA '69, and her late husband, Melvin J. Gordon, AB '41, MBA '43, are best known for their leadership of Tootsie Roll Industries. But at HMS, they are much more distinguishable as the namesakes of the Classical Revival marble building that is the focal point of the campus.

It was 2000 when Building A was renamed the Ellen R. and Melvin J. Gordon Hall of Medicine in recognition of the couple's generosity, which established a professorship, funded the creation of the Department of Systems Biology, fueled basic research, and renewed the building's skylights, which were concealed during World War II.

**“ELLEN IS AN OUTSTANDING
ADVOCATE FOR SCIENCE,
AND OUR COMMUNITY IS
SO VERY FORTUNATE TO
COUNT HER AMONGST ITS
MOST DISTINGUISHED AND
LONG-SERVING FRIENDS.”**

GEORGE Q. DALEY

The building naming was a fitting tribute to Ellen Gordon, in particular, whose generosity to HMS was matched by her volunteerism. Over the last 30 years, she has served as a member of the HMS Board of Fellows and the HMS Visiting Committee, co-chaired two successful fundraising campaigns, and shared her wisdom with HMS deans and administrative leaders about organizational management and good business practice.

In 2014, the Gordons established the Ellen R. and Melvin J. Gordon Center for the Cure and Treatment of Paralysis at Spaulding Rehabilitation

The Harvard Alumni Association honored Ellen and Melvin Gordon as recipients of the Harvard Medal in 2012. First awarded in 1981, the Harvard Medal recognizes extraordinary service to the University.

Hospital and HMS. The center's charge is to make major and lasting changes in the understanding of paralysis, including that caused by brain injury, while developing treatment interventions and a possible cure.

Now, Ellen Gordon is extending her family's steadfast support with a new gift to HMS through the Cele H. and William B. Rubin Family Fund. Half of this new gift will support research fellowships in the Department of Global Health and Social Medicine, under the direction of department chair Paul Farmer, MD '90, PhD '90, Kolokotronis University Professor and co-founder and chief strategist of Partners In Health. The remaining half of the gift will be designated in the near future.

HMS Dean George Q. Daley, AB '82, MD '91, PhD, says he is enormously grateful to Ellen Gordon for her wonderful support and for the many ways she and her late husband have helped to advance HMS's mission, and more broadly, progress in medicine.

“Ellen is an outstanding advocate for science, and our community is so very fortunate to count her amongst its most distinguished and long-serving friends,” says Daley. “I am tremendously grateful to her, as I know my predecessors were as well.”

CUTTING-EDGE RESEARCH

COLLABORATION FUELS DIABETES RESEARCH

A 2017 report from the Centers for Disease Control and Prevention (CDC) found that 30.3 million Americans—9.4 percent of the population—have diabetes. The CDC estimates that, in addition to those who already have diabetes, 84.1 million U.S. adults have prediabetes, a condition that often leads to Type 2 diabetes within five years if not treated.

➔ Scientists have long known that Type 1 diabetes is an autoimmune disorder—a glitch in the immune system that causes it to attack and destroy the cells that produce insulin. But more recently, says Diane Mathis, PhD, the Morton Grove-Rasmussen Professor of Immunohematology in the Blavatnik Institute at Harvard Medical School, it's become clear that Type 2 diabetes has a heavy immune component as well, with cells known as macrophages and visceral adipose tissue regulatory T cells (VAT Tregs) playing a starring role.

When individuals become overweight or obese, Mathis explains, a population of white blood cells known as macrophages that reside specifically in fat tissue promote inflammation. This inflammation remains local at first. But, eventually, it spreads throughout the body, causing cells to become more resistant to the insulin necessary for them to absorb sugar from the bloodstream. However, VAT Tregs can stem this process, reining in inflammation.

If researchers knew more about how this process works, Mathis says, they might be able to develop ways to control VAT Tregs, harnessing them to keep diabetes-promoting inflammation at bay. That's the focus of a grant she's received from The JPB Foundation, a national philanthropic organization that supports medical research and other projects to fight poverty and advance environmental health.

JPB has long promoted collaboration, awarding grants to medical research scientists with different areas of expertise in three broad areas: Parkinson's disease, Alzheimer's disease, and diabetes. In 2014, JPB invited Mathis to join its Diabetes Consortium, funding her long-running work on the immunology of this metabolic disease. A subsequent grant followed in 2016.

