HARVARD MEDICAL SCHOOL

CELEBRATING THE HEART AND IMPACT OF THE HMS COMMUNITY

PULSE

SPRING 25

FEATURED STORY

A COLLABORATIVE PUSH TO UNCOVER CRITICAL PARKINSON'S INSIGHTS

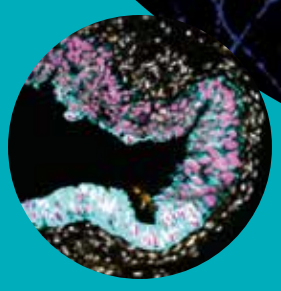
ASAP initiative boosts understanding of mechanisms driving disease progression

02

PAVING THE WAY FOR TOMORROW'S DOCTORS

Gillian Steinhauer honors late husband through scholarship

05



COMBATING BRCA-LINKED CANCER THREATS

Gray Foundation fuels hope for those with gene mutations

11

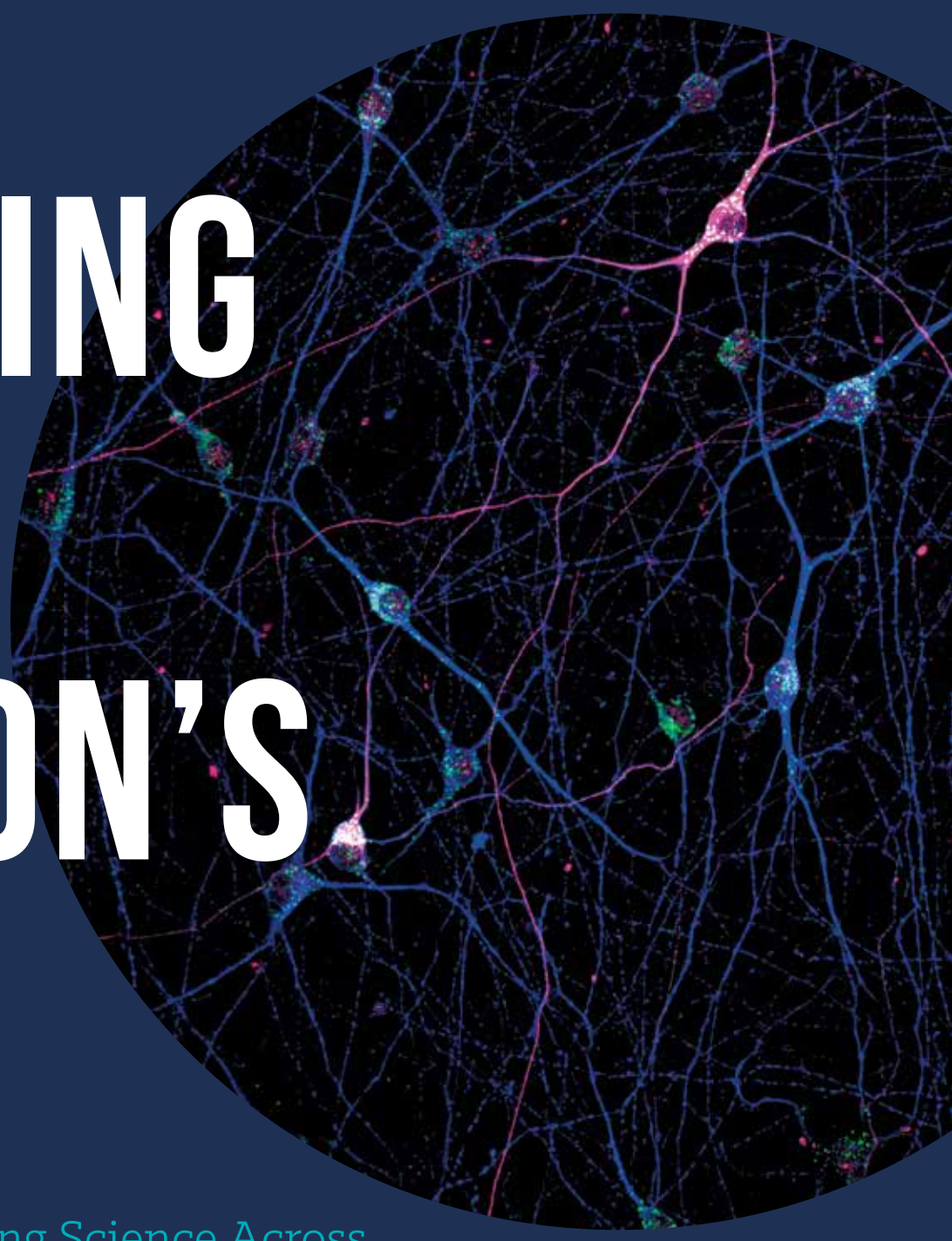
EXTENDING ACTIVE, HEALTHY YEARS

Pearce Foundation propels aging and chronic disease research

12

RESEARCH AND THERAPEUTICS

UNCOVERING CRITICAL PARKINSON'S INSIGHTS



THIS CONFOCAL IMAGE SHOWS STEM-CELL-DERIVED iNEURONS LABELED FOR PHOSPHORYLATED α-SYNUCLEIN, A PROTEIN LINKED TO PARKINSON'S DISEASE, SPECIFICALLY AT THE SERINE 129 SITE (PHSYN129, MAGENTA); AN ENDOSOMAL MARKER (EEA1, GREEN); AND THE CYTOSKELETON (TUBULIN, BLUE). IMAGE: FELIX KRAUS AND ANA GALESIC/HARPER LAB

In a notable continuation of its journey to unravel Parkinson's disease (PD), a team led by Wade Harper, PhD, the Bert and Natalie Vallee Professor of Molecular Pathology and chair of the Department of Cell Biology in the Blavatnik Institute at Harvard Medical School, has received an additional $5.25 million from the Aligning Science Across Parkinson's (ASAP) initiative. These funds will support the team's work within the Collaborative Research Network (CRN), an international, multidisciplinary group of investigators aiming to address key gaps in understanding the basic mechanisms driving PD's development and progression.

The Aligning Science Across Parkinson's initiative aims to accelerate the pace of discovery and inform the path toward a cure for Parkinson's disease through three key components: collaboration, resource generation, and data sharing.

The Michael J. Fox Foundation, ASAP's implementation partner, issued the grant, which will propel research into the molecular and cellular aspects of early-stage PD. Building on an initial $7.2 million grant from ASAP, Team Harper—including co-investigators Ruben Fernandez-Busnadiego, PhD (University of Göttingen); Judith Frydman, PhD (Stanford University); Franz-Ulrich Hartl, MD (Max Planck Institute of Biochemistry [MPIB]); Brenda Schulman, PhD (MPIB); and Florian Wilfling, PhD (Max Planck Institute of Biophysics)—is dedicated to investigating how disruptions in cellular quality control contribute to PD.

> "FOSTERING THIS KIND OF COLLABORATIVE SCIENCE IS KEY TO UNLOCKING THE SECRETS OF PARKINSON'S DISEASE."
>
> WADE HARPER

The team is intensifying its efforts to understand how aging contributes to loss of quality control pathways in the context of cells harboring genetic risk factors for Parkinson's disease. "Our most challenging task is elucidating the molecular mechanisms of genes that normally function in protein and organelle quality control pathways linked to PD," Harper says. "Several Parkinson's risk genes function in pathways that are important for clearance of aberrant proteins and organelles, and understanding how these pathways are defective in disease requires a multifaceted approach."

Using advanced methods such as cryo-electron tomography (cryo-ET) for visualizing proteins and organelles at nanometer resolution and proteomics to uncover defective pathways, the team maps how genetic risk factors and aging converge to impact cellular processes, thereby highlighting their influence on PD progression.

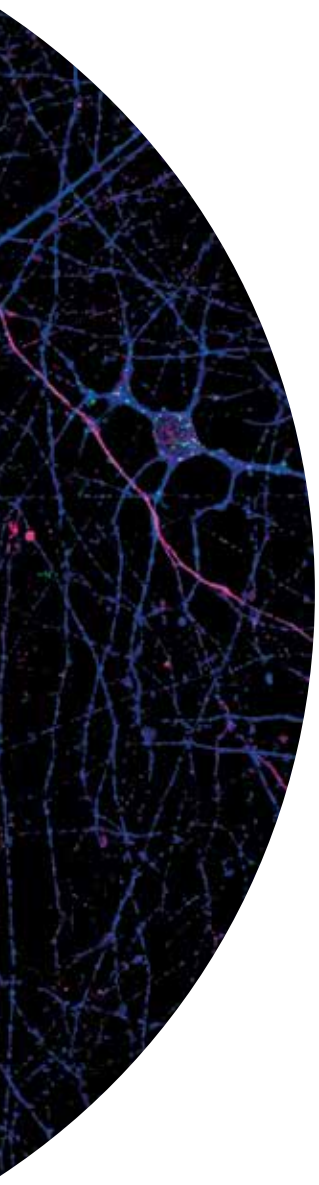
Ekemini A. U. Riley, PhD, ASAP's managing director, underscores the team's contributions to the CRN and PD research field. "Team Harper has made substantive progress in broadening our knowledge of the mechanisms that impact cellular quality control and their relation to Parkinson's disease, while exemplifying ASAP's collaborative nature and open science principles," she says. "We hope that the research carried out by Team Harper and other CRN teams will bring new ideas to the field, which may one day lead to new avenues of investigation for PD."

The Harper team's use of cryo-ET provides unprecedented insights into cellular structures, offering new perspectives on PD at the molecular level. "This approach generates new hypotheses about which defects might be relevant to the disease," Harper shares, emphasizing its role in revealing how protein clumps (called Lewy bodies) associated with PD alter cellular pathways and contribute to neurodegeneration.

