

SUMMER/FALL 2022

# EINSTEIN

THE MAGAZINE FOR ALUMNI AND FRIENDS OF ALBERT EINSTEIN COLLEGE OF MEDICINE

## CONFRONTING CANCER

Scientists and physicians at Montefiore Einstein Cancer Center  
are finding ways to better serve diverse communities

# A Message From the Dean

For our incoming medical and Ph.D. students, this new school year will be among the most important of their lives—as I vividly recall from my first year as an Einstein medical student four decades ago. Looking back on my own career, I realize that my time as a student here was transformative—a major and positive influence on every aspect of my professional life.

The College of Medicine has influenced many of its students in this way. In “Inspired for Life,” which begins on page 37, four graduates from across the years discuss being drawn to Einstein by its reputation for outstanding scientific research and its commitment to social justice. They have remained here to serve the people of the Bronx, and they explain how their experiences have shaped who they are today.

Einstein’s long-standing focus on serving its Bronx neighbors is explored in our cover story, “Confronting Cancer” (page 20). The article illustrates how Montefiore Einstein Cancer Center is promoting equity in cancer research and care. It also describes the leadership of the new cancer center director and the work of four recently recruited scientists who are bringing rigorous research to the treatment of cancer patients who have historically been marginalized. The scientists’ goal is to better detect, prevent, and treat cancer in the Bronx, as well as nationwide.

Our medical and graduate students are engaged in important work as well. In “Champions of the Bronx,” starting on page 14, you’ll learn about community service projects our M.D. and Ph.D.



students have launched recently: one to address air pollution in the Bronx, another to improve local diets, and a third to mentor high school students and cultivate an interest in science.

I’m extremely proud of what we have accomplished in these past several months. While there have been many changes since I graduated from Einstein, what hasn’t changed is the high quality of our students and the outstanding education and training offered by the College of Medicine. I wish our new students much success as they enter this new and exciting phase of their lives.

A handwritten signature in black ink, appearing to read 'G. Tomaselli'.

GORDON F. TOMASELLI, M.D.

*The Marilyn and Stanley M. Katz Dean*

*Albert Einstein College of Medicine*

*Executive Vice President, Chief Academic Officer*

*Montefiore Medicine*

## EINSTEIN

Science at the Heart of Medicine

Summer/Fall 2022

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# A Message From the Board Chair



**"Einstein magazine highlights the work of several distinguished female clinicians and researchers."**

— RUTH GOTTESMAN, ED.D.

I would typically open this letter with news about articles in this issue of *Einstein* magazine that contain uplifting and positive stories about our educational and research enterprise—and I will get to that shortly. But first I am sharing the very sad news of the passing of my beloved husband, Sandy, in late September. Sandy lived a long, rewarding, and extremely fulfilling life, and we had the good fortune of being married for more than 72 years. During that time, Sandy demonstrated a strong and unwavering commitment to Einstein. You can read more about his extraordinary life, and his involvement with the College of Medicine, on the page opposite this one.

Sandy would be as proud as I am about all the wonderful accomplishments of our faculty and students. Our newest students, who arrived on campus in August, are a remarkable group. Virtually all of them have engaged in extensive volunteer work, reflecting their deep commitment to service and community.

Sixty-three percent of the medical students in the Class of 2026 are female—the largest percentage of women in the College of Medicine's history (see page 5). And this issue of *Einstein* magazine highlights the work of several distinguished female clinicians and researchers.

For example, the remarkable career of Einstein and Montefiore physician and researcher Kathryn Anastos, M.D., who has served stints as a farm worker and bike messenger and has endured a bout with polio, is profiled in "The Change Agent," beginning on page 42. Dr.

Anastos has dedicated her life to advancing research and treatment for women and people of color with HIV/AIDS in the Bronx and beyond. She is now the principal investigator for three large National Institutes of Health studies and leads a team of more than a dozen Einstein and Montefiore researchers for one of those studies, developing new clinical programs and a better understanding of HPV infection and disease in the United States and Africa.

The work of two female researchers at Montefiore Einstein Cancer Center is highlighted in our cover story, "Confronting Cancer," beginning on page 20. Yvonne Saenger, M.D., is developing clinical tools to improve immunotherapy for patients with melanoma. Srilakshmi Raj, Ph.D., is exploring how genes and the environment interact to affect human health.

A female neuroscientist involved in autism spectrum disorder research at Einstein is featured in this issue's Lab Chat on page 8. Peri T. Kurshan, Ph.D., is studying how synapses—the connections between neurons—are assembled and how defects can lead to neurodevelopmental problems.

I strongly encourage you to take a few moments to read this wonderful new edition of *Einstein* magazine. I hope you enjoy it as much as I have.

A handwritten signature in dark ink that reads "Ruth L. Gottesman". The signature is fluid and cursive, with a large, stylized 'R' and 'G'.

RUTH L. GOTTESMAN, ED.D.  
*Chair, Albert Einstein College of Medicine  
Board of Trustees  
Einstein Professor Emerita of Pediatrics*



## REMEMBERING

# DAVID S. GOTTESMAN, LONGTIME EINSTEIN SUPPORTER

**T**he Einstein community lost a longtime friend with the passing of David Sanford “Sandy” Gottesman, who died on Wednesday, Sept. 28, 2022. He was 96.

Mr. Gottesman was the founder and a senior managing director of First Manhattan Co., an investment firm that provides professional investment management services to individuals, partnerships, trusts, retirement accounts, and institutional clients. With his wife of more than 72 years, current chair of Einstein's Board of Trustees and professor emerita of pediatrics Ruth L. Gottesman, Ed.D., Mr. Gottesman was a generous supporter of Einstein.

In 2008, the Gottesmans established the Ruth L. and David S. Gottesman Institute for Stem Cell Biology and Regenerative Medicine with a generous donation to the College of Medicine. The institute operates as a stem cell research center and hosts an annual symposium on stem cell research.

Another important philanthropic gift supported creation of the Ruth L. Gottesman Clinical Skills Center, in which Einstein medical students learn practical skills during their Introduction to Clinical Medicine course. The space also is used for teaching specialized skills to healthcare professionals in various disciplines.

Additionally, the Gottesmans have supported Einstein's research enterprise, providing early funding for innovative translational initiatives in cancer,



Ruth and David Gottesman at the Einstein Gala in 2007.

immunotherapy, and brain science research at the College of Medicine.

Mr. Gottesman was born in New York City. He received his undergraduate degree from Trinity College, earned an MBA from Harvard Business School, and later received an honorary doctorate from Yeshiva University. He began his career as a securities analyst and partner at Hallgarten & Company. In 1964, he founded First Manhattan, which now manages assets of more than \$16 billion.

A friendship with Warren Buffett that began in 1962 led First Manhattan to make an early investment in Berkshire

Hathaway. The friendship of 60 years bonded the two men, and in 2003 Mr. Gottesman joined the Berkshire Hathaway board of directors.

The Gottesmans also have been great supporters of the Jewish community, in both the United States and Israel, and of organizations investing in education, health programs, and arts and culture. Among the many recipients of their generosity is the new National Library of Israel project in Jerusalem, which is slated to open later this year. All of their philanthropy is managed through the Gottesman Fund, which the couple established in 1965, and of which Mr. Gottesman served as president. He was also a trustee of Mount Sinai Medical Center

and a vice chair and a trustee of the American Museum of Natural History and, along with Ruth, helped establish the Gottesman Libraries at Teachers College, Columbia University.

In addition to Ruth, Mr. Gottesman is survived by his daughter, Alice Gottesman; his sons, Robert and William, and their spouses; and six grandchildren.

Mr. Gottesman's humane spirit will live on at Einstein through the many students and investigators whose work benefits from his generous support and dedication to science and education. **E**

## Psychiatry Research Institute Opens

In May the Psychiatry Research Institute at Montefiore Einstein (PRIME) celebrated the opening of its new Einstein office in the Van Etten Building with a symposium and poster session highlighting its work in basic, translational, and clinical science.

Jonathan Alpert, M.D., Ph.D., professor and chair of psychiatry and behavioral sciences at Einstein and Montefiore, noted that the pandemic had brought home “the profound impact of mental health conditions and the need for new treatments and equitable access to care. If we’ve learned anything from the horrors of COVID-19, it’s the urgency of our institute’s mission to advance knowledge and treatment discovery related to mental illness, addiction, and behavioral health.”

He added: “PRIME lives within an academic medical center known for its commitment to rigorous science and to social justice, and we are dedicated to bringing discovery and hope to those who need it most.” Dr. Alpert also holds the Dorothy and Marty Silverman Chair in Psychiatry at Einstein.

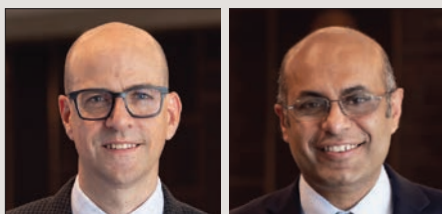
Joining Dr. Alpert in speaking at PRIME’s new home were Gordon F. Tomaselli, M.D., the Marilyn and Stanley M. Katz Dean at Einstein and executive vice president and chief academic officer of Montefiore Medicine, and PRIME co-directors Vilma Gabbay, M.D., M.S., and Jelena Radulovic, M.D., Ph.D., both professors of psychiatry and behavioral



sciences and in the Dominick P. Purpura Department of Neuroscience at Einstein. Dr. Radulovic is also the Sylvia and Robert S. Olnick Chair in Neuroscience.

Recent National Institutes of Health awards to PRIME and collaborating programs total more than \$30 million. “This is just the beginning; we’re going to expand, and the journey has been very exciting,” said Dr. Gabbay, who is also a clinical psychiatrist at Montefiore.

## Cancer Researchers Deliver Presidential Lecture



This year’s Presidential Lecture, held June 15 in Robbins Auditorium, featured the work of Ulrich Steidl, M.D., Ph.D., above at left, and Amit Verma, M.B.B.S., at right.

Over the past decade, Drs. Steidl and Verma have collaborated on studies of two closely intertwined diseases: myelodysplastic syndromes (MDS) and acute myeloid leukemia (AML). They were

among the first researchers to demonstrate that MDS, a common precursor of AML, arises from wayward bone-marrow stem cells, raising hopes for treating or preventing both diseases.

The Presidential Lecture, established in 2017, highlights outstanding research conducted at Einstein and Montefiore.

Dr. Steidl’s topic was “Understanding the Molecular and Cellular Pathogenesis of Myeloid Malignancies at the Stem Cell Level,” and Dr. Verma presented “Therapeutic Targeting of MDS and AML.” Dr. Steidl is a professor of cell biology, of oncology, and of medicine, the Rose C. Falkenstein Chair in Cancer

Research, the Diane and Arthur B. Belfer Faculty Scholar in Cancer Research, the deputy director of Montefiore Einstein Cancer Center (MECC), and the interim director of the Ruth L. and David S. Gottesman Institute for Stem Cell Biology and Regenerative Medicine. Dr. Verma is a professor of oncology, of medicine, and of developmental and molecular biology, the associate director of translational science at MECC, and the director of the division of hemato-oncology at Einstein and Montefiore.



### WATCH THE VIDEO

See the 2022 Presidential Lecture: [magazine.einsteinmed.edu/lecture22](https://magazine.einsteinmed.edu/lecture22)

# 64th Commencement Celebrated

Einstein's 64th commencement, held May 25 at Carnegie Hall in New York City, featured New York State Health Commissioner **Mary T. Bassett, M.D., M.P.H.**, at right, as the keynote speaker.



"As healers," she said, "it is our obligation to look beyond the walls of our hospitals, our laboratories, our clinics, and see what is making our patients sick. We may not, on our own, be able to bridge these racial disparities that brought these patients to

us. But we sure can talk about it. We can determine that we will not be silent."

Gordon F. Tomaselli, M.D., the Marilyn and Stanley M. Katz Dean at Einstein and executive vice president and chief academic officer at Montefiore, praised the graduates for their "unflinching response" and willingness to help frontline workers during the pandemic.

The College of Medicine conferred 160 M.D. degrees and 21 Ph.D. degrees. In addition, 15 graduates of Einstein's Medical Scientist Training Program received both M.D. and Ph.D. degrees.

Dr. Bassett urged the graduates to be aware of how social determinants can affect the health of their patients.

## Einstein Welcomes New Students

Einstein welcomed 183 medical students and 31 new Ph.D. candidates, of whom 14 are in the Medical Scientist Training Program (MSTP), in August.

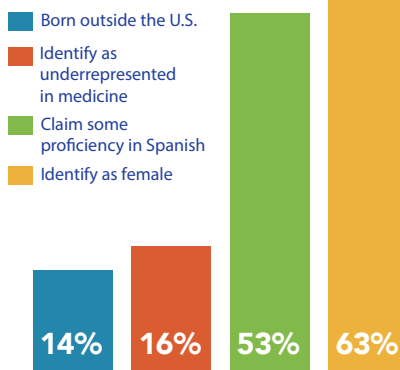
Among the M.D. students in the Class of 2026, 63% are female—the largest percentage of women in the College of Medicine's history. Class members come from 26 states and represent 84 colleges and universities; 14% were born outside the United States, and 16% identify as belonging to groups underrepresented in medicine.

Among the new Ph.D. students, 39% are female and 16% identify as belonging to groups traditionally underrepresented in the sciences; 44% have published scientific papers in peer-reviewed journals, 42% have presented at or attended scientific meetings, and

45% have spent summers in research programs. They come from 12 states and seven countries, and represent 31 colleges and universities.