**“THESE FLEXIBLE GRANTS
GIVE US THE POWER TO MOVE
SCIENCE IN UNPRECEDENTED
DIRECTIONS.”**

DIANE MATHIS

The funds are allowing her to explore a broad range of questions in this domain. For example, Mathis and her colleagues are currently using mouse models to investigate why VAT Tregs seem to disappear when individuals become obese. After feeding the animals low- or high-fat diets for several weeks, they're evaluating changes in gene expression and other biomarkers to better understand what's responsible for this phenomenon and, eventually, how they might be able to reverse it and keep these inflammation-controlling cells present.

Mathis and her team are also using their grant to study how circadian rhythms change VAT Tregs' activity, what antigens they interact with in the body, and how they network with inflammation-producing cells. For many of these projects, Mathis is collaborating with other JPB grantees—something the foundation highly encourages.

Each year, JPB hosts symposiums that allow grantees not only to interact with members of their own consortium but also to develop relationships with those working in other disease areas—connections that are pushing the scientific envelope further than ever before.

“These flexible grants give us the power to move science in unprecedented directions,” Mathis says. “It's really exciting and an honor to be included with these other scientists who are really tops in their field.”





EHC SPOTLIGHT: GEORGE & MARIA TSOKOS



→ “We feel that it is important to support programs that train outstanding physicians and generate avant-garde knowledge that changes the quality of life for people worldwide. The contribution of many, small or big, is needed to advance our understanding of disease processes and deliver novel therapeutics.”

The Ezekiel Hersey Council recognizes those who have created a life income gift, named HMS as a beneficiary of a retirement account, or included HMS in their will or trust. Learn more at hms.harvard.edu/EHC.

GEORGE TSOKOS, MD, AND MARIA TSOKOS, MD, BOTH WORK AT BETH ISRAEL DEACONESS MEDICAL CENTER, WHERE HE IS A PROFESSOR OF MEDICINE, AND SHE IS A PROFESSOR IN RESIDENCE OF MEDICINE.



FINANCIAL AID AND EDUCATION

A VALUABLE WEAPON IN THE OPIOID FIGHT

→ When Harvard University President Lawrence S. Bacow, JD '76, MPP '76, PhD '78, visited his native Michigan in September to speak at the Detroit Homecoming, he highlighted a partnership between the Harvard T.H. Chan School of Public Health and the University of Michigan to help combat the national opioid crisis.

That caught the attention of Eugenio Madero, CEO of vehicle parts manufacturer Rassini, a Mexico-headquartered company that has plants in Michigan and Ohio, two states heavily impacted by the crisis.

“I was encouraged and inspired by President Bacow and the partnership between Harvard and the University of Michigan,” Madero says. “Given our company’s ties to communities in the Midwest, we wanted to contribute to this very important effort.”

To that end, Madero made a significant gift to Harvard Medical School to support addiction prevention and treatment in northwest Ohio, home to a Rassini plant. The gift allowed the School’s Office for External Education to host an extensive education program in that area, at which HMS faculty collaborated with local providers to share best practices and experiences managing pain, treating addiction, and preventing overdose deaths. Clinicians, first responders, law enforcement agencies, and residents of multiple Ohio counties benefited.

“HMS appreciates the vision, leadership, and support of Eugenio Madero, his family, and Rassini in the area of opioid education,” says Dean for External Education David Roberts, MD '95.

Madero says supporting Harvard is important to his family. His father, Antonio Madero, MBA '61, was a close friend of the late David Rockefeller and has been a longtime backer of the David Rockefeller Center for Latin American Studies at Harvard University.

“HMS IS KEY TO HELPING SUPPORT IMPACTED COMMUNITIES AND HELPING SHAPE PUBLIC POLICY AROUND THIS PERVERSIVE AND DESTRUCTIVE HEALTH PROBLEM.”

EUGENIO MADERO

“Also, the Fundación Mexico en Harvard, founded by my father and other Harvard alumni in Mexico, has awarded more than 1,000 scholarships to students from Mexico over the past 30 years to attend graduate programs,” Madero says.

Those long-standing ties to Harvard made HMS an obvious choice as a partner in combating the opioid crisis.

“HMS is key to helping support impacted communities and helping shape public policy around this pervasive and destructive health problem,” Madero says.