Furthermore, the team is enhancing proteomic techniques to better understand the molecular dynamics of Parkinson's risk genes, aiming to identify critical cellular functions disrupted by protein clumps, potentially uncovering new therapeutic avenues.

The supplemental funding will also allow the team to explore novel interactions within the endolysosomal system, a pathway that includes several proteins that are defective in familiar forms of Parkinson's disease. This is crucial for understanding how PD-linked protein aggregates like α-synuclein, which clump in certain brain disorders, impact disease progression. Harper notes, "Understanding α-synuclein toxicity at the molecular level will suggest strategies to protect cells from its harmful effects."

Looking ahead, Harper reflects, "Fostering this kind of collaborative science is key to unlocking the secrets of Parkinson's disease."



WHERE IT'S NEEDED MOST

AN ORTHOPEDIST'S LIFELONG COMMITMENT TO CARE AND ADVOCACY

The legacy of Clarence H. Heyman, MD 1916, continues to make an impact more than 60 years after his passing. Remembered as a kind-hearted and gentle man, Heyman was not only a dedicated clinician but also a passionate advocate for people with disabilities. His life was a testament to the power of compassion and education in medicine.

Born in the village of Paulding, Ohio, Heyman attended Harvard Medical School before honing his skills as a resident surgeon at Boston City Hospital, a former public hospital in Boston's South End. He joined the Army Medical Corps during World War I and eventually returned to Ohio, where he settled in Cleveland. There, he made indelible strides as an orthopedic surgeon and served as a clinical instructor at Western Reserve University between 1924 and 1958.

Heyman's personal life was marked by both joy and sorrow. He married Olive M. Chapman in Salem, Massachusetts, in 1918, and together they welcomed four children into the world. However, tragedy struck when they lost their son John at just 2 years old, followed by the news that their son William was lost at sea during the Normandy landings of World War II.

In 1946, Heyman thoughtfully devised a strategy to secure his family's financial future and to support causes close to his heart by using various estate planning tools. HMS recently benefited from this foresight, receiving more than $660,000 from the Clarence H. Heyman Trust. This bequest is designated for unrestricted use, allowing the dean to allocate funds in the most effective ways, such as enhancing students' experiences through social opportunities and mental health resources and integrating emerging technologies across all departments to improve health care delivery.

"Unrestricted giving is essential, as it enables us to seize emerging opportunities and pursue scholarship and discovery wherever they may lead us," says HMS Dean George Q. Daley, AB '82, MD '91, PhD.

Through this gift, Heyman's dedication to medicine and humanity lives on, fostering advancements that will continue to touch countless lives.

ALBRIGHT SYMPOSIUM EXPLORES AI'S ROLE IN MEDICINE

A FRAMED PHOTO OF HOLLIS L. ALBRIGHT IS SEEN AT LEFT, BESIDE TENLEY E. ALBRIGHT AND MARTA WILLIAMS (RIGHT).

"Compassionate communication and physical examination—these are not going to go away," assured HMS Dean for Medical Education Bernard S. Chang, AB '93, MD, MMSc '05, during the 2025 Hollis L. Albright, MD '31 Symposium, which focused on artificial intelligence in medicine. As the keynote speaker, Chang highlighted how AI is being integrated into classrooms, clinics, and hospital wards to enhance learning and patient care.

Earlier in the symposium, Beverly Woo, AB '70, MD, an HMS associate professor of medicine at Brigham and Women's Hospital (BWH) and the Arky Family Associate Director and Advisor of the Francis Weld Peabody Society, introduced her mentee Marta Williams, MD '25. Williams was honored as the recipient of the 2025 Albright Scholar Award for her demonstrated excellence in the surgical sciences. Additionally, 2010 Albright Scholar recipient Regan W. Bergmark, MD '11, MPH '23—now an HMS assistant professor of otolaryngology–head and neck surgery and a surgeon at BWH—shared a personal story of becoming a patient at BWH due to a brain lesion in 2023.

HMS Dean George Q. Daley, AB '82, MD '91, PhD, briefly discussed AI's role in health care, emphasizing its impact on research, education, and patient treatment. Tenley E. Albright, MD '61, delivered the symposium's opening remarks. In 2001, she and her brother, Nile L. Albright, AB '61, MD, established the endowed symposium at HMS in memory of their father, an alumnus who devoted his life to surgery, patient care, and student mentorship.

CULTIVATING LEADERS IN AI-DRIVEN HEALTH CARE

The Breyer Family Foundation recently granted $400,000 to Harvard Medical School to empower a new generation of leaders at the intersection of artificial intelligence and health care. This funding supports students in the Artificial Intelligence in Medicine (AIM) PhD track, enabling them to leverage large-scale biomedical data and apply advanced AI methodologies to develop innovative solutions that combine technology with patient care.

Launched in 2024, the AIM track, offered to PhD students in the HMS Department of Biomedical Informatics (DBMI), seeks to enhance global health care by improving both the quality and equity of health outcomes. It attracts talented students with strong quantitative skills in computer science, engineering, and mathematics who are also passionate about biology and medicine. The new grant establishes Breyer Graduate Fellows within this track.

Jim Breyer, MBA '67, founder and CEO of Breyer Capital, describes the convergence of artificial intelligence and medicine as one of the most profound frontiers in human health and technology. He highlights the AIM PhD track's pioneering role in preparing physician-scientists and computational biologists, stating, "These individuals will not only push the boundaries of discovery but also redefine how we diagnose, treat, and prevent disease—all while designing a health care system that delivers exceptional care with greater efficiency. I am proud to support this initiative, knowing that its graduates will play a pivotal role in shaping the future of health care and biomedical innovation."

The AIM PhD track integrates advanced machine learning coursework with clinical rotations at affiliated hospitals, providing interdisciplinary training that strengthens students' ability to drive change in health care systems. By immersing themselves in the practical applications of AI in health care, AIM students learn to accelerate diagnoses, personalize therapies, and reduce care costs through disease prediction. They collaborate with leading AI researchers and clinical scientists, positioning themselves to create technologies that significantly augment clinical decision-making and advance biomedical research.

DBMI Chair Isaac Kohane, MD, PhD, expressed gratitude for the support from the Breyer Family Foundation's grant. "It allows us to provide a transformative educational experience, ensuring our students are equipped to make groundbreaking contributions to medical science and patient care," says Kohane, who is also the Marion V. Nelson Professor of Biomedical Informatics at HMS and co-director of The Ivan and Francesca Berkowitz Family Living Laboratory Collaboration at HMS and Clalit Research Institute.

"I AM PROUD TO SUPPORT THIS INITIATIVE, KNOWING THAT ITS GRADUATES WILL PLAY A PIVOTAL ROLE IN SHAPING THE FUTURE OF HEALTH CARE AND BIOMEDICAL INNOVATION."

JIM BREYER

FIVE-TIME GRAMMY WINNER ACCEPTS MAHONEY PRIZE

The Harvard Mahoney Neuroscience Institute (HMNI) and Harvard Medical School celebrated Renée Fleming, the 2024 David Mahoney Prize winner, at a symposium titled "Music and Mind" on Nov. 18 at HMS. Fleming received the prize, which honors people who have significantly increased public awareness about brain science and disorders of the nervous system, for her advocacy of research at the intersection of music, health, and neuroscience. During her remarks at the event, Fleming described her commitment to this cause as an "incredible passion."

Fleming is an American soprano who has won five Grammy Awards and received the National Medal of Arts. She was appointed by the World Health Organization as a Goodwill Ambassador for the Arts and Health and received the Kennedy Center Honor for lifetime artistic achievement. She is also a founding adviser of the NeuroArts Blueprint Initiative and the Sound Health Network.

Before HMNI founder Hildegarde E. Mahoney presented the award, HMS Dean George Q. Daley, AB '82, MD '91, PhD, told Fleming, "Your commitment to this evolving interdisciplinary field is nothing short of extraordinary, and your generosity with your sublime musical gifts has already gone a long way toward alleviating suffering and improving the health and well-being of so many people."

LEARN MORE ABOUT 2024 MAHONEY PRIZE RECIPIENT RENÉE FLEMING AT TINYURL.COM/MAHONEY-PRIZE.

RENÉE FLEMING (LEFT), GEORGE Q. DALEY, AND HILDEGARDE E. MAHONEY

PAVING THE WAY FOR TOMORROW'S DOCTORS

The late Bruce W. Steinhauer, MD '59, can't be described in just a few words. Instead, his life is best represented through his actions. Known for his dedication to making house calls to patients throughout his illustrious 60-year career, he believed in providing care to everyone, regardless of their status. His commitment to patient care and community service set him apart, embodying a remarkable level of dedication to the field of medicine.

In honor of her husband's enduring legacy, Gillian Steinhauer has made a $1 million commitment to Harvard Medical School through two charitable gift annuities (CGAs). The Bruce W. Steinhauer, MD Scholarship Fund will ensure that promising students from all backgrounds can access the impactful education that Bruce himself received at HMS, irrespective of their financial circumstances.

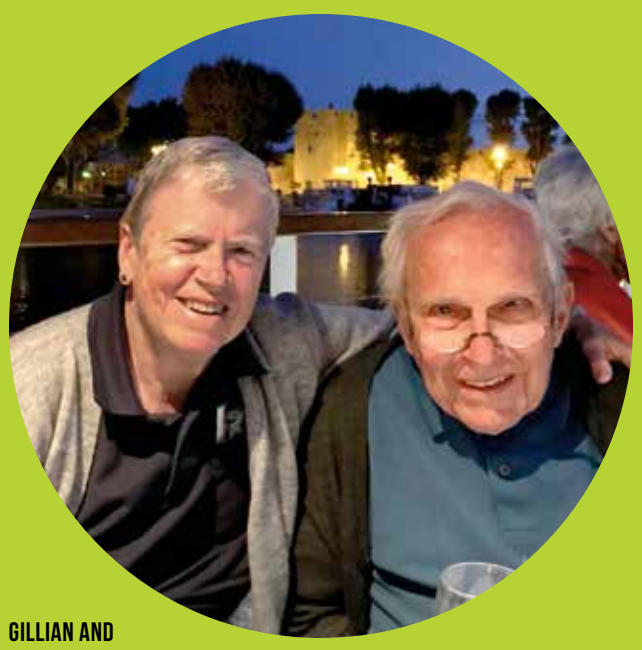
Reflecting on her husband's experience, Gillian says: "Bruce received an excellent education, which greatly benefited him throughout his medical career. I wanted to support medical students so they can attend Harvard, even if they might not otherwise have the financial means to do so."