Of Einstein's new MSTP students, 36% are women and 43% identify as belonging to groups underrepresented in science and medicine.

### Class of 2026 Medical Students



## Einstein Holds First Therapeutics Pitch Competition

Scientists from Einstein and guests from venture capital firms and pharmaceutical companies gathered in June to attend Einstein's inaugural Therapeutics Venture and Pitch Competition. At the event, organized by Einstein's office of biotechnology and business development, three research teams presented their novel therapeutic approaches for potential investment and development.

"We were immensely pleased to have the opportunity to showcase Einstein's research excellence and support the entrepreneurial spirit among our faculty," said Janis Paradiso, M.B.A., C.L.P., director of Einstein's office of biotechnology and business development. "The strength of all the proposals is a testament to the exceptional research conducted at Einstein and the commitment of our faculty to ensure that their findings are shepherd through the development pipeline."

The pitch contest, which also included a mentoring program, was the result of a unique partnership formed in the fall of 2021 between Einstein and the three life-science-oriented venture capital firms that sponsored the program: Orange Grove Bio, AlleyCorp, and Alexandria Venture Investments.

An expert panel of scientists, investors, and drug development professionals had earlier chosen the finalists participating in the pitch contest. The winning proposal, which received \$50,000, was "Targeting BRAF for Cancer Therapy," submitted by Evripidis Gavathiotis, Ph.D. Dr. Gavathiotis is a professor of biochemistry and of medicine at Einstein.



# RESEARCH NOTES

## Drugs Show Promise Against Incurable Eye Disease

Two drugs designed by researchers at Einstein preserved vision in mice that had developed retinitis pigmentosa (RP), an inherited eye disease that can lead to blindness and for which no treatments exist. The findings were published online in July 2022 in *Nature Communications*.

The drugs were designed to boost chaperone-mediated autophagy (CMA), a vital “housekeeping” process in cells that disposes of unwanted proteins but becomes less efficient as people age. Ana Maria Cuervo, M.D., Ph.D., co-corresponding author of the paper, discovered CMA in 1993.

Dr. Cuervo’s research has shown that the decline in cellular cleaning is linked to Alzheimer’s and other age-related diseases. She has worked with her Einstein colleague Evripidis Gavathiotis, Ph.D., also a co-corresponding author, to develop drugs that can treat these and other diseases by revving up CMA.

Nearly a decade ago, Dr. Cuervo and colleagues found that CMA is especially important in maintaining retinal health. “So for this study, it seemed logical to see if our drugs would help against RP,” Dr. Cuervo says. “It’s the most common inherited disease of the retina, affecting one in 3,500 Americans, and there isn’t yet a cure.”

In key experiments involving a mouse model of RP, the drugs were injected intravitreally—directly into the jellylike fluid at the back of the eye—which is the preferred route for administering most eye-related drugs. One week later, the mice received



The retina, the tissue layer at the back of the eye, is essential for vision. This illustration shows the retina’s two specialized types of nerve cells for detecting images—the rods and cones. The highly sensitive rods are topped by flower-like shapes that respond to dim light. The tips of the cones, the other thin cells in the illustration, are responsible for color vision. The rods and cones enable vision by converting light into neural signals that pass through the optic nerve to the brain.

electroretinograms, diagnostic tests that measure the electrical activity of the retina in response to a light stimulus. The electroretinogram results indicated that the drugs had preserved visual function in the RP mice. (See “Einstein Image” on the back cover.)

“Our findings in mice strongly suggest that these drugs will be able to help people with RP as well,” says Dr. Gavathiotis. “The same molecular glitch that depresses CMA activity in mouse retinas is also present in the retinal cells of many RP patients.”

Dr. Cuervo is a professor of

developmental and molecular biology and of medicine, the Robert and Renée Belfer Chair for the Study of Neurodegenerative Diseases, and co-director of the Institute for Aging Research at Einstein.

Dr. Gavathiotis is a professor of biochemistry and of medicine at Einstein and a co-leader of the Cancer Therapeutics Program at the National Cancer Institute–designated Montefiore Einstein Cancer Center. The third co-corresponding author was Patricia Boya, Ph.D., of Centro de Investigaciones Biológicas Margarita Salas in Madrid, Spain.

# Insights Into a Baffling Type of Diabetes Linked to Malnutrition

For the past 12 years, Meredith Hawkins, M.D., M.S., founding director of Einstein's Global Diabetes Institute, has spearheaded an international collaborative study aimed at finding the underlying metabolic defects leading to what she and her colleagues term "low BMI [body mass index] diabetes"—a mysterious form of diabetes that afflicts millions of people in Asia and sub-Saharan Africa.

These patients—mainly thin and impoverished adolescents and young adults—tend to suffer severe complications. The disease was first described nearly 70 years ago, yet lack of research into the condition means that doctors are still unsure how to treat it.

Dr. Hawkins and colleagues carried out their study at the Christian Medical College in Vellore, India. They used state-of-the-art techniques for assessing

insulin secretion and insulin action in evaluating 20 men identified as likely to have this form of diabetes. For comparison, people with type 1 diabetes (T1D), type 2 diabetes (T2D), and healthy controls underwent the same tests.

The results, published in June 2022 in *Diabetes Care*, indicate that malnutrition-related diabetes should be considered a distinct type of diabetes. Patients with the condition differed significantly from T1D and T2D patients, exhibiting a profound defect in insulin secretion that wasn't previously recognized.

"These findings have revolutionized how we think about the condition and how we should treat it," Dr. Hawkins says. She is a professor of medicine and holds the Harold and Muriel Block Chair in Medicine at Einstein and is an endocrinologist at Montefiore.

## Deep-Brain Stimulation for Traumatic Brain Injury

Each year nearly 70 million people will suffer serious and sometimes fatal traumatic brain injuries (TBIs). Most TBI survivors have long-term cognitive deficits, and better treatments are needed to improve their recovery.

In a study involving a rodent model of TBI, published in April 2022 in *Cerebral Cortex Communications*, Emad Eskandar, M.D., M.B.A., and colleagues showed that deep-brain stimulation (DBS) of specific brain regions improved learning and stimulated the growth of brain neurons in the rodents. Additional research by the authors—work involving nonhuman primates and a pilot study involving humans—adds to evidence that DBS can help after TBI, and a clinical trial is being planned.

Dr. Eskandar is the chair of neurological surgery at Einstein and Montefiore and a professor in the Leo M. Davidoff Department of Neurological Surgery, of psychiatry and behavioral sciences, and in the Dominick P. Purpura Department of Neuroscience at Einstein. He also holds the Jeffrey P. Bergstein Chair in, and the David B. Keidan Chair of, Neurological Surgery.



Getty Images

Malnutrition-related diabetes was first described nearly 70 years ago, yet lack of research into the condition means that doctors are still unsure how to treat it.



## RESEARCH NOTES

### Lab Chat

**P**eri T. Kurshan, Ph.D., studies how synapses—the connections between neurons—are assembled and how defects in their assembly can lead to neurodevelopmental problems such as autism spectrum disorders. After earning her doctorate in neuroscience at Harvard Medical School, she completed a postdoctoral fellowship at Stanford University. In 2019, Dr. Kurshan joined the Einstein faculty, where she is an assistant professor in the Dominick P. Purpura Department of Neuroscience and in the department of genetics.

**What got you interested in neuroscience?**

I have always been intrigued by the idea that everything we think and feel is brought about by the activity of individual cells in our brains.

**When did you start doing research?**

In high school I did a research project for the Westinghouse [now Regeneron] Science Talent Search on visual processing, focusing on how we're able to discriminate different shapes, like letters, from noisy backgrounds.

**How did you come to choose roundworms [*C. elegans*] as your experimental model?**

I worked my way down the evolutionary ladder, starting with psychophysics in humans, then turning to ion channels in frog eggs and dopamine receptors in honeybees. When I started studying synapses while earning my Ph.D., I realized that I needed an animal model suited to genetic studies, which led me to fruit flies. Then, as a postdoc, I switched to roundworms, an even more accessible genetic model than fruit flies.

**Why have you focused on synapses?**

For me, synapses are the most interesting parts of our brains. They are fundamental information processing units where learning, memory, and environmental adaptation occur. How they develop with such exquisite precision is still largely a mystery. The roundworm nervous system is relatively simple, but its fundamental biology is similar to that of humans.

**In 2021, you spearheaded a petition to change National Institutes of Health (NIH) policy affecting young female investigators. What prompted this?**

The NIH gives Early Stage Investigator (ESI) status to young investigators to help them get independent research grants. ESI status lasts for up to 10 years after a terminal degree, with extensions allowed for childbirth. NIH granted extensions for disruptions related to COVID-19, but not if a person had had a previous childbirth-related extension. That discriminated against the very group of people—mothers, me included—who were hardest hit by the pandemic. There are already so many

barriers for women, especially mothers, to succeed in science.

**Did the NIH change its policy?**

Yes, and I hope the petition brought attention to these issues. But I also think the change was facilitated by other, more-influential scientists whom I was able to recruit to the cause.

**What do you like to do outside the lab?**

I used to be a competitive Ultimate Frisbee player, and I competed nationally throughout graduate school. I'm also an avid skier. Since resort skiing has become so expensive, I've transitioned to backcountry skiing. Now I spend most of my free time teaching my two kids to ski. They're 9 and 6 years old, and I can't wait until they're good enough to go into the backcountry.



Photo by Jason Torres

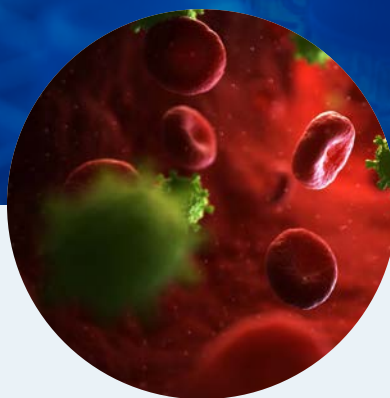


## RESEARCH NOTES: MAJOR NIH AWARDS



### Addressing the Rising Tide of Alzheimer's Disease

Researchers at Einstein, in collaboration with faculty at Pennsylvania State University and other institutions, have received a five-year, \$32 million National Institutes of Health (NIH) grant to support the ongoing Einstein Aging Study (EAS), which focuses on both normal aging and the special challenges of Alzheimer's disease and other dementias. EAS has been continuously funded by the NIH since 1980. Study co-leaders are Richard Lipton, M.D., professor in the Saul R. Korey Department of Neurology, of psychiatry and behavioral sciences, and of epidemiology & population health, and the Edwin S. Lowe Chair in Neurology at Einstein as well as vice chair of neurology at Einstein and Montefiore; and Carol Derby, Ph.D., research professor in the Saul R. Korey Department of Neurology and of epidemiology & population health and the Louis and Gertrude Feil Faculty Scholar in Neurology at Einstein.



### Expanding the Center for AIDS Research

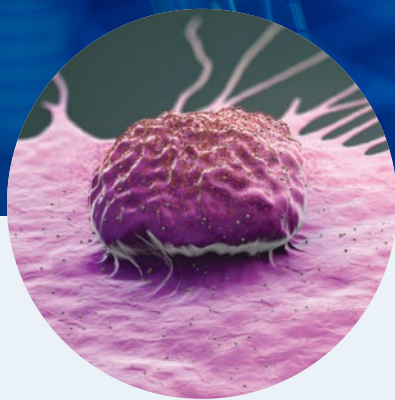
The NIH has awarded Einstein a five-year, \$11.3 million grant to renew the Einstein-Rockefeller-CUNY Center for AIDS Research (ERC-CFAR) and expand its efforts to prevent, treat, and cure HIV infection. The ERC-CFAR—the only CFAR in New York and one of 19 current NIH-funded CFARs nationwide—was established in 2017 to bring together researchers at Einstein, the Rockefeller University, and the City University of New York (CUNY) Graduate School of Public Health and Health Policy to realize the ultimate goal of living in a world without AIDS. The new funding represents a 50% increase over ERC-CFAR's first five-year NIH grant. The director and a co-leader of the ERC-CFAR is Harris Goldstein, M.D., professor of pediatrics and of microbiology & immunology, the Charles Michael Chair in Autoimmune Diseases, and associate dean for scientific resources at Einstein, and an allergy and immunology physician at Montefiore.



### Tackling Post-Traumatic Epilepsy

Approximately one in 50 people who suffer traumatic brain injury (TBI) will develop post-traumatic epilepsy (PTE)—with the risk of PTE significantly higher in people with severe TBI. PTE involves recurring seizures that begin a week or more after the brain injury, and there is no way to identify those at risk for developing PTE or to prevent its onset. Einstein researchers led by Aristeia Galanopoulou, M.D., Ph.D., have received a five-year, \$11 million NIH grant to direct a multicenter search for novel biomarkers that will predict a person's risk for developing PTE and for treatments to prevent the condition. The investigators will first conduct preclinical studies, with the goal of holding future clinical trials to evaluate promising diagnostics and interventions. Dr. Galanopoulou is a professor in the Saul R. Korey Department of Neurology and in the Dominick P. Purpura Department of Neuroscience at Einstein.