HARVARD MEDICAL SCHOOL PRODUCES AN INNOVATIVE CONTINUING MEDICAL EDUCATION PROGRAM CALLED THE “OPIOID USE DISORDER EDUCATION PROGRAM.” LEARN ABOUT THE PROGRAM AND ITS THREE FREE COURSES AT [TINYURL.COM/HMS-PAIN-MEDICINE](https://tinyurl.com/HMS-PAIN-MEDICINE)

CHECK OUT “THE OPIOID CRISIS IN AMERICA,” AN E-LEARNING COURSE CREATED BY HARVARD MEDICAL SCHOOL AS A FREE PUBLIC EDUCATIONAL TOOL, AT [TINYURL.COM/OPIOID-CRISIS-AMERICA](https://tinyurl.com/OPIOID-CRISIS-AMERICA)

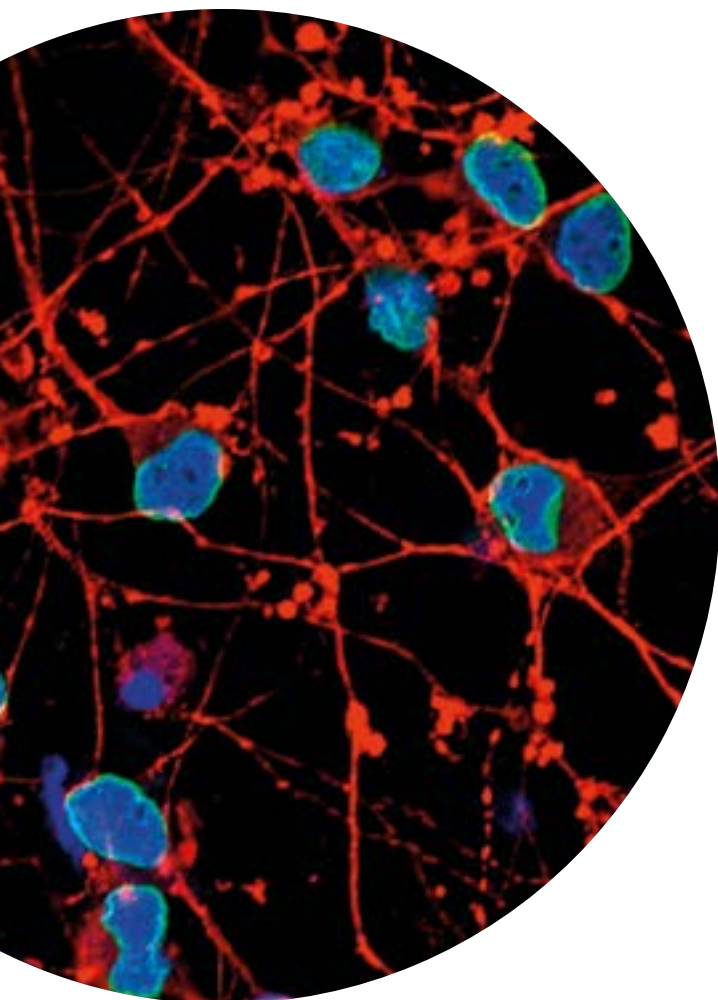
EXTENDING HEALTHY LIVING

➔ When the Glenn Foundation for Medical Research began supporting Harvard Medical School in 2005, it was entering new territory. Established in 1965 by Paul F. Glenn, JD '55, the foundation had long been awarding grants to individuals whose research aligned with its mission to extend health spans. Now, it wanted to try a different approach.

"Harvard was our first major foray into this type of program, where we were sponsoring multiple labs as accelerators of our mission, which is to study the basic biology of aging and develop interventions to allow people to increase their health span as they live longer," says K. Leonard Judson, the foundation's CEO and a member of its board of directors.

"THE [GLENN] CENTER PLAYS AN IMPORTANT ROLE IN PUSHING THE BOUNDARIES OF NEW APPROACHES TO UNDERSTANDING THE AGING PROCESS."

BRUCE YANKNER



Those labs comprise the Paul F. Glenn Center for Biology of Aging Research at HMS and are led by David Sinclair, PhD, professor of genetics and co-director of the Glenn Center; Bruce Yankner, MD, PhD, professor of genetics and neurology and co-director of the Glenn Center; Marcia Haigis, PhD, professor of cell biology; and Amy Wagers, PhD, the Forst Family Professor of Stem Cell and Regenerative Biology at Harvard and co-chair of the Department of Stem Cell and Regenerative Biology.

"We took a chance and started the first Glenn Center at Harvard because a number of faculty there were doing exciting things with aging research," Judson says. "It went exceptionally well, and we continue to be pleased by their work."