Raised with the belief that philanthropy is a duty, Gillian shares, "We needed to give 10% either to church or to charity. That's just the way I grew up." Although Bruce was initially surprised by this concept, he wholeheartedly embraced it, and together, they built a life centered on generosity throughout their 63-year marriage.

Gillian's journey with CGAs began somewhat unexpectedly when, as a Bryn Mawr College alumna volunteer, she was tasked with encouraging her classmates to consider planned giving. "I looked at it as a retirement plan," she explains. "I'm getting money I may need right now to live, but when I no longer need it, the medical school will benefit." This strategic approach allowed her to make significant contributions while also planning for her future, making her a steadfast advocate for CGAs ever since.

By supporting HMS, Gillian not only honors Bruce's lifelong dedication to medicine but also hopes to inspire others to consider using life income gifts as a way to create lasting educational opportunities. She understands the far-reaching impact such support can have, affecting individual students as well as the medical field as a whole.

In celebrating this gift, HMS Dean for Medical Education Bernard S. Chang, AB '93, MD, MMSc '05, expressed profound gratitude: "We are immensely thankful for Gillian Steinhauer's generous gift in honor of her husband, Bruce, a distinguished alumnus. This scholarship fund will ensure that future generations of HMS students are equipped to follow in Bruce's footsteps, continuing the tradition of excellence and compassionate care that he exemplified."



GILLIAN AND BRUCE STEINHAUER

"I WANTED TO SUPPORT MEDICAL STUDENTS SO THEY CAN ATTEND HARVARD, EVEN IF THEY MIGHT NOT OTHERWISE HAVE THE FINANCIAL MEANS TO DO SO."

GILLIAN STEINHAUER

Harvard Medical School has one of the most generous MD financial aid programs in the country, maintaining an average graduating debt at approximately half the national average for private medical schools and well below the national average for state schools.

FACES OF HMS

01

02

03

04

05

06

07

08

01

Alumni, current students, faculty, and staff of the Harvard/MIT MD-PhD Program celebrated the program's 50th anniversary with an academic symposium, cocktail hour, scientific poster session, and dinner party Nov. 15 at HMS.

02

Eva Harris, AB '87, PhD, a professor of infectious diseases and vaccinology at the University of California, Berkeley, delivered one of two keynote talks at the 2024 MassCPR Symposium, held Nov. 19 at UMass Chan Medical School. This year's event was dedicated to the pathology and infectious mechanisms of endemic, emerging, and submerging viruses. The Massachusetts Consortium on Pathogen Readiness (MassCPR) is led by HMS and is propelled by a common mission: to strengthen the fight against infectious disease outbreaks.

03

During Match Day 2025, joyful shouts filled the lobby of the New Research Building as faculty, family, and friends joined 166 graduating HMS MD students in celebrating the next steps in their careers as physicians. An annual tradition, Match Day is celebrated on the third Friday in March, with medical students across the country learning the results at the same time.

04

Andrew Beam, PhD (left), chief technology officer of Lila Sciences and an associate professor of epidemiology at the Harvard T.H. Chan School of Public Health, delivered the keynote speech—focusing on biomedical discovery in the age of artificial intelligence—at the Gilbert S. Omenn Lecture on Dec. 3. Hosted by the Department of Biomedical Informatics in the Blavatnik Institute at HMS, the annual lecture is made possible through the generosity of Gilbert S. Omenn, MD '65, PhD (right), who was central to the formation of the department.

05

Barbara S. Taylor, MD '01 (right), attended a reception for HMS alumni and friends held alongside the Association of American Medical Colleges (AAMC) Annual Meeting in Atlanta. Aspiring doctor Marcos Monteon (left), who had participated in an AAMC-hosted recruitment fair earlier, was a late but welcome addition to the Nov. 9 gathering. The event included HMS updates from Dean for Medical Education Bernard S. Chang, AB '93, MD, MMSc '05.

06

Gordon Postdoctoral Fellows Keunjung Heo, PhD (top), and Shijia Liu, PhD, presented their research findings Feb. 14 at the 10th annual research day for the Ellen R. and Melvin J. Gordon Center for the Cure and Treatment of Paralysis at Spaulding Rehabilitation Hospital and Harvard Medical School. Heo is a member of the Woolf Lab at the F.M. Kirby Neurobiology Center at Boston Children's Hospital, while Liu is part of the Sabatini Lab in the Department of Neurobiology in the Blavatnik Institute at HMS.

07

Effy Vayena, PhD, a professor of bioethics at ETH Zürich, presented the 2024 George W. Gay Lecture in Medical Ethics on Nov. 21 at HMS. Vayena explored the shifts that artificial intelligence brings to bioethics and charted new opportunities for the field, emphasizing its role in guiding responsible innovation and fostering more compassionate, equitable health care.

08

On Jan. 3, the White House presented the National Medal of Science (NMS) or the National Medal of Technology and Innovation (NMTI) to 23 individuals and two organizations. Among the honorees were (clockwise from bottom left) HMS faculty member David Walt, PhD (NMTI), and HMS alumni Emery N. Brown, AB '78, AM '84, MD '87, PhD '88 (NMS); Jennifer Doudna, PhD '89 (NMTI); and Paul G. Yock, MD '79 (NMTI).

EMPOWERING EDUCATION THROUGH GENEROSITY

Harvard Medical School is committed to making a world-class education accessible and affordable through its twin values of need-blind admissions and need-based aid. This commitment is strengthened by the generous contributions of donors who believe in the power of education and the importance of nurturing future medical professionals. Recent donations from Allison W. Kurian, MD '99, and Thomas Kurian; the estate of Roman W. DeSanctis, MD '55; and the Walter Lee Barker and Betty Ruth Barker Foundation are pivotal in sustaining and enhancing HMS's dedication to educational excellence and accessibility.

Allison W. Kurian and Thomas Kurian
As previous supporters of the REACH Scholarship Program, the Kurians have deepened their commitment by establishing the Allison W. Kurian, MD '99 and Thomas Kurian REACH Scholarship Fund. The REACH Program makes accepting admission to HMS more feasible for students with need and from disadvantaged backgrounds. This new fund directly aids students who demonstrate Resilience, Excellence, Achievement, Compassion, and a commitment to Helping the underserved. "We are inspired by the tremendous dedication and accomplishments of HMS students and consider it a privilege to contribute to their support through the REACH Scholarship Program," says Allison Kurian.

The Estate of Roman W. DeSanctis
The late Roman W. DeSanctis, a devoted HMS benefactor for 45 years, made a significant gift through his estate to create the Roman and Ruth DeSanctis Endowed Financial Aid Fund. DeSanctis served as a Class Agent, chaired Reunion Committees for his class, and participated on the HMS Alumni Council. As a grateful scholarship recipient, he became active in development after retiring from practicing medicine in 2014. His gift ensures that future generations can pursue medical education regardless of financial constraints. In his 60th Reunion Report, he reflected to his classmates, "As I said in a speech to Harvard Medical School graduates, we are so fortunate to have been in our chosen profession of medicine—we have gone to work every day with no other mandate than to relieve pain and suffering and try to heal the sick."

The Walter Lee Barker and Betty Ruth Barker Foundation
Established after the passing of Walter Lee Barker, AB '49, MD '53, in 2020, the Walter Lee Barker and Betty Ruth Barker Foundation recently made a substantial contribution to the HMS Scholarship Fund. Walter Barker, whose generosity spanned 40 years of giving to HMS, firmly believed in the foundational role of education at HMS, particularly the impact of mentors in shaping tomorrow's physicians. "Harvard Medical School has always provided the necessary keystones and building blocks not only for excellence of medical education, but also for the development of sound quality parameters in order to provide that same excellence to the delivery of medical services to our patients," Barker wrote in his 60th Reunion Report.

At HMS, 20% of financial aid recipients come from a family whose annual income is $50,000 or less.

EHC SPOTLIGHT: TOBY GERHART, MD '75

EZEKIEL HERSEY COUNCIL

"I am proud that HMS is at the forefront of advancing medical knowledge, and I support the School's dedication to offering a cutting-edge medical education. Unfortunately, the escalating costs of education are saddling graduates with debt, pressuring them to opt for higher-paying careers. To help ease this pressure and inspire others to make a meaningful impact, I'm supporting student scholarships with a bequest intention in honor of my 50th Reunion. This approach allows me to maintain control of my assets during my lifetime, while ensuring that HMS will benefit after my passing. Additionally, because I've reached my 50th Reunion, my bequest intention counts toward my Reunion class gift."

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

CLEARING A PATH FOR YOUNG ADULTS TO SUCCEED

In an era of expansion in the life sciences industry, the need for skilled workers continues to rise. Enter Harvard Medical School's MEDscienceLAB Pathmaker program—a dynamic collaboration between HMS MEDscience, Project LEARN, and UMass Lowell (see details below). Pathmaker offers an intensive training experience for students aged 18 to 29, opening doors to entry-level positions in health care and life sciences, regardless of educational background.

The program's hands-on approach is central to its success. Participants move beyond traditional classroom settings to train in working labs at HMS and the University of Massachusetts Lowell, using industry-standard equipment and techniques. They also engage in immersive training for medical emergencies using MEDscience's lifelike mannequins.