## RESEARCH NOTES: MAJOR NIH AWARDS



### Insights Into Lung Metastasis in Breast Cancer

Most breast-cancer deaths are caused by metastasis—the spread of cancer to other parts of the body. During metastasis, cells of the primary breast tumor invade blood vessels, travel in the bloodstream, and exit the vessels to seed tumors in their new location. The NIH has awarded Jonathan Backer, M.D., a five-year, \$10 million grant to gain a better understanding of the mechanisms regulating breast cancer cells at a key metastatic site: the lungs. This project, involving investigators in two Montefiore Einstein Cancer Center (MECC) research programs, has developed techniques for visualizing and analyzing breast cancer cells as they leave the blood and form colonies in the lungs of mice. These studies should provide insights into the biology of metastasis and reveal strategies for treating metastatic breast cancer. Dr. Backer is a professor and the chair of molecular pharmacology, a professor of biochemistry, and the William S. Lasdon Chair in Pharmacology at Einstein and associate director of shared resources at MECC.



### Investigating Congenital Heart Disease

The genetic disorder 22q11.2 deletion syndrome (22q11.2DS) affects one in 4,000 live births. Approximately 60% of 22q11.2DS patients have congenital heart disease, most commonly cardiac outflow tract (OFT) defects that vary in severity. Bernice Morrow, Ph.D., has received two four-year NIH grants totaling \$5.5 million to better understand OFT defects. The first grant involves analyzing whole-genome sequences from people with 22q11.2DS, some of whom have OFT. In the second grant, she and co-principal investigator Deyou Zheng, Ph.D., will investigate genetic problems during embryogenesis that cause OFT. Dr. Morrow is a professor of genetics, of obstetrics & gynecology and women's health, and of pediatrics and the Sidney L. and Miriam K. Olson Chair in Cardiology and director of translational genetics at Einstein. Dr. Zheng is a professor in the Saul R. Korey Department of Neurology, of genetics, and in the Dominick P. Purpura Department of Neuroscience at Einstein.



### A Search for Markers of Early Alzheimer's Disease

Diagnosing Alzheimer's disease can be a complex and time-consuming process, requiring evaluations ranging from brain scans to cognitive and lab tests to reviews of medical history and symptoms. Simpler and faster ways to diagnose the disease are urgently needed. Einstein researchers led by Jeannette Mahoney, Ph.D., associate professor in the Saul R. Korey Department of Neurology, have been awarded a five-year, \$4.2 million NIH grant to detect behavioral markers for Alzheimer's that are present early in the course of the disease, before it can be clinically diagnosed. Results of this research could help scientists identify people at risk for Alzheimer's and related problems, such as falls, and lead to new preventive strategies. Dr. Mahoney's previous studies suggest that early Alzheimer's disease may stem from disruptions in brain regions that process multisensory information and allow for functions of daily living such as walking.





### **Preventing Recurrence of HIV Infection**

Antiretroviral therapy effectively suppresses HIV infection. But when such therapy is discontinued, the infection quickly rebounds when latent (nonreplicating) HIV resumes replicating. A functional cure for HIV will require new strategies to nip resurgent infection in the bud. Harris Goldstein, M.D., and Steven C. Almo, Ph.D., have received a five-year, \$4.2 million NIH grant to use two novel strategies to boost HIV-specific immune responses to prevent the resurgence of HIV infection. Dr. Goldstein is the director of the Einstein-Rockefeller-CUNY Center for AIDS Research; a professor of pediatrics and of microbiology & immunology, the Charles Michael Chair in Autoimmune Diseases, and associate dean for scientific resources at Einstein; and an allergy and immunology physician at Montefiore. Dr. Almo is a professor and the chair of biochemistry and the Wollowick Family Foundation Chair in Multiple Sclerosis and Immunology at Einstein, and the director of the Einstein Macromolecular Therapeutics Developmental Facility.



### **Better Care for Patients at Risk for HIV**

The Black and Latino communities are hardest hit by HIV, yet face barriers in accessing HIV prevention services, including pre-exposure prophylaxis (PrEP)—worsening racial, ethnic, and socioeconomic disparities in HIV incidence. Many HIV at-risk patients seek care for sexually transmitted infections (STIs) in emergency departments (EDs), yet traditional ED care is poorly suited for addressing HIV prevention. Uriel Felsen, M.D., M.S., and Viraj V. Patel, M.D., M.P.H., have received a five-year, \$4.2 million NIH grant to test two strategies for increasing PrEP uptake among at-risk patients accessing care in Bronx EDs. The strategies are postvisit outreach (a sexual-health navigator contacts patients following an STI-related ED visit and offers education, counseling, and links to clinics offering PrEP), and Tele-PrEP (a real-time telehealth visit with a sexual-health provider during STI-related ED visits). Drs. Felsen and Patel are associate professors of medicine at Einstein and internists focusing on HIV at Montefiore.



### **Studying Brain Changes Caused by COVID-19**

Einstein researchers have been awarded a five-year, \$3.5 million NIH grant to study the effects of COVID-19 on the brains of adults who had mild or asymptomatic infections. One hundred forty study participants will be divided into three groups: 70 people who were never infected with SARS-CoV-2; 35 people who were infected but who were not symptomatic; and 35 people who were infected, had mild COVID-19 symptoms, and did not require hospitalization. The investigators will examine whether SARS-CoV-2 infection induces lasting changes in the brain and affects neurocognitive function. The co-principal investigators are Michael L. Lipton, M.D., Ph.D., professor of radiology and of psychiatry and behavioral sciences and associate professor in the Dominick P. Purpura Department of Neuroscience and medical director of MRI services at Montefiore; and Johanna Daily, M.D., M.S., professor of medicine and of microbiology & immunology at Einstein and an infectious-disease physician at Montefiore.



# MONTEFIORE AND EINSTEIN MAVENS OF MEDICINE



## Pediatrics: All in the Family

Q&A With Dr. Michael  
deCastro Cabana

**M**ichael deCastro Cabana, M.D., M.P.H., is a professor of pediatrics and the Michael I. Cohen, M.D., University Chair of Pediatrics at Einstein, and the physician in chief at the Children's Hospital at Montefiore (CHAM). A native of Illinois, he earned a medical degree from the Perelman School of Medicine at the University of Pennsylvania and a master's degree in public policy and management at Penn's Wharton School. He came to Einstein and Montefiore in 2019 after 14 years at the University of California, San Francisco.

### **Pediatrics seems to be part of your family genome.**

Yes, both of my parents are retired general pediatricians. They came to the United States in the 1960s from the Philippines for their residencies. They planned to return but decided to remain in the United States because of the political instability in the Philippines at the time. One of my brothers is a pediatric dentist and the other is a pediatrician who is also married to a pediatrician. Another brother works as an executive producer in the entertainment industry—but we love him anyway.

### **Why, during medical school, did you take time out to earn a master's degree in public policy?**

This was in the early '90s, after President Bill Clinton proposed the Health Security Act, which would have guaranteed healthcare for all Americans. It was an exciting time in health policy. I thought it would be beneficial to gain a different view of healthcare, especially from a graduate program taught at a business school.

### **Why did you come to Einstein and Montefiore?**

One reason was the people. As an asthma researcher, I'd worked with a number of great investigators here. I also liked that CHAM is a hospital within a hospital, which would provide opportunities for me to collaborate with people from other disciplines who could offer new ideas. A third reason is the institution's commitment to social justice. I remember, back when I was in medical school, hearing about Montefiore's pioneering residency programs in social medicine

and social pediatrics, and I wanted to be part of them. I was also impressed with the institution's resilience and ability to innovate, creating school health programs and developing its own base of primary-care providers.

### **What aspect of the job has surprised or challenged you the most?**

I arrived just before COVID-19 hit, so early on I spent a good amount of time trying to separate pandemic from nonpandemic challenges. Probably the biggest surprises were the scale of things—the size of the healthcare network at Einstein and Montefiore—and the many different relationships with other providers and community institutions.

### **Tell us about your asthma studies.**

I started studying asthma in the late '90s as a Robert Wood Johnson Foundation Clinical Scholar [at Johns Hopkins]. The National Heart, Lung, and Blood Institute had issued guidelines for treating asthma, but few physicians were following them—and trying to understand why they weren't being followed became a theme of my research. I've also studied ways to prevent asthma, such as using probiotics as an infant supplement. More recently, I've been leading a study, funded by the Agency for Healthcare Research and Quality, that tests new pediatric quality measures for asthma and sickle-cell disease. By understanding how to refine and apply these measures, we can improve care and outcomes for children with these conditions.

### **What are your department's most pressing challenges?**

In the short term, we have to fill several key leadership positions, a task that has been slowed by the pandemic. Another challenge is making sure that CHAM is prepared for a continuing evolution and advances in care. Children will be hospitalized less often, with beds reserved for the most acutely ill. We need to expand our neonatal and pediatric intensive care units at the same time, and we need more inpatient psychiatric beds to address a rise in mental health issues among the young, especially here in the Bronx. As a network, we need to provide easily accessible pediatric subspecialty and primary care, especially for children with chronic conditions.

### **In the past, you've noted that good pediatric care isn't enough to address community health. Could you elaborate?**

Good healthcare is clearly necessary but not sufficient. So many other factors affect a child's well-being, starting with prenatal care for the mother, plus good housing, proper nutrition, safe neighborhoods, and a healthy environment. That's true everywhere, but especially in the Bronx, with its unusually high infant mortality and poverty rates and other issues. As the Bronx's major health provider, we have an obligation to address the community's wider needs and take a broader view of children's health.

### **How are you addressing these needs?**

Through our primary-care clinics. In addition to traditional clinical care, we provide supportive services to screen and

**"As the Bronx's major health provider, we have an obligation to address the community's wider needs and take a broader view of children's health."**

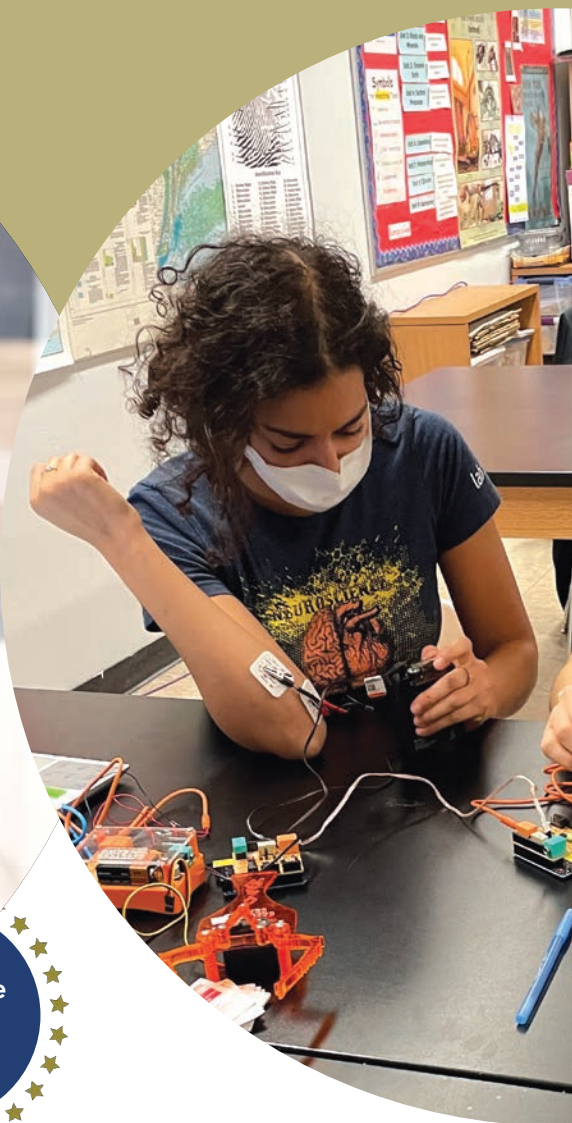
— DR. MICHAEL DECASTRO CABANA

address our patients' economic and social needs. We're also exploring innovative technologies, such as a smartphone app developed by Kevin Fiori [M.D., M.P.H., associate professor of pediatrics and of family and social medicine and an attending physician at the Montefiore Medical Group Pediatric Practice], which community health workers can use to connect parents with local health resources. We're also working with the Bronx Community Health Leaders program to help underrepresented students pursue careers in medicine. Having physicians from the same communities as the patients they serve can help build connections and improve care.

### **Will the pandemic have a long-term impact on children's health?**

It's hard to say. There has been a drop in vaccinations among younger kids, and fewer opportunities for socialization during critical years of development. Older children have missed so many rites of passage, like proms and graduations. I'm optimistic; pediatricians are optimists by nature. Kids are resilient. But we'll have to keep an eye on the long-term effects of the pandemic. **E**





★ ★ ★

# CHAMPIONS OF THE BRONX





Neuroscience  
Graduate  
Students



Food  
Justice and  
Medicine

## Three Einstein student groups are working for cleaner air, healthier food, and increased science literacy in the borough

BY TERESA CARR

Fourth-year medical student Alex Levine jokes that he hadn't always dreamed of becoming a doctor. What he really cared about, he says, was what made cities tick. As an undergraduate at Fordham University, he interned in the Bronx City Planning Department. "I wanted to pursue a career that was service oriented," he says.