So pleased, in fact, that the foundation recently committed an additional \$3 million to the center, bringing the foundation's total funding to HMS to \$16 million.

"Support from the Glenn Foundation enables us to develop new technologies and pursue novel hypotheses about aging and the disorders of aging that would be difficult to support through traditional grant funding mechanisms," Yankner says. "As such, the center plays an important role in pushing the boundaries of new approaches to understanding the aging process."

Sinclair concurs, saying that the "early stage and cutting-edge work supported by the Glenn Foundation is often perceived as not yet ready for NIH funding."

Judson commended the center for collaborating with research groups across Harvard and in other Glenn Centers around the country. That collaboration, says Wagers, creates "unprecedented opportunities to realize synergies and combine interdisciplinary expertise to break new ground in understanding the pathways and treating the pathologies of aging."

Haigis adds that the foundation's support has helped boost community-building initiatives, such as a data club seminar series and an international symposium. "These efforts are central to bringing together a diverse group of faculty, postdocs, and students," she says.

Judson says he realizes that translating basic aging research into interventions is a long and expensive process, but he's optimistic about the center's progress. "We're excited about what we've discovered. This is not an easy science, but we have added significant knowledge about the biology of aging in multiple areas," he says.

LEFT: SPORADIC ALZHEIMER'S CELLS WITH MISSHAPEN NUCLEAR MEMBRANES. IMAGE COURTESY OF YANKNER LAB

PROGRESS IN AGING RESEARCH AT HMS

HERE IS A SNAPSHOT OF THE RECENT ADVANCES THAT HAVE EMERGED FROM THE PAUL F. GLENN CENTER FOR BIOLOGY OF AGING RESEARCH AT HMS:

VASCULAR AGING

David Sinclair's Lab has discovered a way to reverse vascular aging in mice by boosting the presence of two molecules naturally present in the body, potentially paving the way for therapies in humans to address the spectrum of diseases that arise from vascular aging.

ALZHEIMER'S DISEASE

Bruce Yankner's Lab has created the first cell culture model system of the prevalent sporadic form of Alzheimer's disease, leading to new hypotheses regarding the pathogenesis of this devastating disease.

IMMUNITY

Marcia Haigis' Lab has identified mitochondrial and metabolic pathways that are dysregulated in T cells during aging, offering an important step toward understanding why immunity is impaired with aging.

AGING ORGANS

Amy Wagers' Lab has been defining the core regulatory networks that determine the efficiency with which stem cells are activated to participate in tissue repair, suggesting novel means by which these cells could be mobilized to promote recovery and regeneration in aged organs.



IN BRIEF

THE FOLLOWING FACULTY-GENERATED GRANTS TOTALING \$250,000 OR MORE WERE AWARDED BY ORGANIZATIONS TO SUPPORT HARVARD MEDICAL SCHOOL FACULTY MEMBERS IN THEIR WORK TO ALLEVIATE SUFFERING AND IMPROVE HEALTH AND WELL-BEING FOR ALL.

The **Dr. Miriam and Sheldon G. Adelson Medical Research Foundation** awarded a grant of \$383,474 to Joan Brugge, PhD, the Louise Foote Pfeiffer Professor of Cell Biology in the Blavatnik Institute at HMS and director of the Ludwig Center at Harvard, continuing its long-standing support of Brugge's work to develop combination therapies for high-grade serous ovarian cancer.



The **Breast Cancer Research Foundation** has also continued to back Brugge, giving \$250,000 to support her research on defining heterogeneity in drug sensitivity and its consequences in clonal populations of triple-negative breast cancer cells.



Joan Y. Reede, MD, MPH '90, SM '92, MBA, dean for diversity and community partnership at HMS, received \$337,000 from **Aetna Foundation**

Inc. for two distinct projects, one in support of advancing diversity and embracing inclusion at HMS, and the other to study emotional exhaustion and burnout, with a specific focus on groups underrepresented in the medical profession.

Constance Cepko, PhD, the Bullard Professor of Genetics and Neuroscience in the Blavatnik Institute at HMS, was awarded \$250,000 from **Alcon Research Ltd.** for her work to further our understanding of metabolic support for cones in retinal degenerations.