Trainees benefit from targeted learning experiences with MEDscience industry partners, including Mass General Brigham, Dana-Farber Cancer Institute, Pfizer, and Merck. By shadowing professionals in lab operations roles and working directly with human resources and recruiting teams, participants gain valuable insights into career paths and advancement strategies within leading hospitals and life sciences companies.

"This experience not only taught me what I set out to learn but also helped me discover new things about myself and my potential," says Pathmaker participant Tiana Nhem, who joined the eight-week program to develop essential skills in the life sciences and learn more about the diverse career opportunities within. "It's been a transformative journey that's prepared me to take the next steps toward a fulfilling career in the health field."

A recent generous donation from Bloomberg Philanthropies is helping to ensure that Pathmaker remains accessible and tuition-free, thereby paving the way for meaningful careers in health care and life sciences, both locally and beyond. That's great news to MEDscience Executive Director Julie Joyal, EdM '08, who says, "Pathmaker equips participants with the skills and experience needed to thrive in a dynamic and growing field, positioning them as innovators and leaders in an industry with endless possibilities."

PATHMAKER STUDENTS TRAIN IN A LAB.
IMAGE: SAMWAEL ARMOUSH/ HMS MEDSCIENCE

HMS MEDSCIENCELAB PATHMAKER

This collaborative program trains young adults, representing a variety of backgrounds, in career development and lab skills. It comprises:

01

HMS MEDscience

A program designed to inspire and empower a rising generation of STEM (science, technology, engineering, and math) leaders. Engaging more than 4,000 students annually, it offers an innovative, simulation-based curriculum that transforms the way participants approach and solve problems.

02

Project LEARN

An innovative nonprofit that connects young adults from Lowell, Massachusetts, with opportunities for experiential learning, skill building, and early career development.

03

UMass Lowell

A public university committed to offering research and learning experiences for local youth. About 44% of its undergraduates are students of color and 45% of its first-year students are first-generation college students.

WHERE IT IS NEEDED MOST

FLEXIBLE AID DRIVES INNOVATION AND PROGRESS

Three recent bequests—two from members of the Harvard Medical School Class of 1957—highlight the pivotal role that unrestricted, flexible aid plays in enhancing the School's mission. Such generous contributions enable the dean to strategically address emerging priorities, enrich student experiences, and leverage cutting-edge technologies across all departments to advance health care delivery.

"Discretionary support enables our faculty and students to advance the ideas that will have the greatest potential to help people live longer, healthier lives," says HMS Dean George Q. Daley, AB '82, MD '91, PhD.

"DISCRETIONARY SUPPORT ENABLES OUR FACULTY AND STUDENTS TO ADVANCE THE IDEAS THAT WILL HAVE THE GREATEST POTENTIAL TO HELP PEOPLE LIVE LONGER, HEALTHIER LIVES."

GEORGE Q. DALEY

Donald S. Pierce, AB '53, MD '57, began his philanthropic journey with HMS in 1981 and remained steadfastly committed for decades. He was instrumental as a fundraising staff liaison, mobilizing his classmates to contribute toward Reunion class gifts. In honor of his 50th Reunion, Pierce and his wife, Janet, established the Donald S. Pierce and Janet T.B. Pierce Charitable Remainder Trust, which recently distributed significant funds to HMS. This strategic gift allowed the couple to transfer assets into a tax-exempt account managed by Harvard, providing income to designated beneficiaries while ensuring that the remainder would greatly benefit HMS.

David E. Leith, MD '57, also began his giving journey in 1981. His continual support of the School, spanning several decades, reflected his enduring commitment to HMS's core educational mission. A recent substantial gift from the David E. Leith and Barbara R. Leith Trust—established by Leith and his wife, Barbara—ensures that this commitment lives on. "While he did not always support the administration, he did always support the education," says the couple's son Matthew Leith.

Andrew G. Webster, AB '36, MD '40, dedicated his life to healing and comforting the sick, a commitment honored by his late wife, Catherine Marina Barrese Webster, through a bequest from her estate. Building on her husband's legacy of several unrestricted gifts and a charitable gift annuity that provided HMS with essential flexible-use funds, Catherine continued to support HMS after his 2006 passing by making her own unrestricted donations. She also named two chairs in the Joseph B. Martin Conference Center Amphitheater in honor of Andrew and his father, Harrison Briggs Webster, AB 1905, MD 1909.

FINANCIAL AID AND EDUCATION

A LEGACY OF ADVENTURE, MEDICINE, AND PHILANTHROPY

Anne Rassiga, MD '66, was an adventurous spirit whose life wove a rich tapestry of diverse interests, including swimming, sailing, skiing, horseback riding, fox hunting, and travel. Additionally, she played tennis, was a 50-year member of the National Ski Patrol, and competed in synchronized figure skating.

"OUR ASPIRATION IS SIMPLE: NO STUDENT ADMITTED TO HARVARD MEDICAL SCHOOL SHOULD EVER HAVE TO DECIDE WHICH MEDICAL SCHOOL TO ATTEND BASED ON COST."

GEORGE Q. DALEY

Professionally, Rassiga built a decades-long career as a highly respected physician. Certified by the American Board of Internal Medicine, she held additional subspecialty certifications in hematology and medical oncology. She began her professional journey in Ohio before eventually practicing in Pennsylvania. At the time of her passing in March 2024, Rassiga was director emeritus of the Cancer Care Center at Warren General Hospital. Her extensive knowledge and unwavering devotion to her patients earned her widespread respect and admiration from her colleagues.

Rassiga's legacy of steadfast philanthropy to HMS began in 1979 when she started consistently contributing to the School. Among her gifts was a $10,000 donation that named a chair in the Joseph B. Martin Conference Center amphitheater to benefit financial aid. This commitment to medical education continues posthumously through a recent $250,000 bequest from her estate to support scholarships at HMS.

HMS Dean George Q. Daley, AB '82, MD '91, PhD, underscores the importance of such support. "Our aspiration is simple: No student admitted to Harvard Medical School should ever have to decide which medical school to attend based on cost."

ANNE RASSIGA'S CHAIR INSCRIPTION THANKS HER PARENTS, BRYN MAWR COLLEGE, AND HARVARD FOR A LIFELONG LOVE OF LEARNING.

PURSUING THERAPIES TO EASE LINGERING LYME SYMPTOMS

In a pioneering leap forward in the fight against chronic Lyme disease, Michael Starnbach, PhD, a professor of microbiology in the Blavatnik Institute at Harvard Medical School, is making significant headway in understanding how Borrelia burgdorferi, the bacterium responsible for Lyme disease, evades the immune system. Using an innovative approach that draws parallels to cancer research, Starnbach and his team are exploring how the organism might mimic signals that instruct the immune system to suppress T cells, a strategy also employed by cancer cells.

This critical research has been fueled by generous support from Emily and Malcolm Fairbairn, MBA '94. Their latest $300,000 gift has enabled the team to engineer tags on both B. burgdorferi and the T cells responding to it. "As a result, we can infect mice with B. burgdorferi and track the T cells as they respond," Starnbach explains. This advancement allows the team to meticulously study the immune response dynamics, with the hopes of identifying therapeutic avenues that can enhance T cell activity and mitigate persistent infections.

The Fairbairns' contributions have also accelerated investigations into using cancer drugs to potentially reverse the immune suppression seen in Lyme sufferers. Starnbach notes that his lab's ultimate aim is "to define how T cells naturally respond to infection and develop therapies to allow better clearance of the organism without immune side effects."

In addition to bolstering Starnbach's work, the Fairbairns' support has facilitated collaborations that have expanded the scope of the research. Notably,

Although most Lyme disease patients fully recover after treatment, some experience prolonged symptoms that can lead to considerable suffering, according to the Centers for Disease Control and Prevention.

Tanja Petnicki-Ocwieja, PhD, a research assistant professor at Tufts University School of Medicine, is examining macrophage interactions with Lyme disease in Starnbach's lab, while Novalia Pishesha, PhD, an HMS assistant professor of pediatrics based at Boston Children's Hospital, is developing nanobodies to monitor real-time interactions between B. burgdorferi and the immune system in living models.

"We are thrilled to see Dr. Starnbach's research drawing together such diverse expertise," Emily Fairbairn says. Since 2018, she and her husband have given nearly $6 million to advance a range of promising research pathways at HMS aimed at better understanding Lyme disease and its devastating effects. This includes fostering a productive collaboration in the HMS Department of Immunology between professor Isaac Chiu, AB '02, PhD '09, and associate professor Jun Huh, PhD. The Chiu and Huh labs have achieved significant milestones in elucidating the pathogenesis of Lyme disease, with Chiu concentrating on chronic pain and nerve damage linked to B. burgdorferi

THIS 3D ILLUSTRATION DEPICTS BORRELIA BURGDORFERI, THE SPIRAL-SHAPED BACTERIUM THAT CAUSES LYME DISEASE.

infection, and Huh focusing on the neurological symptoms and mechanisms of infection that result in motor deficits and anxiety-like behaviors.

"Our ongoing commitment is fueled by the hope that these efforts will make a real difference for affected individuals," Emily Fairbairn says.

SNAPSHOTS EVENT EXPLORES THE STUDENT EXPERIENCE AT HMS

Physicians are adopting artificial intelligence (AI) to enhance their ability to analyze diagnostic data, develop treatment plans, calculate disease risk, summarize patient histories, and communicate with patients and colleagues. While AI offers significant benefits, Kyeisha Laurence, a Harvard Medical School MD student in the Class of 2026, emphasizes the necessity of balancing these innovations with human elements.