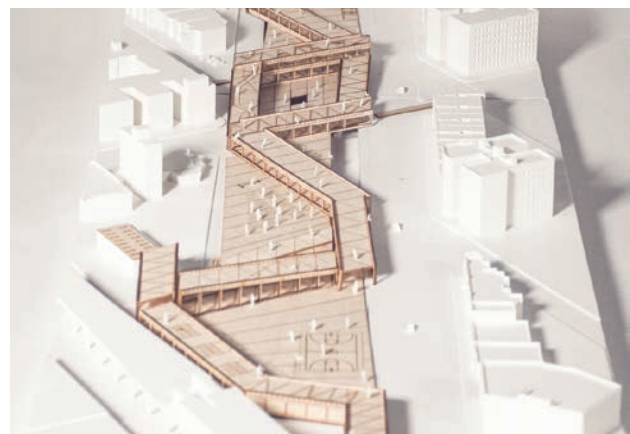
After graduating with degrees in economics and Chinese, he worked in China, where he followed physicians on their daily

From left: Fourth-year medical students Timothy Liang and Alex Levine; fourth-year Ph.D. candidates Brenda Abdelmesih and Noelle Cayla; and fourth-year medical students Michael Yang and Kathryn Segal.

rounds as part of his job managing a study-abroad program. It became clear to him that his future would lie in medicine. "I saw this connection between urban design and public health," Mr. Levine says. "How factors such as walkability, public transportation, and air pollution affected well-being." Once at Einstein, he helped create a student advocacy organization focused on improving air quality and the environment in local neighborhoods.

The opportunity to advance the health and well-being of people in the Bronx and beyond is part of what has always attracted students to Einstein. Since the College of Medicine's earliest days, medical and graduate students have been drawn to





Clockwise from left: An artist's depiction of what capping the Cross Bronx Expressway might look like, complete with large vents to scrub toxic fumes from cars that would travel below the proposed park; fourth-year Einstein medical students Timothy Liang and Alex Levine at the *Bronx Is Building* exhibit on Montefiore's Hutchinson Campus; and an architect's model of the parks that would be built above the two and one-half miles of the expressway that run below street level.

**"We saw an opportunity for a student-driven organization to advocate for transportation and infrastructure policies that would better the lives of people in our community."**

— MEDICAL STUDENT ALI KALAM

its commitment to community service.

Here, we highlight three projects out of the dozens that have been launched by Einstein students over the years—addressing air pollution, mentoring high school students, and improving local diets.

#### ★ **BRONX ONE POLICY GROUP**

Environmental factors such as public transit, parks, and grocery stores can have a huge impact on a community's health. For example, people with diabetes who have reliable access to transportation and nutritious food are much more likely to have good control of their disease than those who don't, according to a study of nearly 6,000 patients in the Montefiore Health System that was published in 2021 in the *Journal of Primary Care and Community Health*. During their second year of medical

school, Mr. Levine and his classmate Ali Kalam discussed how government policy and urban environments affect people's well-being. "We saw an opportunity for a student-driven organization, with roots in Einstein and Montefiore, to advocate for transportation and infrastructure policies that would better the lives of people in our community," says Mr. Kalam, now a fourth-year student. The two recruited a handful of other students, and the Bronx One Policy Group was born.

The new group first turned its attention to helping mitigate the side effects of the Cross Bronx Expressway, which separates the South Bronx from the green spaces to the north. Pollution from the heavily trafficked expressway is one of the reasons the South Bronx has the highest rates of hospitalizations and deaths due to asthma in New York City.

Photos by Jason Torres



The Bronx One Policy Group supports an ambitious initiative to cap the two and one-half miles of the expressway that run below street level, covering the road with parks and installing vents to scrub toxic fumes. The estimated \$1 billion cost of the project would be offset by reduced healthcare costs and higher property values, according to projections from a 2018 study published in the *American Journal of Public Health*. “Capping the expressway would save both lives and money,” Mr. Levine says.

After a year of meeting with community groups and studying the borough’s chronic-disease burden, the students presented a strong case for green infrastructure projects in their comprehensive report, *The Bronx Is Building*. Designed and illustrated with vibrant photos by fourth-year medical student Timothy Liang, the report has been endorsed by Montefiore’s department of family and social medicine. It was also instrumental in advocacy efforts to secure \$2 million in federal funding for the Cross Bronx Expressway Study.

In partnership with Nilka Martell, founder and director of the community development organization Loving the Bronx, Mr. Levine and Mr. Liang also curated an exhibit called *The Bronx Is Building: Transforming the Cross Bronx Expressway: Design + Public Health*, at the Gallery of ARTful Medicine on Montefiore’s Hutchinson Campus earlier this year.

An integral part of the group’s advocacy efforts is the production of the

podcast *Healthy Bronx*, which hosts local community leaders, healthcare workers, and policy makers.

“We see ourselves as a liaison between our community and Einstein,” says Nupur Shridhar, a fourth-year medical student who directs community engagement for the group. “Our role is to amplify and uplift the community’s voices and needs.”



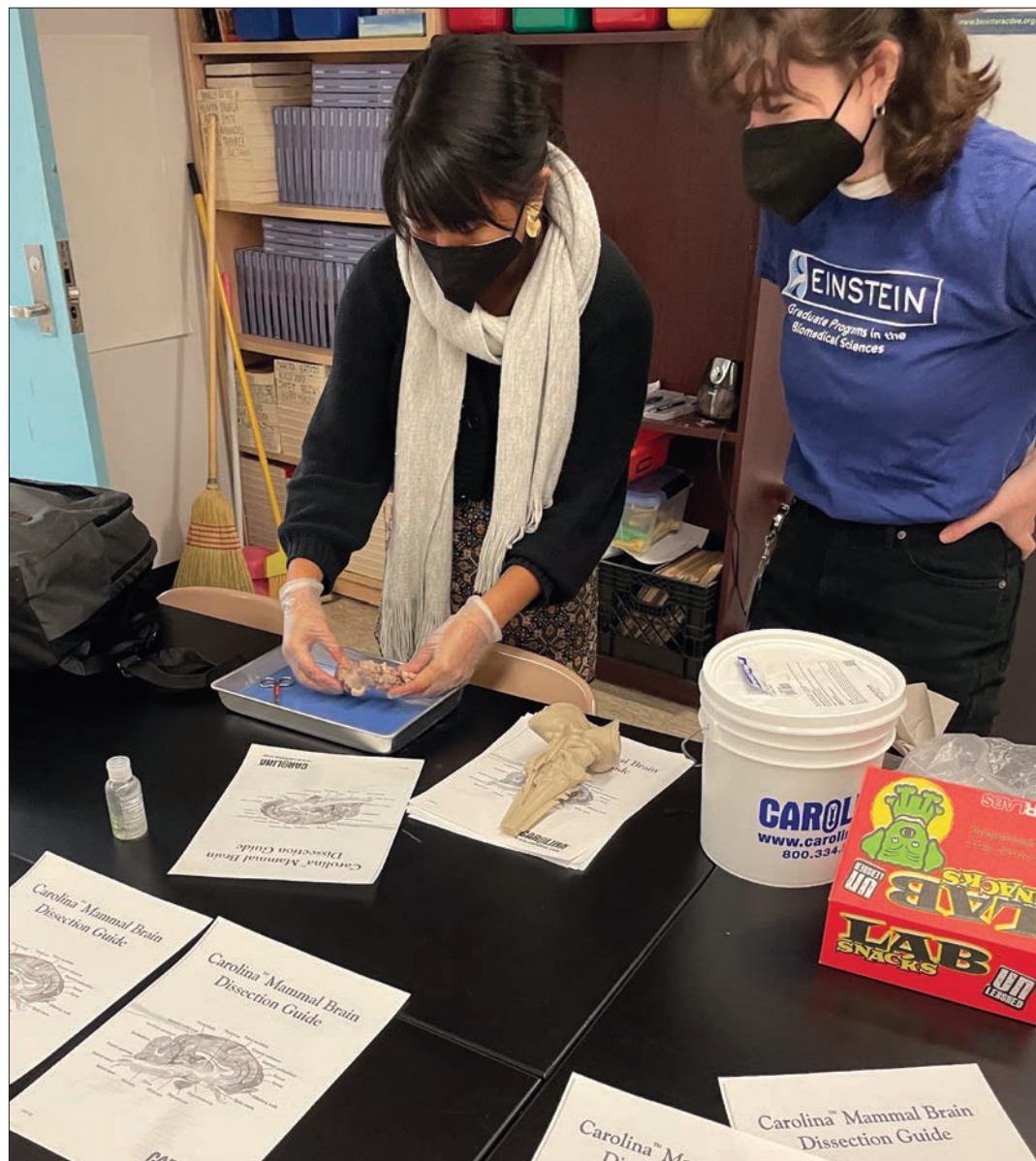
#### LISTEN TO THE PODCASTS

Hear more about health challenges facing the borough from the Bronx One Policy Group: [bronxpolicy.org](http://bronxpolicy.org)

## ★ NEUROSCIENCE GRADUATE STUDENTS

One of the missions of the Neuroscience Graduate Student Organization (NGSO) is to showcase “the utter coolness of neuroscience,” says Jacob Ratliff, a fifth-year graduate student. NGSO members have delivered interactive demonstrations of brain anatomy to people visiting Jacobi Hospital—and even to patrons of local breweries.

But the grad students involved in the NGSO say that what they enjoy most is working with high school students in the Bronx to increase science literacy. Every



Ph.D. candidates Czarina Ramos, left, and Romana Hyde set up a sheep brain dissection workstation for Pelham Lab High School students as part of Brain Awareness Week activities hosted by neuroscience graduate students at Einstein.



winter, the group hosts Brain Awareness Week for Pelham Lab High School students, who travel to the Rose F. Kennedy Children's Evaluation and Rehabilitation Center for hands-on learning activities, such as dissecting a sheep's eyeball and operating a robotic claw using input recorded from a student's muscle.

"I get a kick out of seeing students make connections—that recorded muscle activity can be used to control human prosthetics," Mr. Ratliff says. "We talk to them about how there are scientists actively doing what they saw here today."

In 2022, the NGSO and the Einstein neuroscience community formed the Pelham-Einstein Neuroscience Scholars program, a summer internship for four students selected from participants in Brain Awareness Week. High school is often a formative period in a scientist's life, says Brenda Abdelmesih, a fourth-year graduate student. Growing up on Staten Island, she says, she never imagined a career in science. "We are exposing students in underserved communities to the idea that science really is an option for them," she says.

Over the summer, the high school students worked on their own research projects under the mentorship of Einstein graduate and postdoctoral students. The interns also took part in enrichment sessions, where they learned how to read scientific papers and ask questions. And, because the journey to becoming a scientist can often be intimidating, they learned how to seek out and use mentors to help with the many decisions that arise in a young scientist's life. "We wanted to help them with these so-called soft skills that are so necessary to build the resilience and confidence needed in this line of work," says fourth-year graduate student Czarina Ramos.



Tomatoes, strawberries, and potatoes are some of the crops grown in the community garden on the Einstein campus. Pictured at right are Food Justice and Medicine founders Michael Yang and Kathryn Segal, who say they were inspired to start the student group by their experiences as medical students during the pandemic.

Mr. Ratliff says that one of the things he likes most about science is that it focuses heavily on mentorship and training. "During every step of my career, I've met people willing to go out of their way to teach me something I didn't know," he says. NGSO outreach allows him to pay it forward, he adds, opening the door for others. "What I get out of this is helping people whom I would like to work with," he says. "I'm training my future colleagues."

### ★ FOOD JUSTICE AND MEDICINE

During the pandemic, medical student Michael Yang has seen firsthand how people without access to good nutrition are at greater risk for a host of illnesses. "The pandemic has revealed in a stark way how the food we put in our bodies has a huge impact on our health," he says. "And I've realized that food insecurity isn't going away any time soon." That's why he and fellow medical student Kathryn Segal

decided to create a group called Food Justice and Medicine at Einstein.

When they applied for funding for their project, Heather Archer-Dyer, M.P.H., director of community health outreach for Einstein's department of family and social medicine, remembers, she asked Mr. Yang and Ms. Segal what they meant by the term "food justice." They told her that food pantries were just a stopgap measure for the larger, ongoing issue of food insecurity. "Mike was adamant," Ms. Archer-Dyer recalls. "He told me, 'We don't need another bandage—we need to fix policy so that this problem doesn't continue.'"

Einstein students who are a part of Food Justice and Medicine are working with the nonprofit Moshulu Preservation Corp. on two grant-funded projects in the Bronx: creating community gardens and encouraging bodega owners to stock healthy options. The gardens showcase how accessible fresh, healthful foods can be, says Ms. Segal. For the past two years,





**“Depending on your patients’ circumstances and what their neighborhoods are like, they might not have access to healthier options.”**

— MEDICAL STUDENT  
MICHAEL YANG

Food Justice and Medicine has also delivered food to patients in need on Martin Luther King Jr. Day.

Both Ms. Segal and Mr. Yang, now fourth-year students, say they are encouraged that the students coming up after them are assuming leadership roles and expanding the group’s vision. These students plan to collect data to demonstrate the cost-effectiveness of selling fruits, vegetables, and other healthy choices in local markets. And they’ve started conversations with the Corbin Hill Food Project, a Harlem-based organization that delivers food from local farms to low-income communities.

Mr. Yang, who wants to specialize in primary-care internal medicine, says that

what he has learned through real-world advocacy will make him a better doctor. “You can’t just say ‘Change your diet and eat more salad’ to a patient,” he says. “A prerequisite to being a well-rounded physician is realizing that, depending on your patients’ circumstances and what their neighborhoods are like, they might not have access to healthier options.”