The **Laura and John Arnold Foundation** awarded more than \$420,000 to two researchers in the Blavatnik Institute at HMS studying the impact of health care pricing. Ateev Mehrotra, SM '06, MD, MPH, associate professor of health care policy, is studying the effects of financial reward programs on the price and utilization of low-priced health care providers. Richard Frank, PhD, the Margaret T. Morris Professor of Health Economics, is aiming to more fully understand the degree to which hospitals of various types have high price-cost margins and what the consequences of reducing those in various ways would be. Of key concern is access to care.



Shan Meltzer, PhD, a research fellow in neurobiology in the Blavatnik Institute at HMS, was named a 2018 Hanna H. Gray Fellow by the **Howard Hughes Medical Institute**. The fellowship provides \$320,000 in support of Meltzer's research into the molecular mechanisms of mammalian touch circuit development.

Sandeep Robert "Bob" Datta, MD '04, PhD '04, assistant professor of neurobiology in the Blavatnik Institute at HMS, was awarded \$500,000 from the **Cure Alzheimer's Fund** for his research into a set of genes that impact the occurrence of Alzheimer's disease.

The **Burt L. and N. Kuggie Vallee Foundation** named Sichen Shao, PhD, assistant professor of cell biology in the Blavatnik Institute at HMS, a 2018 Vallee Scholar, providing \$300,000 for her work decoding ribosome-associated quality control mechanisms.



Did You Know 76% of HMS Students Receive Financial Aid?

➤ MEET ONE OF THEM

"By supporting financial aid, alumni play a crucial role in ensuring that HMS continues to recruit a diverse student body that reflects the growing need for a diverse physician workforce."

CHELSEA MESSINGER

Please consider a leader-ship gift to support need-based financial aid.

Contact Ariadne Valsamis at **617-384-8501** or **ariadne_valsamis@hms.harvard.edu** to learn how you can support the next generation of leaders in science and medicine.



Q&A WITH GEORGE Q. DALEY

We sat down with Harvard Medical School Dean George Q. Daley, AB '82, MD '91, PhD, to talk about faculty support, which is a theme of this issue of Pulse.



01

What is distinctive about the faculty in the Blavatnik Institute at HMS?

Our faculty are intellectual leaders, not followers. We seek out the most creative and independent thinkers whose work is not only on the cutting edge of curiosity-driven research, but is creating brand new fields of exploration. Thanks to the landmark gift from the Blavatnik Family Foundation, we are creating a culture of community by investing in fundamental, curiosity-driven science, shared platform technologies, and collaborative grants so discoveries made by our faculty can have measurable impact as quickly as possible.

02

There's been a lot of buzz about translational research and precision therapies. Is support for basic scientific research still important?

I think distinguishing between basic science and translational research is a false dichotomy. The best translational science requires a deep understanding of fundamental biological mechanisms. This is the focus of much of the research on the Quad, and it's why we have invested and must continue to invest so heavily in this area. The precision therapies of the future will emerge when we can be precisely mechanistic.

03

How do you feel when you learn about faculty, like Fred Goldberg and his wife, Joan, who are giving back to HMS or whose family and friends are giving to HMS in their honor, like Christopher T. Walsh?

There is perhaps no greater vote of confidence in HMS than when a faculty, administrator, or staff member makes a gift of personal significance to support our future. Fred is a towering example of how insights into a very fundamental question have led to powerful agents to fight disease. Chris has been one of my most esteemed colleagues and an important mentor to me over the years. He embodies the dual principles of deep science with a commitment to translation. I am thankful for their vast contributions to science and these gifts.

CALENDAR

MAY 20

HARVARD/PAUL F. GLENN SYMPOSIUM ON AGING

Each year, the Paul F. Glenn Center for Biology of Aging Research hosts the Harvard/Glenn Symposium on Aging Research with a mission to educate the wider research community about advancements in this field and to stimulate collaboration. Attendees come from across the world for this one-day event, which features presentations by leading aging researchers.

Learn more and register at tinyurl.com/2019-glenn-symposium.

JUNE 6–8

REUNION

Alumni from HMS classes ending in 4 and 9 and their guests are invited to rediscover the campus and rekindle old friendships during the 2019 Reunion festivities. Enjoy a class dinner at the annual gala, faculty and alumni symposia, campus tours, class-specific events, a family picnic, and much more.

Visit alumni.hms.harvard.edu/reunion, call 617-384-8520, or email hmsalum@hms.harvard.edu for more information.