"We need to focus on the basics," she asserts, stressing the importance of patient-centered language and involving patients in decision-making processes. Reflecting on her Principal Clinical Experience at Brigham and Women's Hospital, Laurence says she felt empowered because she understood the importance of listening to patients' stories and prioritizing empathy—essential skills she was taught in the HMS curriculum.

Laurence shared these insights Nov. 12 during "Snapshots: A Portrait of Today's Students." This virtual event provided attendees with a deeper understanding of the current student experience, showcasing rigorous academics, innovative learning opportunities, and personal stories illustrating students' dedication and passion.

HMS Dean for Medical Education Bernard S. Chang, AB '93, MD, MMSc '05, moderated the discussion, which featured (top to bottom) Kyeisha Laurence; Francesco Rolando, AB '21, MD-PhD (MD Class of 2027); and Jia Jia Zhang, AB '20, MD '25.

ADVANCING STRATEGIES TO COMBAT BRCA-LINKED CANCER THREATS

THIS MICROSCOPIC VIEW SHOWS THE MOLECULAR FEATURES OF AN EARLY OVARIAN PRECANCER (HIGHLIGHTED IN AQUA AND PINK). IMAGE: SANTAGATA LAB

In their quest to transform cancer care, two researchers in the Harvard Medical School Laboratory of Systems Pharmacology (LSP) are leading a pair of projects that offer hope to individuals with BRCA1 and BRCA2 gene mutations. These mutations significantly increase the risk of developing breast and ovarian cancers at a young age, prompting some carriers to consider invasive procedures, such as prophylactic mastectomy or oophorectomy (removal of ovaries), even before a cancer diagnosis.

"Developing new diagnostics to assist with challenging decisions about preventive surgery or treatment of early cancers can profoundly affect quality of life," says Peter Sorger, AB '84, PhD, the Otto Krayer Professor of Systems Pharmacology in the Blavatnik Institute at HMS. He and Sandro Santagata, MD, PhD, an associate professor of systems biology at HMS and an associate professor of pathology at Brigham and Women's Hospital, seek to shift cancer care toward proactive, less invasive strategies.

Building a portal for data-driven, tailored cancer treatments

A central element of their work is the Gray BRCA Pre-Cancer Atlas, a pioneering digital resource for data on early-stage breast and ovarian cancers. (The "Gray" denotes the Gray Foundation, which supports the research of leading physicians and scientists who are focused on the prevention, interception, and early detection of BRCA-related cancers.) Sorger notes that remarkably little information is available about cancers at early, potentially curable stages, emphasizing, "This portal is particularly important because much of the data we are collecting and releasing does not yet have an organized home in an NIH-supported repository."

> "THESE PROJECTS ALIGN WITH OUR MISSION TO ADDRESS BRCA-RELATED CANCER CHALLENGES THROUGH INNOVATIVE RESEARCH, MOVING US CLOSER TO OUR AMBITION TO STOP THESE CANCERS BEFORE THEY START."
>
> DANA ZUCKER

By integrating extensive molecular and imaging data, the portal—a cross-institutional effort—helps scientists and clinicians correlate molecular information with patient outcomes, leading to more personalized treatment approaches. It also fosters global collaborations, giving researchers around the world access to cutting-edge findings essential for guiding new research directions and clinical applications.

The Gray Foundation has contributed nearly $200 million to leading research institutions for the treatment and prevention of BRCA-related cancers.

Probing the origins of serous ovarian cancer

In parallel with the portal's development, Santagata and Sorger are investigating how serous ovarian cancer initiates. Using spatial transcriptomics and multiplexed imaging—advanced tissue analysis methods—they're revealing where genes and proteins are expressed within tissue samples. Integrating these approaches using artificial intelligence and machine learning tools has revealed early disease markers for improved diagnosis and future targets for preventive therapies. This effort has been strengthened through a close partnership with Ronny Drapkin, MD, PhD, a leader in ovarian cancer research who is based at the Basser Center for BRCA at the University of Pennsylvania.

"We recently published a study in Cancer Discovery detailing early immune system changes and cancer-causing activities observed in ovarian precancers," says Santagata, highlighting that treatments effective in advanced cancers might also prevent disease at its earliest stages. He cautions, however, that the threshold for applying these therapies to individuals without advanced disease is understandably very high, underscoring the need for deeper insights into early precancer changes.

Leveraging Gray Foundation support

Recognizing the transformative potential of this work, the Gray Foundation recently awarded these two projects $2 million in combined support, building on a prior commitment of more than $1.2 million. In addition, the foundation granted Alyce Chen, MPH, PhD '12, scientific program manager for the LSP, nearly $750,000 to develop and deploy the computational and informatic components required to support the Gray BRCA Pre-Cancer Atlas.

"We're grateful for Peter and Sandro's leadership of this groundbreaking collaborative effort," says Dana Zucker, MBA '95, CEO of the Gray Foundation. "These projects align with our mission to address BRCA-related cancer challenges through innovative research, moving us closer to our ambition to stop these cancers before they start."

RESEARCH AND THERAPEUTICS

AGING WITH HEALTH AND VITALITY

The late M. Lee Pearce, MD, a longtime Harvard Medical School benefactor and member of the HMS Board of Fellows, once posed a crucial question: "What good is all the medical science in the world in extending life if it is not accompanied by an acceptable quality of life for a broad number of people and nations?"

Driven by this question, The Dr. M. Lee Pearce Foundation, Inc., has awarded a $3 million grant to the Quadrangle Fund for Advancing and Seeding Translational Research (Q-FASTR) at HMS, with the goal of propelling significant advances in aging and chronic disease research. This grant, distributed over three years, demonstrates the foundation's commitment to bridging the gap between health span and lifespan, while supporting Q-FASTR's mission to turn fundamental biomedical discoveries into tangible health solutions.

"WE ANTICIPATE EXCITING DEVELOPMENTS IN REDUCING THE BURDEN OF CHRONIC DISEASES THAT UNDERLIE THE HEALTH SPAN-LIFESPAN GAP."

MICHAEL A. CARPENTER

As part of HMS's Therapeutics Initiative, Q-FASTR catalyzes innovation by funding research projects with high translational potential. This grant will not only enhance Q-FASTR's capacity to support Pilot Awards and Development Awards but also enable the introduction of Accelerator Awards (see award details below). "The new Accelerator Awards build on early-stage research by enabling critical experiments essential for securing further funding, with the ultimate aim of advancing toward clinical application," says Ifat Rubin-Bejerano, PhD, senior director of translational research at HMS and a leader of Q-FASTR.

A recent study of 183 World Health Organization member countries documented an average health span-lifespan gap of 9.6 years. The United States had the largest gap—12.4 years—according to the study's senior author, Andre Terzic, MD, PhD, a Mayo Clinic researcher and a board member of The Dr. M. Lee Pearce Foundation, Inc.

M. LEE PEARCE ATTENDS AN HMS BOARD OF FELLOWS MEETING IN 2008.

The grant aligns Q-FASTR's innovative framework with the Pearce Foundation's vision, presenting a significant opportunity to advance aging research. "Increasing the number of disease-free years to match longer lifespans is the Pearce Foundation's primary goal for medical research," says Michael A. Carpenter, president and chairman of the board of the Pearce Foundation. "The incredible leadership at Harvard's Q-FASTR program and the emphasis on moving research into commercialization and patient care are an ideal fit for our foundation."

Since its inception in 2016, Q-FASTR has impacted every basic science department at HMS, with 48% of Quad-based faculty having applied for funding. QFASTR has invested roughly $13.3 million in 80 projects, resulting in five new companies, 51 patents, and more than $180 million in follow-on funding.

Both Rubin-Bejerano and fellow Q-FASTR leader Mark Namchuk, PhD, the Puja and Samir Kaul Professor of the Practice of Biomedical Innovation and Translation and the executive director of therapeutics translation at HMS, expect that a robust selection of projects related to age-associated diseases will be eligible for funding. "So many chronic and serious diseases, ranging from neurodegenerative disease to cancer to metabolic syndrome, are associated with aging," says Namchuk.

Encouraged by the potential interest, Carpenter says, "We anticipate exciting developments in reducing the burden of chronic diseases that underlie the health span-lifespan gap."

TYPES OF Q-FASTR AWARDS

Applicants may submit proposals for three types of awards:

01

Pilot Award

Up to $100,000 for one year; supports critical experiments to validate therapeutics-related concepts, forming a basis for further funding or commercialization.

02

Development Award

Up to $300,000 for two years; targets advanced-stage projects to produce clear, practical results that demonstrate potential for clinical or commercial success and attract further investment.

03

Accelerator Award (new)

Up to $400,000 for an additional two years; fuels further development of projects previously funded by Q-FASTR, propelling them toward commercialization and clinical application.

A LOVE FOR MEDICINE AND EACH OTHER

In 1962, two European doctors found their paths intersecting in Boston, united by a shared passion for medicine. Vladimir Fencl, MD, CSc (Candidate of Sciences), from Czechoslovakia, joined the Harvard Medical School Department of Physiology as a research associate, investigating respiratory disturbances related to acid-base balances. Montserrat de Miquel, PhD, from Spain, worked as an HMS research fellow at Beth Israel Hospital, studying placental hormones. Four years later, the couple married.

The research enterprise at HMS comprises 11,000 faculty members and over 1,600 medical and graduate students striving to alleviate suffering caused by disease.

After spending two years working at Oslo University Hospital in Norway, they returned to the U.S., where their careers flourished under the expansive reach of HMS. Fencl became an associate professor of anesthesia at Peter Bent Brigham Hospital, which later merged into Brigham and Women's Hospital (BWH). He then became an associate professor of medicine and the medical director of respiratory care at BWH, retiring from the Division of Pulmonary and Critical Care Medicine in 1990.