Ms. Segal, who is interested in orthopedic surgery, agrees. “It’s no longer adequate just to teach students the basic science of medicine, because there are so many social factors that affect health,” she says. “To work with and advocate for our patients to the best of our abilities, we have to be able to understand their lives in all their dimensions.” **E**

# CONFRONTING CANCER

Scientists and physicians at Montefiore Einstein Cancer Center are finding ways to better serve diverse communities **BY GARY GOLDENBERG**

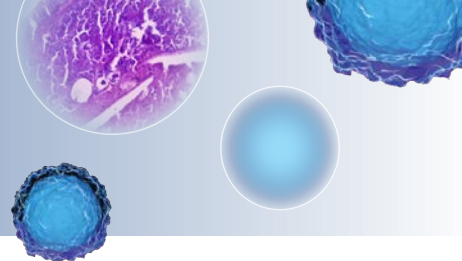
**M**ontefiore Einstein Cancer Center (MECC) was founded in 1971 and is celebrating its 50th year as a National Cancer Institute (NCI)–designated cancer center. Today, it draws on the skill and expertise of some 190 members. MECC’s overarching strategic priority is to better understand cancer and its causes in underrepresented groups. On the following pages, MECC Director Edward Chu, M.D., and four MECC members discuss what they are doing to detect, prevent, and treat cancer in the Bronx as well as nationwide.

*Below, from left: Edward Chu, M.D., M.M.S.; Julio Aguirre-Ghiso, Ph.D.; Yvonne Saenger, M.D.; Peter Campbell, Ph.D.; and Srilakshmi Raj, Ph.D.*









## Q&A WITH

# Edward Chu, M.D., M.M.S.

Director of Montefiore Einstein Cancer Center

**D**r. Chu has led National Cancer Institute (NCI)–designated Montefiore Einstein Cancer Center (MECC) since October 2020, after 10 years at the University of Pittsburgh Medical Center’s Hillman Cancer Center. In addition to holding the titles of vice president for cancer medicine at Montefiore Medicine and professor of medicine and of molecular pharmacology at Einstein, Dr. Chu is the Carol and Roger Einiger Professor of Cancer Medicine at Einstein.

**You took the helm of the cancer center two years ago, and it’s now celebrating its 50th anniversary as an NCI-designated cancer center. What is your vision for the future?**

Our cancer center was founded in 1971 and one year later we received NCI designation—the fourth in the nation. We have long been recognized for our exceptional laboratory research and clinical care. My vision is to build upon that strong foundation to become the premier NCI Comprehensive Cancer Center in New York City and the nation for delivering personalized care to underserved communities facing heightened disparities in cancer and social determinants of health. How can we accomplish this? To start, our research is actively investigating the wide variation in the genomic ancestry of our community as well as the structural barriers to cancer care.

For more than 50 years our basic scientists have been making paradigm-shifting

discoveries in the lab that have laid the groundwork for drug discovery and development. I’m pleased with our recent efforts to unify cancer research across Montefiore and Einstein. We have now strengthened our drug-discovery infrastructure and established a Phase 1 clinical trials initiative so we can more seamlessly bring these new therapies into the clinic. We are also focused on bringing the scientific rigor of our laboratory research to cancer care delivery to identify and overcome the hurdles that lead to worse outcomes for historically underrepresented groups. These efforts are particularly relevant to our Bronx population and will help us promote health equity in cancer care.

**What is special about the Bronx in achieving your goals?**

What makes us unique is that we serve one of the most diverse and socioeconomically disadvantaged communities in the country. The Bronx is New York’s only

Hispanic-majority borough. Hispanics constitute about 55% of the population; another 30% of the residents identify as Black or African American. Nearly one in three people in the Bronx was born in another country. And then there are the social determinants of health—such as education, housing, transportation, socioeconomic factors, and comorbidities—that challenge the delivery of cancer care as well as healthcare in general.

Black, African American, Hispanic, and other underrepresented groups historically have not participated in cancer research due to issues of trust in the scientific and medical communities. That applies to clinical trials and also to preclinical research, in which important molecular or genetic differences might be detected. We are tackling these challenges head-on so as to promote cancer health equity. Our patients must have access to the same type of cutting-edge clinical trials testing novel agents. Moreover, our scientists need to have access to tissue samples to better understand the biology of the main cancer types that affect our Bronx patients.

**How can research in diverse populations help reduce disparities?**

It’s critical. One of the main scientific priorities of our cancer center is to study the genomic, environmental, and behavioral factors that contribute to common cancers in the Bronx. Take prostate cancer.



A portrait of Dr. Edward Chu, a middle-aged man with short grey hair and glasses, wearing a black suit, white shirt, and striped tie. He is smiling and has his arms crossed. The background is a soft-focus purple and blue gradient with several 3D models of cancer cells in various colors (pink, blue, green) floating around.

**"We are enrolling up to 85% racial and ethnic minority patients into clinical trials, which is by far the highest percentage of any cancer center in the United States."**

— DR. EDWARD CHU



It is known to be much more aggressive in people who are Black or Hispanic than in whites, but it's not exactly clear why. Our researchers are partnering with Johnson & Johnson to study molecular factors that contribute to the high rate of prostate cancer in these groups. They will also analyze the specific tumor antigens that trigger an immune response. This information will be especially helpful for developing novel immunotherapies such as cancer vaccines that are tailored to this population.

However, this is only one research project. In the past year alone, several of our investigators have been awarded grants to look into cancer disparities in the Bronx. An important and unique award is a "Stand Up to Cancer" grant that Bruce Rapkin [Ph.D., professor of epidemiology & population health and of family and social medicine at Einstein and co-leader, Cancer Epidemiology, Prevention and Control Program, and associate director, community outreach and engagement, at MECC] received to enhance the accrual of underrepresented groups into clinical trials, specifically addressing the issue of trust. Nationally, these groups account for only about 8% of cancer clinical trial participants. In sharp contrast, at our cancer center, we are enrolling up to 85% racial and ethnic minority patients into clinical trials, which is by far the highest percentage of any cancer center in the United States. Enrolling our patients in clinical trials not only helps them receive the latest treatments, but also provides valuable information as to whether these novel therapies are effective in diverse populations.

### What's new about the way the cancer center is connecting with the Bronx community?

Montefiore has done a terrific job of



Dr. Edward Chu at the Michael F. Price Center/Harold and Muriel Block Research Pavilion.

providing a wide range of important services, free of charge, to people with cancer—from transportation assistance to meditation classes to nutritional support. Our cancer center is building on those efforts. We have established our own community advisory board. This group is partnering with us to conduct research in the community and to help us better communicate with and earn the trust of underrepresented groups that are skeptical of the healthcare system. We can't just talk at people if we want to make change—they need to be an integral part of the conversation from the beginning. We're learning, and we're determined to do more.

### Why is this interaction with the community so important?

We need to identify the key barriers to better care and do what we can to mitigate or eliminate them. For example, Black and Hispanic cancer patients are usually diagnosed at a later stage of disease than whites. There are multiple reasons for this—most importantly, the lower cancer-screening rates in

underrepresented groups. This calls for research into new outreach strategies and population-specific, evidence-based interventions that can move the needle. The single most important action that anyone can take to prevent cancer is to follow the recommended screening guidelines.

Alyson Moadel-Robblee [Ph.D.] and Brendon Stiles [M.D.] recently received a LUNGeity Foundation grant to develop strategies to improve screening for early detection of lung cancer in our community. [Dr. Moadel-Robblee is professor of epidemiology & population health, of medicine, of radiation oncology, and of psychiatry and behavioral sciences at Einstein and deputy director of community engagement and cancer health equity at MECC. Dr. Stiles is professor of cardiothoracic & vascular surgery, of oncology, and of medicine at Einstein and associate director for surgical oncology at MECC]. Drs. Moadel-Robblee and Stiles are working with our community advisory board and other stakeholders to determine what strategies would be most effective—and then implement them in the Bronx.

### You've recruited 42 new faculty. What has guided your choices?

Faculty recruitment has been one of my highest priorities, and we have been very strategic in this process. We've sought out truly exceptional research scientists and physicians who complement our existing strengths and add to the breadth and depth of our research. We have successfully recruited top specialists in the fields of lung cancer, hematologic malignancies, gastrointestinal cancer, cancer metastasis, and immunotherapy, as well as in the areas of epidemiology, cancer drug development, stem cell biology, and cell therapy. We have also placed a high priority on recruiting faculty committed to our social justice mission and focused on translating scientific discoveries into clinical practice.

### Are there any current projects of note in translational research?

Yes, we have some great examples. The synTac fusion proteins developed by Steve Almo [Ph.D.] have the unique ability to target disease-specific T cells to fight cancer; they are now in pre-clinical and clinical testing for a variety of cancers. BRAF inhibitors target cancers driven by the mutated BRAF protein, and Evripidis Gavathiotis [Ph.D.] has developed some novel inhibitor molecules that show promise in treating leukemia, colon cancer, and melanoma. Xingxing Zang [Ph.D.] has discovered several novel immune checkpoint pathways and has developed antibodies that target these pathways, including one now being tested

in patients with advanced lung cancer who have failed standard treatment. [Dr. Almo is professor of biochemistry and of physiology & biophysics, the chair of biochemistry, and the Wollowick Family Foundation Chair in Multiple Sclerosis and Immunology at Einstein and co-leader of the Cancer Therapeutics Program at MECC. Dr. Gavathiotis is professor of biochemistry and of medicine at Einstein and a member of the Cancer Therapeutics Program at MECC. Dr. Zang is professor of microbiology & immunology, of oncology, of medicine, and of urology, and the Louis Goldstein Swan Chair in Women's Cancer Research at Einstein and a member of the Cancer Therapeutics Program at MECC.]

## CANCER BY THE NUMBERS

**609,360**

**AMERICANS**

are projected to die from cancer in 2022

**1,670**

**DEATHS**

per day

**>1.9 MILLION**  
**NEW CANCER CASES**

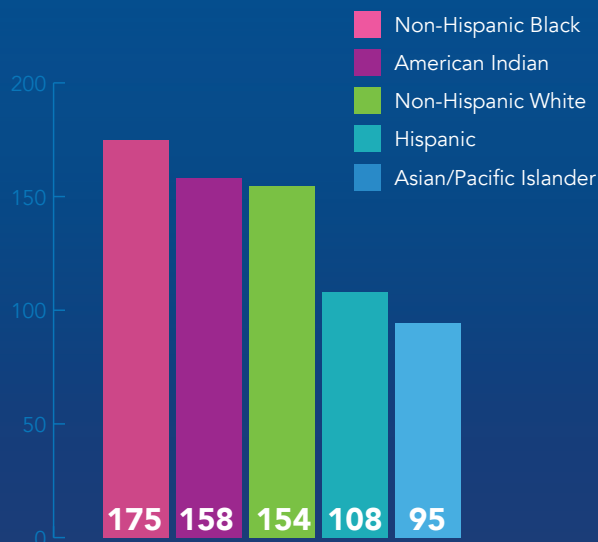
will be diagnosed in 2022

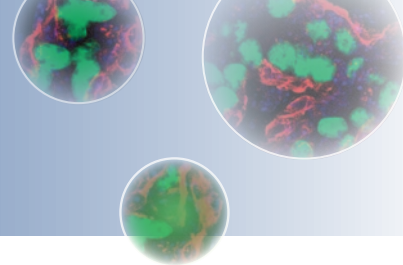
**\$246 BILLION**  
**ESTIMATED COST**

of cancer-related care in 2030 compared with **\$183 BILLION** in 2015

### CANCER DEATH RATES

Among both men and women, Blacks have the highest death rates in the United States for all types of cancer combined. Rates are age-adjusted per 100,000 people and based on 2016–2020 cases.





# Targeting Cancer Cells for Dormancy and Death

**Julio Aguirre-Ghiso, Ph.D.**, is developing ways to make cancer cells sleep and then kill them

Localized cancer is highly treatable, but metastatic disease is not. Metastasis—the spread of cancer cells from a primary tumor to distant tissues or organs, where they form new, treatment-resistant tumors—accounts for the vast majority of cancer deaths. How do those cancer cells manage to evade therapy and persist undetected for many years—sometimes decades? Fortunately, researchers are now finding answers.

A leader in this fast-growing field of study is Julio Aguirre-Ghiso, Ph.D., endowed professor of cell biology, of oncology, and of medicine at Einstein, a co-leader of the Tumor Microenvironment and Metastasis Program at Montefiore Einstein Cancer Center (MECC), the founding director of the new Cancer Dormancy and Tumor Microenvironment Institute at MECC, and the director of the Gruss Lipper Biophotonics Center.

Dr. Aguirre-Ghiso was recruited from the Tisch Cancer Institute and Icahn School of Medicine at Mount Sinai, where he was an Endowed Mount Sinai Professor of Cancer Biology and a co-leader of the Cancer Mechanisms Program at the Tisch Cancer Institute.

Dr. Aguirre-Ghiso's metastasis studies are based on the observation that some

cancer cells resist attacks from the immune system and cancer therapies by entering a long-term state of dormancy. They may not revive until much later, when surrounding conditions (the tumor microenvironment) change in ways that favor cell growth. Countless organisms, from bacteria to worms and bears, have evolved similar physiological adaptations for surviving in harsh environments.

Cancer-cell dormancy is not a new concept. The earliest known mention dates back to a 1934 monograph, *The Spread of Tumours in the Human Body*, by an Australian pathologist named Rupert A. Willis. However, his idea had little impact on researchers and even less on clinicians. Oncologists continued to focus on removing or destroying primary tumors in hopes of achieving a cure. Metastasis, if and when it did occur, was dealt with after the fact.