JUNE 7

ALUMNI DAY

Return to campus for the dean's State of the School Address, the presentation of the first Distinguished Service Award for Alumni to Dea Angiolillo, MD '79, the Harvard Medical Alumni Association's annual business meeting, the Alumni Day Symposium, and campus tours. A private lunch also will be held for members of the Society of the Silver Stethoscope—alumni who have celebrated their 60th Reunion.

For more information, visit alumni.hms.harvard.edu/alumni-day.

JUNE 8

RECENT GRADUATE GATHERING IN BOSTON

Come enjoy the city's nightlife with fellow recent HMS grads at Revere Hotel Boston Common's rooftop bar, Rooftop@Revere. Those celebrating their 5th, 10th, or 15th Reunion are welcome, as are any other alumni who graduated in 2004 or later.

Visit alumni.hms.harvard.edu/recent-grad-gathering or contact Julie Griffin-Carty at 617-384-8519 for more information.

JULY 19

EVERGRANDE CENTER SYMPOSIUM

Get a glimpse into the role of chronic inflammation underlying human diseases by attending the sixth annual Symposium on Immunity and Inflammation in Disease and Tissue hosted by the Evergrande Center for Immunologic Diseases at Harvard Medical School and Brigham and Women's Hospital. The event will be held in the amphitheater at the Joseph B. Martin Conference Center at HMS.

For more information, contact Sarah Hillman at sarah_hillman@hms.harvard.edu.

JULY 29

ALUMNI NMA RECEPTION

If you are planning to attend the National Medical Association's annual convention and scientific assembly in Honolulu, join us from 6 to 7:30 p.m. at the Hilton Hawaiian Village Hotel for an alumni reception hosted by the HMS Office of Diversity Inclusion and Community Partnership and the Harvard Medical Alumni Association.

Invitations to follow. For more information, contact Althea Roach Thomas at 617-432-0161 or althea_roachthomas@hms.harvard.edu.

OCTOBER 3

WARREN ALPERT FOUNDATION PRIZE AND SYMPOSIUM

Join us as we celebrate the winners of the 2019 Warren Alpert Foundation Prize, which recognizes the world's foremost scientists, physicians, and researchers for their breakthroughs in biomedicine. The 31st annual symposium will be held in the HMS New Research Building.

For more information, contact Caitlin Craig at 617-384-8467 or caitlin_craig@hms.harvard.edu.

OCTOBER 4–5

PRIMARY CARE CONFERENCE

The Center for Primary Care is hosting a conference in Boston that is open to all primary care clinicians and some students. The event will include a keynote address, sessions, workshops, pre-conference sessions, poster presentations, and more.

For more information, contact Caroline Barnaby at caroline_barnaby@hms.harvard.edu or 617-432-3453.

OCTOBER 28

CELEBRATING 50 YEARS OF DIVERSITY AND INCLUSION AT HMS AND HSDM

Join our family of alumni, faculty, trainees, students, and staff for a day of learning, discussion, and tours to mark 50 years of working together.

Visit hms.harvard.edu/diversity50 or email diversity-celebration@hms.harvard.edu for more information.

CELEBRATING CAMPAIGN IMPACT

Donors came together at Fenway Park on Nov. 8 to celebrate the success and impact of *The World Is Waiting: The Campaign for Harvard Medicine*. The Campaign raised more than \$789 million from July 1, 2011, through June 30, 2018, to help people live longer, healthier lives through investments in education, discovery, service, and leadership.



HARVARD/MIT MD-PHD PROGRAM STUDENT SPEAKER CLARA STARKWEATHER



CAMPAIGN CHAIR AND DONOR JOSHUA BOGER

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10,000

ALUMNI, FRIENDS, VOLUNTEERS, FACULTY, STAFF, CORPORATIONS, AND FOUNDATIONS



CAMPAIGN DONOR ERNESTO BERTARELLI WITH FORMER HMS DEAN JEFFREY S. FLIER

MORE THAN

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PULSE
is produced by the Harvard Medical School Office of Alumni Affairs and Development

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HARVARD
MEDICAL SCHOOL

TWO LABS COLLABORATE TO
IDENTIFY NEW APPROACHES
TO TREATING ALZHEIMER'S

08

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CELEBRATING THE HEART AND IMPACT OF THE HMS COMMUNITY

PULSE

SPRING 19

WELCOME TO PULSE

We are thrilled to introduce you to Pulse, the biannual newsletter of the Harvard Medical School Office of Alumni Affairs and Development. Formerly known as The Benefactor, Pulse reveals and celebrates the heart and impact of the HMS community.