Sadly, Fencl passed away in 2002. Honoring his wishes, de Miquel Fencl established a revocable trust to benefit HMS. More than two decades later, having lived longer than she expected, she decided to amend the trust to distribute the funds immediately. Her recent gift of $1.5 million creates the endowed Montserrat and Vladimir Fencl Research Fund, aimed at advancing biomedical research by supporting faculty in areas such as biochemistry, molecular biology, and genetics.

VLADIMIR FENCL

"Support for faculty research is crucial to HMS's biomedical science mission, enabling novel ideas and exceptional work that promise breakthroughs for the future," says David Golan, AB '75, MD, PhD, dean for research initiatives and global programs at HMS. "Flexible gifts like this expand our understanding of health and disease, leading to improved medical care and enhanced quality of life."

MONTSERRAT DE MIQUEL FENCL

Now 97, de Miquel Fencl expresses gratitude to HMS for its profound impact as a nurturing environment for learning, research, clinical work, and teaching medical students and fellows, as well as for fostering lasting friendships within the Harvard community. Reflecting on her journey, she says: "Our time at HMS was filled with inspiration and discovery. I hope our contribution fosters that same spirit of innovation and camaraderie, paving the way for future breakthroughs."

"SUPPORT FOR FACULTY RESEARCH IS CRUCIAL TO HMS'S BIOMEDICAL SCIENCE MISSION, ENABLING NOVEL IDEAS AND EXCEPTIONAL WORK THAT PROMISE BREAKTHROUGHS FOR THE FUTURE."

DAVID GOLAN

De Miquel Fencl, meanwhile, returned from Norway with an offer from the HMS Department of Biological Chemistry to work as a research associate under the tutelage of Claude Alvin Villee Jr., PhD, at the Boston Hospital for Women, a former HMS teaching hospital that merged into BWH. A year later, she was tasked with building a laboratory dedicated to reproductive endocrinology. She eventually became an assistant professor at HMS in the Department of Obstetrics and Gynecology before retiring in 1987.

REMEMBERING SOCIAL JUSTICE ADVOCATE ALVIN POUSSAINT

Psychiatrist and civil rights activist Alvin Francis Poussaint, MD, a respected authority on race relations and a range of other social issues, died Feb. 24 at age 90. At Harvard Medical School, he dedicated more than 50 years to increasing diversity in medicine and reducing health disparities by encouraging individuals from underserved populations to pursue careers in the medical field. As the faculty associate dean for student affairs and the founding director of the HMS Office of Recruitment and Multicultural Affairs, Poussaint played a crucial role in promoting diversity and inclusion at HMS and the Harvard School of Dental Medicine. He recruited and mentored nearly 1,400 students of color and established supplemental educational programs to help students from disadvantaged backgrounds achieve successful careers in medicine. Read more about Dr. Poussaint's life and lasting impact at **tinyurl.com/HMS-Poussaint**.

UNRAVELING THE MYSTERIES OF NEURODEGENERATIVE DISEASE, PAIN, AND ITCH

The lab of Isaac Chiu, AB '02, PhD '09, a professor of immunology in the Blavatnik Institute at Harvard Medical School, is breaking new ground in the study of neurodegenerative illnesses, pain, and itch. This work is supported by a generous $1 million dollar gift from an anonymous donor.

Neurodegenerative disease

The PhD thesis of longtime Chiu Lab member Dylan Neel, AB '15, PhD '23, MD '25, laid the groundwork for some of the lab's most promising recent work on neurodegenerative illnesses. While studying amyotrophic lateral sclerosis (ALS), Neel found that the protein Gasdermin-E triggers an inflammatory cascade that opens pores in mitochondria, leading to axon degeneration and, eventually, neuron death. By reducing the expression of Gasdermin-E genes in a mouse model—thereby suppressing the protein's production—researchers have managed to slow degeneration. This approach could potentially be applicable not only to ALS but also to Alzheimer's, cortical diseases, dementia, and many other neurodegenerative disorders.

Staphylococcus aureus is a type of bacteria found on the skin or in the nose of about 30% of humans, according to the Centers for Disease Control and Prevention.

Pain

The Chiu Lab also demonstrated, in a 2023 paper, a strong connection between pain and microbial infection. "Bacteria facilitate their advance into the central nervous system," Chiu explains, "by hijacking sensory neurons in the meninges"—the protective layers of tissue surrounding the brain and spinal cord. The lab is currently exploring whether microbes contribute to chronic pain and examining the nervous system's response to painful stimuli beyond the meninges, particularly in the skin. Early work with mouse models is promising: When treated with antibiotics, mice experience less chronic pain. The lab is also investigating the mechanism underlying chronic pain in Lyme disease (caused by Borrelia burgdorferi) and how botulinum toxin (commonly known as Botox), which blocks the body's local response to nerve signals, might treat infections.

Itch

Another significant area of study involves the bacterial pathogen Staphylococcus aureus. The Chiu Lab demonstrated for the first time a direct connection between microbial infection and itch. Lab members found that S. aureus secretes a protease that directly activates sensory neurons, driving itch and causing skin damage. The bacterium is present in skin lesions in nearly all patients with the chronic condition atopic dermatitis.

"Until recently," says Chiu, "we believed that the itch associated with atopic dermatitis and eczema arose from the accompanying inflammation of the skin." Instead, the lab's research revealed that S. aureus itself directly causes itch by instigating a molecular chain reaction that prompts sensory neurons to signal the urge to scratch. The paper announcing these findings, published in Cell in 2023, attracted significant media attention.

> "THE DONOR'S GENEROUS SUPPORT IN THIS CHALLENGING FUNDING LANDSCAPE EMPOWERS US TO MAKE IMPORTANT DISCOVERIES AND PROGRESS IN SCIENCE THAT WOULD NOT OTHERWISE BE POSSIBLE."
>
> ISAAC CHIU

The lab continues to explore the link between bacterial infection and chronic itch. Lab members are examining whether the cascade might lead to downstream allergies; it's possible that itch-causing bacteria also induce asthma or allergies via damage to the skin.

"We are extremely grateful for this gift," says Chiu. "The donor's generous support in this challenging funding landscape empowers us to make important discoveries and progress in science that would not otherwise be possible."

PROFESSORSHIP CELEBRATIONS

The following newly established Harvard Medical School professorships were recently celebrated, recognizing the generosity of their respective benefactors and the accomplishments of their inaugural incumbents.

01

YANCOPOULOS PROFESSORSHIP IN HONOR OF ALT

Frederick W. Alt, PhD (left), and George D. Yancopoulos, MD, PhD (center), celebrate Dec. 3 at HMS with Taekjip Ha, PhD, of Boston Children's Hospital, who was recognized as the inaugural incumbent of the George D. Yancopoulos, MD, PhD Professorship in honor of Frederick W. Alt, PhD. Following Alt's retirement, this professorship will be renamed the George D. Yancopoulos, MD, PhD and Frederick W. Alt, PhD Professorship.

02

WALBERT PROFESSORSHIP OF MEDICINE

Soumya Raychaudhuri, MD, PhD, of Brigham and Women's Hospital, enjoys a ceremony held in his honor March 4 at HMS, where he was celebrated as the inaugural incumbent of the Timothy P. and Keli B. Walbert Professorship of Medicine in the Field of Rheumatology.

03

HARVARD PILGRIM HEALTH CARE INSTITUTE PROFESSORSHIP

A celebration held Nov. 4 at HMS honored Richard Platt, MD '73, SM '84, and Emily Oken, MD '96, MPH '03, as the inaugural and current incumbents, respectively, of the Harvard Pilgrim Health Care Institute Professorship of Population Medicine.

GEORGE Q. DALEY (LEFT) AND ALAN GARBER

INAUGURAL EVENT CELEBRATES HMS FACULTY HOLDING ENDOWED PROFESSORSHIPS

Harvard Medical School Dean George Q. Daley, AB '82, MD '91, PhD, and Harvard University President Alan Garber, AB '77, AM '77, PhD '82, MD, hosted a black-tie gala Jan. 9 to honor the distinguished HMS faculty members who hold endowed professorships. The event, Legacies of Excellence, featured a reception, dinner, and addresses by distinguished speakers.

Endowed professorships represent the highest honor that HMS confers upon its faculty. Professors with these titles serve as beacons of excellence in research, clinical innovation, and educational leadership. They make extraordinary contributions to science and medicine as they shape the Harvard medical community and beyond.

Both Daley and Garber hold endowed HMS professorships—Daley is the Caroline Shields Walker Professor of Medicine, while Garber is the Mallinckrodt Professor of Health Care Policy.

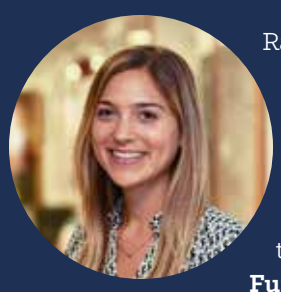
In addition to Daley and Garber, remarks at the event were delivered by Anne E. Becker, AB '83, MD '90, PhD '90, SM '05, dean for clinical and academic affairs, the Maude and Lillian Presley Professor of Global Health and Social Medicine, and a professor of psychiatry at HMS; Gary R. Fleisher, MD, the Egan Family Foundation Professor of Pediatrics at HMS and physician-in-chief at Boston Children's Hospital (BCH); and Robert Smith, AB '81, MBA '85, benefactor of the Robert and Dana Smith Professorship at the Harvard Faculty of Arts and Sciences and BCH.

WATCH A BRIEF VIDEO, NARRATED BY DEAN DALEY AND FEATURING THREE FACULTY MEMBERS, DESCRIBING THE HISTORY AND SIGNIFICANCE OF ENDOWED PROFESSORSHIPS AT HMS.
TINYURL.COM/HMS-ENDOWED-PROFESSORSHIPS

IN BRIEF

The following grants and gifts totaling $250,000 or more were awarded to members of the Harvard Medical School community in support of their work to alleviate suffering and improve health and well-being for all.