## EMBRACING AN UNPOPULAR POSITION

Cancer dormancy came to Dr. Aguirre-Ghiso's attention in the mid-1990s, when he was a doctoral candidate at the University of Buenos Aires, Argentina. "I kept hearing stories about cancer patients treated 15 or 20 years ago who were now relapsing. I was intrigued that the cancers had somehow stopped

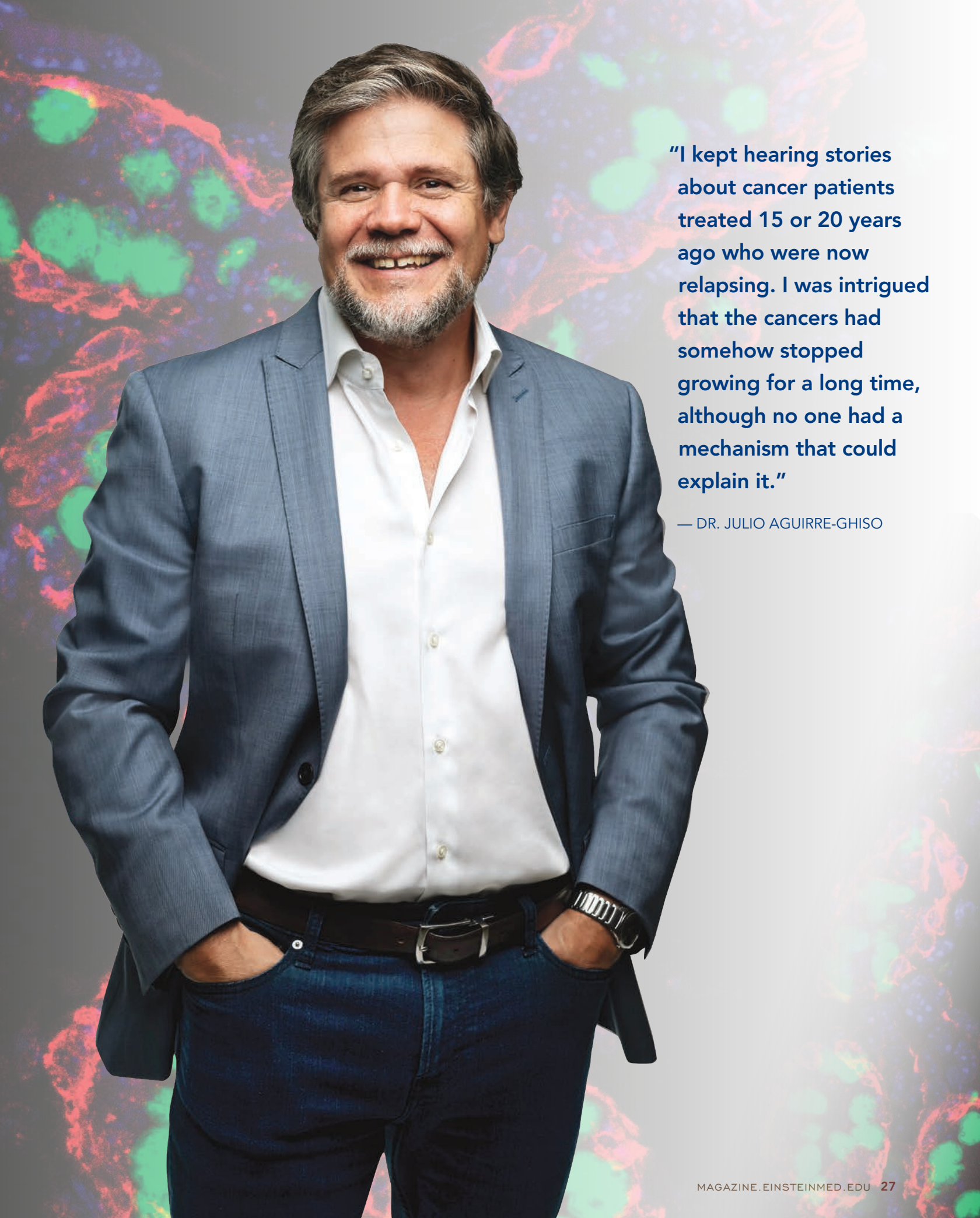
growing for a long time, although no one had a mechanism that could explain it," he says. Finding that mechanism would become his life's work.

Early on, Dr. Aguirre-Ghiso felt like a latter-day Don Quixote tilting at scientific windmills. "I would go to the annual AACR [American Association for Cancer Research] meetings and—among thousands of abstracts—mine would be the only one containing the keyword 'dormancy,'" he says. "People argued that what I was seeing was an illusion—that cancer never pauses."

But studies have since shown that cells from a variety of malignancies can escape from a primary tumor early in the course of the disease and then find a safe place to hibernate. While many of these disseminated cancer cells, or DCCs, remain dormant, others later awaken from their slumber and start proliferating and seeding secondary tumors.

Dr. Aguirre-Ghiso's work has contributed significantly to this new view of metastasis. He discovered that cross-talk between DCCs and the tumor microenvironment regulates the cells' ability to switch between dormancy and proliferation. His lab has provided key insights into the early spread of breast cancer and how that process leads to dormancy and to metastatic progression. He has





"I kept hearing stories about cancer patients treated 15 or 20 years ago who were now relapsing. I was intrigued that the cancers had somehow stopped growing for a long time, although no one had a mechanism that could explain it."

— DR. JULIO AGUIRRE-GHISO



also studied how intracellular signaling pathways adapt to enable cancer cells to survive during dormancy.

## HOW DORMANCY HAPPENS

Dr. Aguirre-Ghiso is leveraging these insights to develop novel strategies for treating metastasis by maintaining DCC dormancy, killing dormant DCCs, or coaxing DCCs back into hibernation. An example of a tool to induce hibernation is an experimental drug called C26, the brainchild of Dr. Aguirre-Ghiso and Maria Soledad Sosa, Ph.D., of the Icahn School of Medicine at Mount Sinai, who trained with Dr. Aguirre-Ghiso.

In a 2015 study, the two investigators identified NR2F1, a receptor in tumor cell nuclei, as a master regulator of tumor cell dormancy. Building on this work, the team sifted through more than 100,000 chemicals to identify a compound that could activate this receptor and, ideally, make rapidly dividing cancer cells become dormant.

When tumor cells taken from patients with head and neck cancer were treated with that compound, known as C26, the cells could no longer multiply. Even more promising, C26 inhibited metastasis in mice injected with cells obtained from patients with highly aggressive head and neck cancer.

Drs. Aguirre-Ghiso and Sosa determined that C26, by activating NR2F1, pushes cancer cells into a prolonged dormancy by triggering a unique pattern of gene activity. Cancer patients whose tumor cells exhibit a similar gene-activity program tend to go longer without relapsing. This finding, published in the *Journal of Experimental Medicine* in 2021, suggested that C26 or similar drugs could be effective in inducing cancer-cell dormancy in patients and,



Dr. Julio Aguirre-Ghiso at work with postdoctoral fellow Lornella Seeneevassen, left, and M.D./Ph.D. student Luis Valencia-Salazar, in his lab at the Michael F. Price Center.

ideally, keeping the cells dormant for a long time.

## 'LOCKING UP' CANCER CELLS

In a study published in 2022 in *Nature Cancer* involving a mouse model of breast cancer, Dr. Aguirre-Ghiso and colleagues reported that the expression of a transcription factor called ZFP281 locks early DCCs into a dormant state for very long periods, equivalent to 15 to 18 years in humans. The finding suggests that maintaining ZFP281's expression in dormant DCCs could prevent cancer cells from reviving and becoming metastatic.

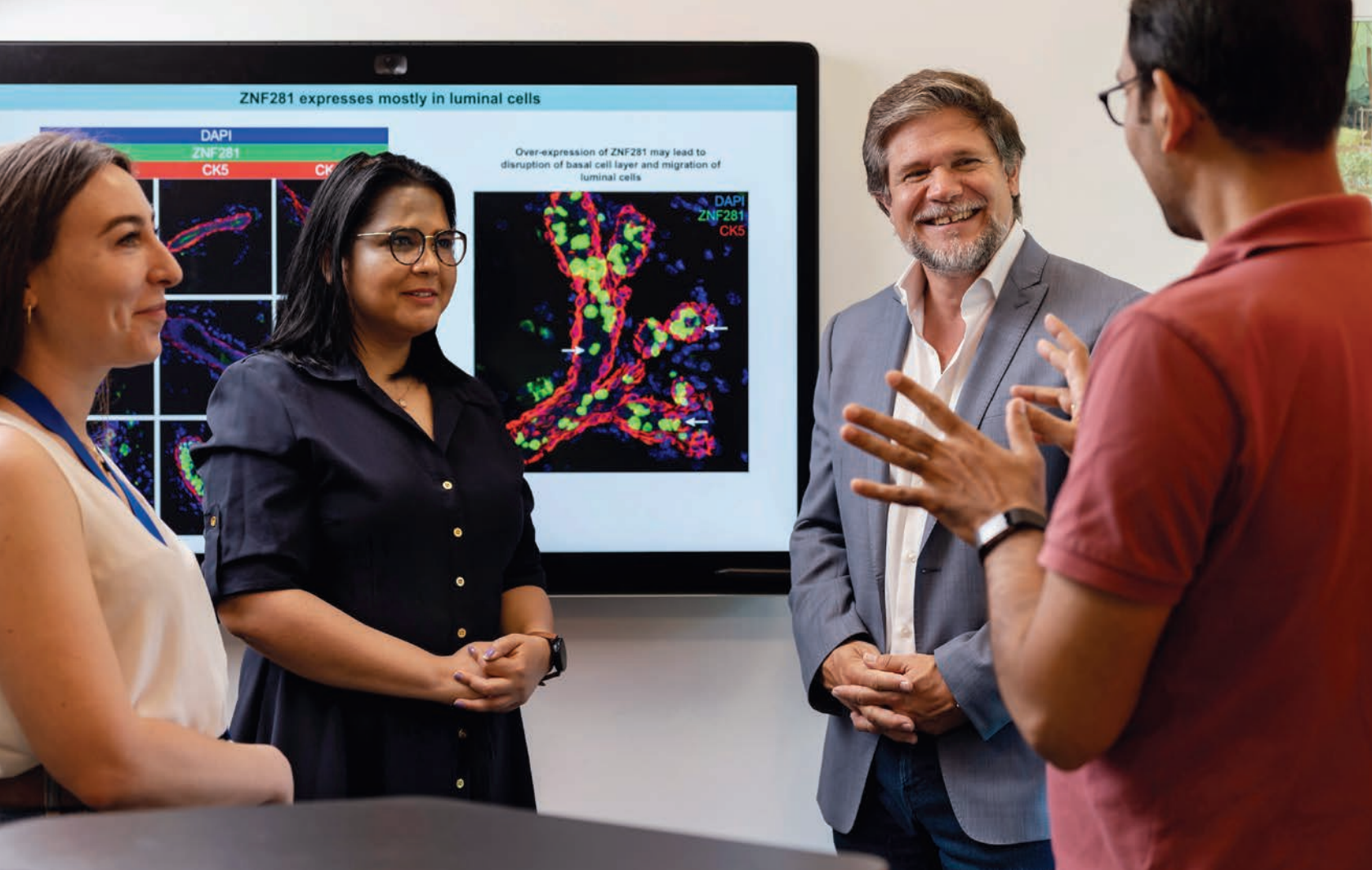
Interestingly, some subsets of these early DCCs upregulate NR2F1—raising the possibility that C26 could prolong dormancy in those cells while at the same time preventing any other dormant DCCs from reactivating and posing a danger.

“Skeptics have argued that by keeping DCCs alive and in place, we’re just creating a ticking time bomb that explodes if those dormant cells awaken,” says Dr. Aguirre-Ghiso. “I’d argue that all too often, current therapies allow cancer cells to revive because they ignore the importance of dormancy. We favor a rational, evidence-based therapeutic approach based on cancer-cell biology—which means turning on gene pathways that put DCCs to sleep.”

To test this treatment approach, Dr. Aguirre-Ghiso and his collaborators are conducting a clinical trial using azacytidine and retinoic acid (vitamin A) to reprogram metastatic prostate cancer cells into dormancy. The trial’s results should be available by early 2023.

Dr. Aguirre-Ghiso wants to do more than induce dormancy in DCCs; he





From left, postdoctoral fellows Anna Adam Artigues and Rama Kadamb, Dr. Julio Aguirre-Ghiso, and Einstein instructor Deepak Singh.

also wants to eliminate them. In 2019, he co-founded a biotech startup called HiberCell to develop drugs to target and eliminate dormant DCCs. He is also working on tests to identify markers of cancer-cell dormancy, since such markers might allow cancer patients to be spared aggressive treatment with chemotherapy or radiation.

In another line of research, he is examining the relationship between aging and cancer dormancy. “We know that aging increases the risk of cancer,” he says, “and we’ve helped a group at Johns Hopkins show that aging also increases the risk of cancer relapse. Aging somehow makes DCCs in cancers such as melanoma more prone to reactivation. One of the reasons I came to Einstein was to collaborate with its experts on aging to learn more about this phenomenon.”

#### LIFE-AND-DEATH CHESS MATCH

“Treating cancer is like a chess game, and we kind of know the big moves that cancer is playing. It’s shown it can persist in a dormant state in many patients,” says Dr. Aguirre-Ghiso. “But as researchers and clinicians, we’ve traditionally responded to cancer’s opening gambit—its primary tumors—by countering with chemotherapy and radiation therapy instead of playing the long game: figuring out how to prolong lives by keeping disseminated cancer cells from causing metastases. The goal of my research is to develop treatments that are 10 steps ahead of what cancer tries to do.”