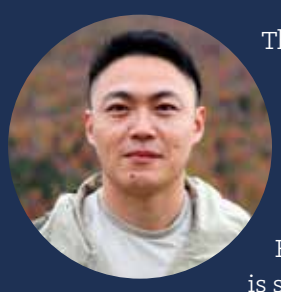
Debora Marks, PhD, a professor of systems biology in the Blavatnik Institute at HMS, is leading a team of researchers working to improve vaccine design for the highly pathogenic avian influenza H5N1. With $942,000 in funding from the **Coalition for Epidemic Preparedness Innovations**, the team is developing computational models to predict antigen variation, ensuring vaccine effectiveness against diverse viral strains. In collaboration with Houston Methodist Research Institute, Marks and her team aim to design and test antigenic elements and create interactive tools for immunogen design, ultimately producing validated immunogens and user-friendly software.



Rachel Wolfson, MD '19, PhD, an assistant professor of cell biology in the Blavatnik Institute at HMS, received a $700,000 award from the **Burroughs Wellcome Fund** to study five subtypes of dorsal root ganglion sensory neurons in the gastrointestinal (GI) tract. Her research investigates the roles of these neurons in motility and satiety in the upper GI tract, with the goal of identifying therapeutic targets for common GI disorders, including constipation, diarrhea, early satiety, and abdominal pain.

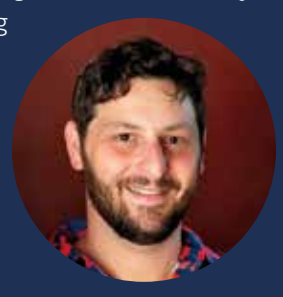
Novartis AG has donated $625,000 to support activities related to the Lancet Commission on People-Centered Care for Universal Health Coverage. The commission seeks to promote equitable, high-quality health care systems and involves a diverse group of experts in defining, measuring, and implementing people-centered care globally, engaging individuals with lived experiences in health policymaking and care delivery.

The **International OCD Foundation** granted $500,000 to Steven A. McCarroll, PhD, the Dorothy and Milton Flier Professor of Biomedical Science and Genetics in the Blavatnik Institute at HMS. McCarroll aims to uncover molecular and cellular changes in obsessive-compulsive disorder (OCD) by generating single-cell-resolution RNA expression data from over 600,000 cells using brain tissue from OCD donors. His goal is to compare these findings with matched controls to better understand the pathophysiology of OCD and its neuroimaging and electroencephalography features.



The **American Cancer Society** awarded a total of $435,000 in postdoctoral fellowships to two cell biology researchers in the Blavatnik Institute at HMS. Songhua Hu, PhD, is studying a byproduct of NAD+, a coenzyme crucial for energy metabolism. He is evaluating its role in regulating fatty acid oxidation and inhibiting early-onset colorectal cancer growth, potentially leading to dietary interventions to improve treatment outcomes. Zongyu Li, PhD, is examining glycerol's influence on obesity-related cancer development, using advanced techniques to understand its effects on tumor growth, with the goal of mitigating the impacts of a high-fat diet on cancer progression.

Two research fellows in the Blavatnik Institute at HMS collectively received nearly $417,000 in **Charles A. King Trust** Postdoctoral Fellowship Awards. Ying Liu, PhD (Department of Genetics), is studying cancer cachexia—a wasting syndrome where tumors disrupt host organ function remotely—in a fruit fly model, aiming to understand its root causes and identify new therapeutic opportunities. Caleb Weinreb, PhD '19 (Department of Neurobiology), is investigating dopamine's role in the prefrontal cortex and its impact on decision making and behavior by observing mice in naturalistic settings, with implications for understanding psychiatric disorders.



Diane Mathis, PhD, the Morton Grove-Rasmussen Professor of Immunohematology in the Blavatnik Institute at HMS, secured a $402,500 grant from **Cure Alzheimer's Fund** to explore regulatory T cells (Tregs) in the human meninges and their potential link to Alzheimer's disease (AD). By analyzing and comparing Treg populations in autopsy samples from individuals with and without AD, she aims to develop therapeutic strategies using Tregs to slow AD progression.

Lucas Farnung, PhD, an assistant professor of cell biology in the Blavatnik Institute at HMS, has secured another $400,000 in funding from the **Damon Runyon Cancer Research Foundation** to continue his research on the molecular mechanisms underlying MLL-rearranged leukemias. This extension follows successful progress made during the initial two-year term of his Damon Runyon-Rachleff Innovation Award. A distinct subset of leukemias arises from chromosomal translocations in the mixed lineage leukemia (MLL) 1 gene. This ongoing research may contribute to the development of anti-leukemia therapeutics, addressing a significant unmet medical need.

The Pew Charitable Trusts selected Silvi Rouskin, PhD, an assistant professor of microbiology in the Blavatnik Institute at HMS, to join the Pew Scholars Program in the Biomedical Sciences. Rouskin will receive $300,000 to create an RNA structure database and a machine-learning algorithm to predict RNA structures directly from sequences. By improving RNA structure prediction, Rouskin aims to enhance understanding of RNA's role in gene regulation and advance RNA-targeting drug design, impacting both research and therapeutic

FROM LEFT: SHARON ESHHAR LAVIE, REPRESENTING HER FATHER, ZELIG ESHHAR; RENIER BRENTJENS; CARL JUNE; AND MICHAEL SADELAIN

VISIT WARRENALPERT.ORG TO LEARN MORE ABOUT THE WARREN ALPERT PRIZE AND ITS RECIPIENTS.

SYMPOSIUM RECOGNIZES 2024 WARREN ALPERT PRIZE WINNERS

Harvard Medical School hosted a scientific symposium Oct. 10 in honor of the 2024 Warren Alpert Foundation Prize winners, whose discoveries led to the creation of chimeric antigen receptor (CAR) T-cell therapy. This type of treatment modifies patients' immune cells and optimizes their ability to eliminate cancer cells.

The Warren Alpert Foundation awards this $500,000 annual prize, administered by HMS, in recognition of work that has improved the understanding, prevention, and treatment of disease. CAR T-cell therapy has saved the lives of tens of thousands of adults and children with blood cancers, including leukemia, lymphoma, and multiple myeloma.

"The collective work of the four scientists honored this year has propelled the treatment of blood cancers into a new era of immune therapy and added an invaluable new tool to our armamentarium," said HMS Dean George Q. Daley, AB '82, MD '91, PhD, who chairs the Warren Alpert Foundation Prize scientific advisory committee.

The award recipients were:

- Renier Brentjens, MD, PhD, Katherine Anne Gioia Endowed Chair of Medicine and deputy director at Roswell Park Comprehensive Cancer Center.
- Zelig Eshhar, PhD, professor emeritus at the Weizmann Institute of Science and chair of immunology in the Division of Research and Development at Tel Aviv Sourasky Medical Center.
- Carl June, MD, Richard W. Vague Professor in Immunotherapy at the University of Pennsylvania Perelman School of Medicine.
- Michel Sadelain, MD, PhD, Stephen and Barbara Friedman Chair and founding director of the Center for Cell Engineering at Memorial Sloan Kettering Cancer Center.

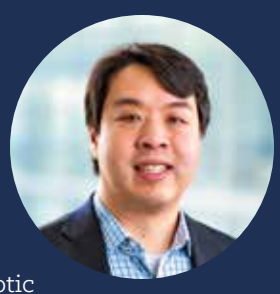
applications. Additionally, Guido Petrovich, PhD, a research fellow in biological chemistry and molecular pharmacology in the Blavatnik Institute at HMS, will receive $130,000 through the Pew Latin American Fellows Program. Petrovich seeks to identify the molecular mechanisms by which triatomine bugs locate humans and transmit Chagas disease, aiming to develop pharmacological tools to modulate bug behavior and curb disease transmission.

The Parkinson's Foundation granted a total of $284,000 to two researchers in the Blavatnik Institute at HMS working toward potential therapeutics for Parkinson's disease. Daniel Finley, AB '80, PhD, a professor of cell biology, is studying a drug-like compound, IU1-366, evaluating its potential to offset Parkin protein deficiency in Parkinson's disease by enhancing an alternative pathway that helps eliminate defective and toxic mitochondria, which Parkin would normally neutralize.

Ines Patop, PhD, a postdoctoral fellow in genetics, is exploring gene regulation and mitochondrial function in dopaminergic neurons carrying mutations associated with Parkinson's disease, focusing on genetic information transport and identifying contributing factors to the disease's pathology.

The **Leon Lowenstein Foundation** awarded an additional $250,000 to The Family Van and Mobile Health Map (MHM)—both programs of HMS—bringing its total support to date for these initiatives to $2.4 million. This new funding will help expand the capacity of Mobile Health Map, a collaborative research network that partners with researchers and front-line mobile clinic staff to evaluate and communicate the impact of mobile clinics on communities and the health care system. Specifically, it will support website upgrades to improve functionality, integrate public data, and make it easier for clinics to update their information. These enhancements will enable more clinics to join the network and will help MHM and its partners address gaps in access to essential services. The new funding also makes possible an MHM report highlighting the current landscape of mobile health care in the U.S.—a key step toward more clearly demonstrating the nationwide impact of these clinics.

Andrew Kruse, PhD, a professor of biological chemistry and molecular pharmacology in the Blavatnik Institute at HMS, received the 2024 Richard A. Smith Excellence in Biomedical Research Prize from the **Richard and Susan Smith Family Foundation**, worth $250,000. The Kruse Lab researches signal transduction across cell membranes, focusing on the role of membrane proteins like G protein-coupled receptors in human health and disease, using techniques such as protein engineering and structural biology.