#### WATCH THE VIDEO

Dr. Aguirre-Ghiso tells how his lab is working to contain cancer cells: [magazine.einsteinmed.edu/cancer22](https://magazine.einsteinmed.edu/cancer22)

**“Treating cancer is like a chess game, and we kind of know the big moves that cancer is playing.”**

— DR. AGUIRRE-GHISO





# Predicting If Cancer Will Recur

**Yvonne Saenger, M.D.**, is developing better prognostic tests to personalize immunotherapy for melanoma patients

Whenever Yvonne Saenger gets frustrated with her research progress—as most investigators do from time to time—she recalls her years as a research fellow in the early 2000s.

“In those days, a diagnosis of stage 4 melanoma was a virtual death sentence, with the majority of patients surviving less than a year,” she says. “Today, thanks to immunotherapy, which primes the immune system to attack tumor cells, about 40% of those with advanced disease can expect to survive for five years. I just have to remind myself that we’ve made incredible progress—and that we can make even more.”

Dr. Saenger is associate professor of oncology, of microbiology & immunology, and of pathology at Einstein and a medical oncologist and co-leader of the Cancer Therapeutics Program at Montefiore Einstein Cancer Center (MECC).

## FROM RUSSIAN LITERATURE TO MEDICINE

Unlike many physicians, Dr. Saenger didn’t decide on a career in medicine until relatively later in her life. As a Harvard undergrad she majored in Russian literature, envisioning a life immersed in the fictional worlds of Tolstoy and Dostoevsky. However, an inner voice told her to pursue something with more social impact, leading her to enroll at Columbia University’s College of

Physicians and Surgeons. Her life’s work came into focus when her younger sister was diagnosed with a rare type of skin lymphoma. “By then,” Dr. Saenger says, “I already knew I wanted to do immunology, but that pushed me more toward oncology.” (Her sister subsequently went into remission and continues to do well.)

Immunotherapy—a melding of immunology and oncology—appeared on Dr. Saenger’s radar in 2000, during her final year at Columbia. “I read about two researchers at Memorial Sloan Kettering Cancer Center [MSKCC] who were studying ways to activate the immune system to treat cancer,” she recalls.

Following an exchange of emails, the two researchers—Alan Houghton, M.D., and Jedd Wolchok, M.D., Ph.D.—invited Dr. Saenger to do a research elective at MSKCC. She returned there after

her residency for a research fellowship. Working with these pioneering immunologists, she used a mouse model of metastatic melanoma to show that T-cell immunotherapies could be enhanced by simultaneously activating the animals’ B cells, the immune cells that produce antibodies. The findings were published in 2008 in *Cancer Research*, with Dr. Saenger as the lead author.

Like her mentors, Dr. Saenger is quick to respond to messages from medical students and young investigators. “The older you get, the more you realize that there’s only so much one human being can do,” she says. “Just as important as doing research is to inspire and encourage others to be more effective.”

Just a few years into her research career, Dr. Saenger was involved in arguably the most important advance in



Dr. Yvonne Saenger, above left, works with Einstein research technician Sharmin Sultana at the Montefiore Einstein Cancer Center’s Immune Monitoring Core.





cancer treatment in generations. While at MSKCC, she participated in the early clinical trials of the immunotherapy drug ipilimumab (Yervoy), the first medicine ever to improve overall survival in patients with melanoma.

“I remember when some of our patients’ hair began to turn white—a sign that the medicine was working as intended,” Dr. Saenger says. “Melanoma develops in the melanocytes, the cells that produce the pigment melanin. At the same time ipilimumab was destroying the melanocytes within their tumors, it was also destroying the melanocytes that give hair its color. It was exciting to witness, like something out of science fiction.” The Food and Drug Administration approved ipilimumab for treating melanoma in 2011.

### MELANOMA MARKERS

Dr. Saenger came to Einstein in 2021 after leading her own labs at the Icahn School of Medicine at Mount Sinai and then at Columbia. Today, she is developing prognostic biomarkers at MECC for patients with aggressive (stage 2 or 3) melanoma.

In stage 2 melanoma, the cancer is no longer confined to the outer skin layer but has not spread to nearby skin or lymph tissue. In stage 3, the cancer has spread to nearby skin or lymph tissue but not to other parts of the body. Patients in both stages face a 50% risk of tumor recurrence, but predicting recurrence is difficult using traditional tissue-examination techniques.

“Immunotherapy can help prevent recurrence but also can have potentially serious complications,” she explains. “We don’t want to subject low-risk patients to such hazards, nor do we want to withhold treatment from anyone who might benefit. We need better prognostic tests so we can personalize immunotherapy.”



One of her promising biomarkers is based on a study she published in 2014 in the *Journal of Investigative Dermatology* involving patients with aggressive melanoma. Dr. Saenger found that the elevated expression of 53 immune-related genes correlated with better postsurgical outcomes in the patients.

That 2014 study assessed the accuracy of the 53-gene panel on tissue samples from 48 melanoma patients. Now, in a study funded by the National Institutes of Health (NIH), she and her colleagues at other centers are more rigorously evaluating the 53-gene panel on a much larger set of tissue samples—a critical step toward readying it for clinical use.


Under a separate NIH grant, Dr. Saenger is developing a “pathomics bio-signature” to further fine-tune treatment decisions for the same patient population.

“We’ve known for decades that the immune system limits the progression of melanoma, and that higher levels of tumor-infiltrating lymphocytes portend a favorable outcome,” she notes. “However, the way that pathologists analyze those lymphocytes is somewhat subjective, and the results can vary widely from pathologist to pathologist.”

To bring infiltrating-lymphocyte analysis into the computer age, Dr. Saenger’s team has developed three different digital pathology methods to estimate the risk of melanoma recurrence. Each method provides unique information about the lymphocytes and the tumor immune microenvironment. “By combining these methods, and using the 53-gene panel, we hope to identify those patients whose immune systems are so good that we don’t have to expose them to immunotherapy, with its considerable risks, such as autoimmune disease, and its considerable expense as well,” she says.







# Unraveling the Mystery Behind the Rise in Early-Onset Colorectal Cancer

**Peter T. Campbell, Ph.D.**, heads an international effort to understand why colorectal cancer is increasing among younger adults

**T**he precipitous decline in colorectal cancer in the United States is one of oncology's great successes. Since 1975, this overall incidence has fallen by 37%, with the mortality rate tumbling by 50%. Most of the credit goes to early screening and improved treatment—but a dark cloud hangs over those sunny statistics.

"In the United States and other affluent countries, the incidence of this cancer among young adults [those under age 50] has risen 63% since 1988," says Peter T. Campbell, Ph.D., professor of epidemiology & population health at Einstein and a member of the Cancer Epidemiology, Prevention, and Control Program at Montefiore Einstein Cancer Center (MECC). "Not only that, but early-onset colorectal cancer tends to be diagnosed at later stages and is particularly aggressive."

Inherited genetic diseases, such as Lynch syndrome, can explain some of those cases. But the cause of at least half of colorectal cancers in younger people remains a mystery. Increases in obesity, changes in diet, and new environmental exposures may be to blame. Of note, Black and Hispanic men, in the Bronx and nationally, are diagnosed with early-onset colorectal cancer at a higher rate than their white counterparts and are more likely to die of the disease.

In 2020, the National Center for Health Statistics reported that there were 17,930 cases of early-onset colorectal cancer, with 3,640 deaths (accounting for 10% of all colorectal cancer fatalities). Researchers estimate that the incidence of early-onset colorectal cancer will rise by more than 140% by 2030.

Numerous studies have looked at

early-onset colorectal cancer, but most have been too small to provide conclusive data. Taking a more expansive view, Dr. Campbell leads a major new study called the Colorectal Cancer Pooling Project (C2P2), which aims to better understand the risk factors for early-onset colorectal cancer. C2P2 combines data from 25 prospective cohort studies being conducted in North America, Europe, and Asia. It was started under the auspices of the National Cancer Institute Cohort Consortium, which helps create large-scale collaborations to tackle important scientific questions about cancer and quicken the pace of research.

## FROM KINESIOLOGY TO EPIDEMIOLOGY

Dr. Campbell's path to epidemiology was unusual. He started in kinesiology, the scientific study of human movement, earning both bachelor's and master's degrees in the field, with a stint as a swim coach in between. During his graduate studies, at Toronto's York University, he worked with Peter Katzmarzyk, Ph.D., a kinesiologist who specializes in pediatric obesity and diabetes. "That was the beginning of my shift from human performance to human health—from the individual to populations," Dr. Campbell says.

He went on to earn a Ph.D. in epidemiology at the University of Toronto in 2006, with a focus on colorectal cancer, following the lead of his mentor, John R. McLaughlin, Ph.D. "It was a good fit with my background in exercise science, since there was emerging evidence that physical inactivity and metabolic imbalances were major risk factors for this disease," Dr. Campbell says.

After earning a postdoc at the Fred Hutchinson Cancer Center in Seattle and then working as a senior investigator

**"I wanted to learn more about cancer prevention in the context of systemic racism." — DR. PETER CAMPBELL**

at the American Cancer Society (ACS) in Atlanta, he expanded his focus to include early-onset colorectal cancer. “Back then, researchers said it had to be caused by obesity,” says Dr. Campbell. “But it has since become clear that the development of early-onset colorectal cancer is multifactorial, likely involving dozens of environmental influences on top of hundreds of genetic variants that can make you more susceptible to this cancer. Only a large study, such as C2P2, can begin to unravel the causes of early-onset colorectal cancer and to identify the ones we have to pay the most attention to.”

Dr. Campbell came from the ACS to Einstein in 2021. “I wanted to learn more about cancer prevention in the context of systemic racism and its possible biological effects on certain racial and ethnic groups in the Bronx,” he says. “So Einstein seemed like it would be a really good fit for me.”

### SCREENING TO SAVE LIVES

C2P2’s 25 prospective studies are providing detailed demographic, clinical, pathological, and epidemiological data on some 3.7 million people. “We expect to have data on more than 3,000 patients with early-onset colorectal cancer—about 30 times the size of any study published thus far,” Dr. Campbell says. “So the data should be quite robust.”

C2P2 is looking at the relative roles played by lifestyle and behavioral risk factors, including the usual colorectal cancer suspects, such as body mass index, diet (e.g., red-meat intake), smoking, and alcohol use. The study will also assess novel risk factors (such as antibiotic use, allergies, and sleep) that have turned up in smaller studies. Finally, the study will look at contributions of non-modifiable risk factors, such as family history of colorectal cancer, diabetes, and

inflammatory bowel disease.

“In terms of risk factors, I think early-onset disease will look a lot like late-onset disease,” he says. “But I expect the C2P2 study will find some different risk factors for early-onset disease that can help reveal which young adults would benefit the most from screening and at what age. Ideally, the study will also reveal biomarkers for identifying and screening at-risk young adults. In turn, we hope those blood-based markers point to factors that can be changed via lifestyle or environmental modification.”

Studies clearly show that screening for colorectal cancer saves lives by catching the disease early, when it’s much more treatable. “Unfortunately, our healthcare system doesn’t have the resources for mass screening. Even if we did, I’m not sure we could convince many young people—those below the recommended age of 45—to undergo colonoscopies. It would be much more compelling if we could say to select individuals, ‘You’re at especially high risk; you need to be tested,’ or ‘You need to modify these behaviors to reduce your risk of disease.’”

Dr. Campbell emphasizes that future epidemiology studies of colorectal cancer that he and colleagues are planning must include more nonwhite participants—especially from groups known to be at increased risk from the disease.

“Here in the Bronx, for example, the incidence of colorectal cancer among Blacks is about the same as the national average, but their mortality rate here is 20% higher,” he says. “Economic disparities and less access to care probably have something to do with it. But their disease could differ at a biological level and might require looking at different risk factors or biomarkers or administering different treatments.”

# Finding Cancer’s Genetic Risk Factors

**Srilakshmi Raj, Ph.D.,** studies how genes (nature) and environment (nurture) interact to affect human health

It pays to be curious. In search of seeds to grow in her basement for a science fair project, 14-year-old Srilakshmi Raj and her father dialed the lab of Frederick Ausubel, Ph.D., at Harvard Medical School, fully expecting that this world-renowned geneticist would take a call from a young budding scientist. As it turned out, a friendly postdoctoral fellow answered the phone and said, “You can’t do a proper experiment in your basement—why don’t you use our greenhouse?” Srilakshmi—who goes by Sri (pronounced “Shree”)—accepted the offer and completed her science project, which compared how plants of the same species but different original localities (ecotypes from Siberia and America) responded to vernalization (the induction of flowering by exposure to prolonged cold). She won first place at the Massachusetts state science fair.

Months later, when the postdoc



needed a research assistant during her maternity leave, she asked Sri to take on the responsibility of contributing to Dr. Ausubel's studies. Sri stayed on to work there for two and a half years.

"This was my introduction to the idea that genetic differences shape our response to the environment, and it has permeated my research ever since," says Dr. Raj, who in 2012 earned a doctorate in biological anthropology at Cambridge University in England. She is now assistant professor of population genetics at Einstein and a member of the Cancer Epidemiology, Prevention, and Control Program at Montefiore Einstein Cancer Center (MECC).