The **Target ALS Foundation** awarded Isaac Chiu, AB '02, PhD '09, a professor of immunology in the Blavatnik Institute at HMS, $250,000 to study innate immune and apoptotic pathways in amyotrophic lateral sclerosis (ALS) and frontotemporal dementia. His work aims to identify how specific innate immune molecules such as Gasdermin E and antiviral signaling pathways drive cell death in ALS. This project is co-led by three researchers at Massachusetts General Hospital: Mark Albers, MD '95, PhD '95, an HMS assistant professor of neurology; Clotilde Lagier-Tourenne, MD, PhD, an HMS associate professor of neurology; and Brian Wainger, MD, PhD, MMSc '15, an HMS associate professor of anesthesia and of neurology.

ENSURING A BETTER FUTURE FOR PATIENTS THROUGH MD-PHD SUPPORT

BASIC SCIENCE IMPACT

The Harvard/MIT MD-PhD program's students have been at the forefront of new technologies such as CRISPR-based gene editing and brainwave monitoring. Two recent graduates have co-founded biotechnology companies based on the discoveries that emerged from their PhDs in the basic sciences: Winston Yan, AB '10, PhD '17, MD '22, head of translational strategy at Arbor Biotechnologies, and Jacob Donoghue, PhD '19 (MIT), MD '21, CEO of Beacon Biosignals. A majority of graduates pursue dual physician-scientist careers as faculty members at premier academic institutions. The list below illustrates the remarkable spectrum of basic science disciplines in which Harvard/MIT MD-PhD students train:

- Aeronautics/astronautics
- Biological and biomedical sciences
- Biological engineering
- Biological sciences in public health
- Biology
- Biomedical engineering
- Biomedical informatics
- Biophysics
- Brain and cognitive sciences
- Chemical biology
- Chemical engineering
- Chemistry
- Chemistry and chemical biology
- Electrical engineering and computer science
- Immunology
- Medical engineering and medical physics
- Molecular and cellular biology
- Neuroscience
- Organismic and evolutionary biology
- Physics
- Speech and hearing bioscience and technology
- Systems, synthetic, and quantitative biology
- Virology

In late 2023, the Food and Drug Administration (FDA) made a landmark decision by approving two gene therapies for sickle cell disease, an inherited red blood cell disorder affecting millions globally. Notably, one of these therapies became the first FDA-approved treatment to use the CRISPR gene-editing tool, marking the culmination of decades of scientific discoveries.

Vijay Sankaran, PhD '09, MD '10, the Jan Ellen Paradise, MD Professor of Pediatrics at Boston Children's Hospital, played a pivotal role in one such discovery back in 2008, when he was a student in the Harvard/MIT MD-PhD Program.

"The program's exposure to cutting-edge human genetics through exceptional teachers like Joel Hirschhorn (AB '86, MD '95, PhD '95) and David Altshuler (MD '94, PhD '94)—both MD-PhD Program alumni—directly inspired our use of genetic studies to decipher fetal hemoglobin regulation, culminating in the discovery of BCL11A as a key regulator of fetal hemoglobin, which prevents red blood cells from sickling," Sankaran says.

This dedication to pioneering research that impacts patients exemplifies the ethos of the Harvard/MIT MD-PhD Program, which has provided dual clinical and research training for over 50 years, preparing students to become leading physician-scientists. Sankaran highlights the program's incredible community, which unites world-class faculty from Harvard Medical School and its affiliated hospitals, the Massachusetts Institute of Technology (MIT), and Harvard's main campus with a diverse, creative, and innovative student body.

"This unique synergy fosters collaboration and creativity, enabling MD-PhD students to drive key advances in biomedicine that have shaped the field in profound ways," says Sankaran, who also notes the outstanding group of mentors among the faculty, including his PhD adviser, Stuart Orkin, MD '72.

In recognition of the program's transformative impact, a donor who chooses to remain anonymous recently gave $800,000 to HMS to support MD-PhD students pursuing research in basic foundational science. This gift brings the donor's total support for the program to $2.7 million.

"The donor's extraordinary commitment to supporting MD-PhD students in the basic sciences empowers this next generation of physician-scientists to push the boundaries of discovery and innovation at the interface of science and medicine, driving advancements in patient care," says Loren Walensky, MD, PhD, director of the program and an HMS professor of pediatrics based at the Dana-Farber Cancer Institute.

The donor emphasizes that achieving a future where patients benefit from more effective treatments and higher chances of cure hinges on training exceptionally talented students to become physician-scientists capable of linking the biological sciences with clinical patient care. "Supporting the Harvard/MIT MD-PhD program is vital to realizing this vision," the donor says.

SAMUEL ZINGA (LEFT), A STUDENT TRAINEE IN THE HARVARD/MIT MD-PHD PROGRAM, DISCUSSES HIS RESEARCH AT A POSTER SESSION HELD DURING THE PROGRAM'S 50TH ANNIVERSARY CELEBRATION NOV. 15.

TO HEAR THE REMARKABLE STORY OF THE FIRST FDA-APPROVED TREATMENT BASED ON CRISPR GENE-EDITING TECHNOLOGY, VISIT TINYURL.COM/SICKLE-STORY.

Q&A WITH IFAT RUBIN-BEJERANO

We sat down with Ifat Rubin-Bejerano, PhD, senior director of translational research at HMS and a member of the Quadrangle Fund for Advancing and Seeding Translational Research (Q-FASTR) leadership team, to explore the impact and future potential of Q-FASTR.

01

How does Q-FASTR identify which early-stage research projects have the greatest potential for commercialization, and what criteria are used to evaluate these projects for funding?

Q-FASTR prioritizes projects based on unmet medical need, increasing the likelihood that a promising therapeutic approach will attract venture capital investment and lead to new company creation, or be licensed to biotech or pharmaceutical companies. At the same time, we support projects tackling critical health challenges, such as infectious diseases or ultra-rare genetic disorders, even when traditional investors may be reluctant. The goal is that, if successful, these projects can later secure funding from alternative sources, including foundations or government programs.

A second key criterion is novelty, as innovative approaches have a greater chance of commercialization if successful. Given the early-stage nature and inherent risks of many proposals, not all will succeed—and that's OK. Our role is to take calculated risks, particularly at the pilot stage, by investing in multiple small projects that leverage novel biology and have the potential to drive meaningful advancements in human health.

02

How does Q-FASTR ensure ongoing support and mentorship for funded projects to help them reach their commercialization and clinical development goals, beyond initial funding?

Q-FASTR provides high-level scientific project management led by PhD-level project managers with industry experience. Their role is to actively monitor project progress, quickly identify challenges, and guide strategic pivots when necessary.

Beyond project oversight, Q-FASTR advises investigators of successful projects on additional internal funding sources. Notably, two projects received $1 million Blavatnik Therapeutics Challenge Awards, and another received funding from Lab1636, an alliance between Harvard University and Deerfield Management designed to enable promising innovations to advance beyond their laboratory roots. Additionally, select projects have progressed with support from Q-FASTR's discretionary fund and Translator program.

A core objective of Q-FASTR is to build a pipeline of projects attractive to follow-on funding. Translator plays a key role in accelerating promising research into later stages while addressing a major hurdle in translational science—irreproducible results, which often hinder the transition from academia to industry. By outsourcing experiments to contract research organizations, Translator not only advances projects but also ensures independent validation, improving reproducibility and ultimately enhancing long-term returns.

03

Can you explain the collaboration process between HMS Quad investigators and non-HMS Quad investigators, and how such collaborations can enhance the effectiveness and potential outcomes of funded projects?

Many of our most successful projects involve collaborations with other institutions, particularly with clinicians at our affiliated hospitals. These partnerships are invaluable, as clinicians bring firsthand insight into current unmet medical needs, facilitate access to patient samples, and, at later stages, provide critical input on clinical testing. By combining cutting-edge basic research with clinical expertise, we create a strong foundation for developing novel and innovative therapeutic approaches.

WE'RE EXCITED TO SHARE THAT PULSE IS BECOMING A FULLY DIGITAL PUBLICATION.

This fall, a new website will serve as the home for the stories you love—spotlighting the people, discoveries, and impact of Harvard Medical School while showcasing the power of philanthropy.

Thank you for being part of our community. We'll share more details soon on how to access future digital issues.

DEAN OF HARVARD MEDICAL SCHOOL
George Q. Daley, AB '82, MD '91, PhD

INTERIM DEAN FOR ALUMNI AFFAIRS AND DEVELOPMENT
Matt Durno

EXECUTIVE DIRECTOR OF DEVELOPMENT COMMUNICATIONS AND DONOR ENGAGEMENT
Emily Cahill

EDITOR
Randy Fox

CREATIVE DIRECTOR
Eliza Butts

DESIGNER
Sametz Blackstone Associates

WRITERS
Elizabeth Dill
Michael Eisenbrey
Randy Fox
Sarah Furie
Sara Harkins

PHOTOGRAPHERS
John Deputy
Gretchen Ertl
Rick Groleau
Neal Hamberg
Getty Images
Steve Lipofsky
Ryan K. Morris and the National Science & Technology Medals Foundation
Sam Ogden

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

25 Shattuck Street
Boston, MA 02115

FOR INFORMATION
Contact Randy Fox, associate director of strategic communications, at randall_fox@hms.harvard.edu

HARVARD
MEDICAL SCHOOL

DEVELOPING LEADERS AT THE INTERSECTION OF ARTIFICIAL INTELLIGENCE AND HEALTH CARE

04

ALUMNI AFFAIRS AND DEVELOPMENT
25 SHATTUCK STREET
BOSTON, MA 02115

CELEBRATING THE HEART AND IMPACT OF THE HMS COMMUNITY

PULSE

SPRING 25

PROTECT THE FUTURE OF DISCOVERY

With national support for research and education under threat, philanthropy plays a critical role in empowering Harvard Medical School to champion bold ideas and safeguard the academic freedom vital to discovery.

Give now to fuel more than medicine.
Your gift powers the freedom to lead and learn.
hms.harvard.edu/give