Dr. Raj has already studied a surprising variety of topics in her career, including how variations in genes, diet, and environment affect type 2 diabetes and obesity among Asians; how genetic variations among immunity-related interleukin genes may influence disease risk in a range of populations; and risk factors for childhood growth stunting in India.

"The same basic tool kit can be used in almost any research setting where genetic and environmental factors are at play," she explains—a tool kit containing a trio of disciplines:

- **Population genetics**, which attempts to determine why human populations vary, where in the genome these variations occur, and how these variations may affect disease risk;
- **Quantitative genetics**, involving the origin and distribution of phenotypes, epidemiological questions such as predicting who is at highest risk for particular diseases, and understanding the genetic architecture underlying disease risk; and
- **Anthropological genetics**, which seeks to understand genetic variation and the cultural and environmental contexts that



**“With most complex diseases, the rule of thumb is that just 30% of the cause is genetic, so we have to look at the bigger picture.” — DR. SRILAKSHMI RAJ**

influence the development of diseases and other traits in different populations.

### A FOCUS ON CANCER IN THE BRONX

Dr. Raj was recruited by MECC and joined the Einstein genetics department in late 2021, and she uses those disciplines to study the origins and distribution of cancer and other complex conditions in the Bronx.

“Most genetic studies have been carried out in whites of Northern European descent, but the Bronx has a mosaic of human populations with only 9% European whites,” she says. “We need to better understand the genetic risk factors for disease in different populations and to learn how they interact with their local urban environments to influence disease risk.”

Dr. Raj’s initial studies focused on colorectal cancer, which has a higher incidence among African Americans. “Not only is their risk 20% to 30% higher than that of European populations but they also tend to be diagnosed with colorectal cancer at a younger age, and their disease is more aggressive,” she says. “This cancer is what led to the untimely death of the actor Chadwick Boseman, among so many others.”

Dr. Raj notes the low rate of cancer screening in historically marginalized communities—one of the many health disparities affecting people from these communities. “Among other efforts, we clearly need to encourage screening in

these groups,” she says, “but population genetics also has a role to play here. We can use ancestry-based genomic information to identify distinct risk profiles among different populations so we can predict and treat illness more effectively.”

When patients walk into a clinic, Dr. Raj says, “they typically check off a box that they’re Black or Hispanic, and so on—which doesn’t hold any genetic weight. ‘Black’ could mean African American, West Indian, Brazilian, or Cuban, or a mixture of different ancestries. Using population genetics, we can go beyond broad racial categories to better define the various populations in the Bronx and each group’s risk profiles for cancer and other diseases, with the goal of developing more-targeted therapies.”

### IN PURSUIT OF PERSONALIZED TREATMENT

“Since genes don’t operate in a vacuum, we also need to ask how they interact with different environmental, societal, and cultural factors—diet and exercise, for example—to influence disease risk and health outcomes,” Dr. Raj says.

“With most complex diseases, the rule of thumb is that just 30% of the cause is genetic, so we have to look at the bigger picture—and this is where I put my anthropologist hat on.”

In her work on childhood stunting, she recalls, “I spent a lot of time in the rain forests and deserts of India, trying to understand how those environments contribute to differences in complex

disease outcomes. For my current work in the Bronx, I hope to get out of the lab and engage directly with the local community.”

Ideally, all this genetic and environmental information will eventually find its way into Montefiore’s electronic health record system, giving a clearer picture of patients’ disease risk and helping physicians prescribe personalized treatments.

Dr. Raj’s appetite for scientific inquiry has already led to several collaborations around Einstein. She works with Parvathi Myer, M.D., assistant professor of medicine at Einstein and a physician at Montefiore, on studies of colorectal cancer risk in individuals of African ancestry, and with John Grealley, Ph.D., D.Med., professor and chief of genomics in the department of genetics, to study the relationship between genetic and epigenetic variation in global populations. She is also sowing the seeds for future projects with other cancer center members.

“The underlying theme of my work is that one size does not fit all,” she says. “One treatment might help some people but might not work for others. We can use genetics to better understand disease risk and find treatments that serve larger segments of the community.” **E**



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# INSPIRED

# for life

BY GARY GOLDENBERG



**M**any of the virtues that draw students to Einstein—its outstanding scientific research and commitment to social justice, for example—appeal also to its graduates, with some deciding to stay and spend their careers in the Bronx. On the following pages, four Einstein grads from across the years describe their time as medical students, residents, and physicians and tell how their experiences have shaped who they are today. »

From left: Sophie Balk, M.D., Edward Burns, M.D., Allison Ludwig, M.D., and Juan Robles, M.D.



Sophie Balk, M.D., at her Montefiore pediatrics office today and below as an Einstein student in the 1970s.



**“As a politically active child of the ‘60s, I wanted to make a difference, and Einstein and Montefiore turned out to be the ideal place to do so.”**

— SOPHIE JULIA BALK, M.D.

### SOPHIE JULIA BALK, M.D.

Dr. Balk, who was born in England and raised on the Upper West Side of Manhattan, graduated from Einstein in 1974 and completed a residency in pediatrics at Montefiore in 1977. After two years of serving in the National Health Service Corps in East Harlem, she joined the Einstein faculty in 1979, where she is now a professor of pediatrics and an attending physician at Montefiore’s Comprehensive Family Care Center. She has long studied and taught about how environmental factors affect children’s health.

**B**oth of my parents were doctors and Holocaust survivors. After the war, they relocated from Poland to Manhattan’s Upper West Side and dedicated their careers to community and public health. As a politically active child of the ‘60s, I wanted to make a difference, and Einstein and Montefiore turned out to be the ideal place to do so.

One part of the institution’s mission has been to care for everyone in its community, with an emphasis on people who are underserved. I appreciate that mission even more today, 50 years later. In my case, caring for children and adolescents and trying to ensure a better planet are good things to devote your life to.

Of course, some things have changed since I first came here. Back then, there were few women in medicine—just 18 out of 150 in my class. It wasn’t easy for us, but that’s just how it was. And I had two children during my residency, with only 18 days of maternity leave with my first son. Fortunately, it’s better for women now—here and elsewhere.

Another change is that students are much more diverse. They tend to be older, and they come here after doing gap years or research or getting other degrees—I’m amazed to hear what some of them have done.

Sure, there have been ups and downs, but I’ve had a great combination of academic and clinical work, along with wonderful colleagues and supportive leaders. Being a pediatrician and pediatric educator is a privilege. It’s part of my identity.

### EDWARD BURNS, M.D.

Dr. Burns, who was born and raised in the Bronx, graduated from Einstein in 1976 and then completed a residency in medicine and a fellow-



ship in hematology and medicine at Montefiore. He joined the faculty in 1981 and is now the executive dean and a professor of pathology and of oncology. In 2015, he was awarded Einstein's Lifetime Achievement Award for Excellence in Teaching.

After I got hooked on science in high school, I made a visit to Einstein, walking from lab to lab, asking researchers if they would take on an aspiring scientist over the summer. One did: Sam Seifter, the chair of biochemistry. He showed me that you could be more than a doctor or a scientist. He was a defender of the poor and the economically and socially underserved—a great role model.

That experience was a major reason I applied to Einstein. Also, it was open to everyone. Quotas were commonplace at the time, but at Einstein there were no quotas for women, Jews, Blacks, or anyone else. Both of my parents were Holocaust survivors, and fighting racism was the most important thing in my life.

I went to Montefiore for my residency

for the same reason—its commitment to social justice—as well as for the opportunity to do research.

My only break from Einstein and Montefiore was a postdoctoral fellowship at New York University. It was wonderful, much like here, only it was in Manhattan and they dressed better! NYU offered me a position, but Einstein asked me to come back, and I'm glad I did. Early on, I attended to some of the first AIDS patients, when all we could offer was symptomatic relief. It really wasn't medicine. It was human care.

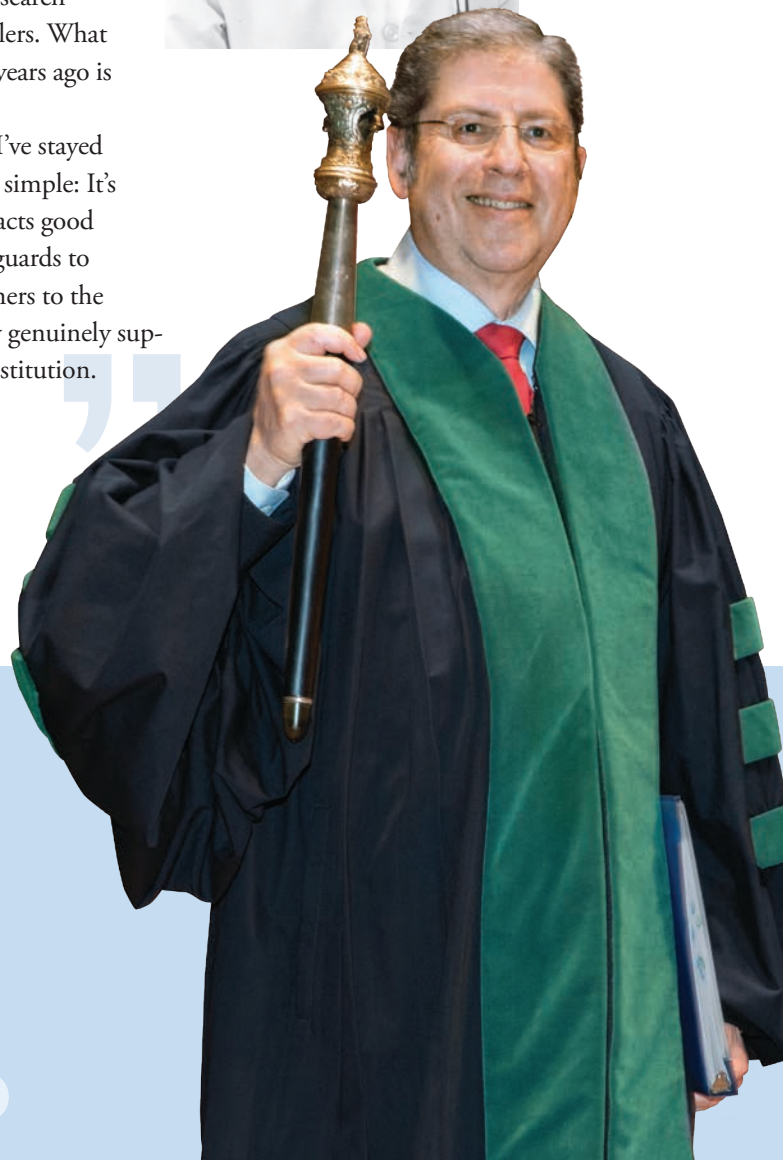
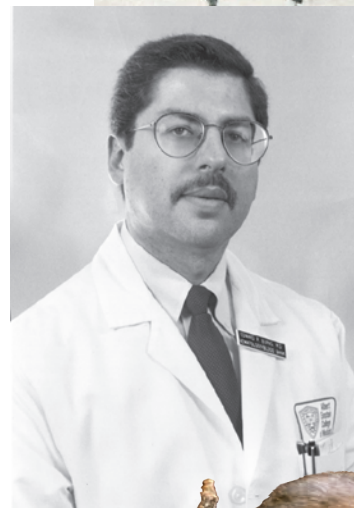
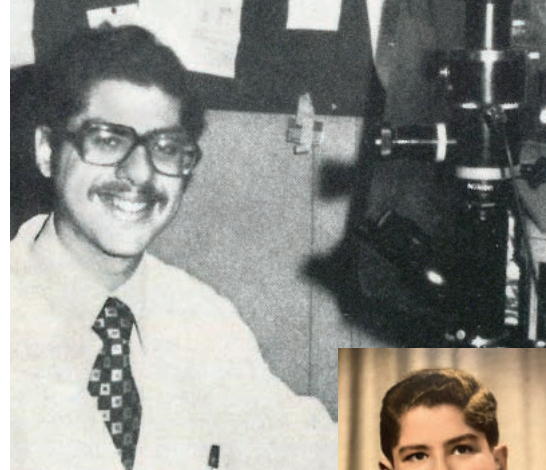
One of my tasks in the dean's office is promoting diversity enhancement, which includes summer research internships for high schoolers. What I had done informally 50 years ago is now being done formally.

When people ask why I've stayed here so long, the answer is simple: It's the people. This place attracts good people, from the security guards to the researchers to the teachers to the administrators. Everybody genuinely supports the mission of the institution.

**"When people ask why I've stayed here so long, the answer is simple: It's the people."**

— EDWARD BURNS, M.D.

Edward Burns, M.D., across the years: At right, holding a ceremonial mace at an Einstein commencement; at top, in an Einstein research lab in the 1970s; as a boy in the 1960s; and as an Einstein and Montefiore physician in the 1980s.



CLASS OF 1976

## INSPIRED FOR LIFE

### ALLISON LUDWIG, M.D.

Dr. Ludwig was raised in New Jersey and graduated from Einstein in 2004. She completed a residency in internal medicine at the University of California, San Francisco (UCSF). She joined the Einstein faculty in 2007, where she is now the associate dean for student affairs and an associate professor of medicine. She is also a hospitalist at Jacobi Medical Center.

**Y**ou could say that my path to Einstein began when I was 5 years old. My father, an Einstein grad, would take me on his weekend rounds. I'd wear a toy stethoscope and one of his white coats. I loved 'seeing' patients.

When it came time for me to apply to medical school, Einstein was at the top of my list, partly because it's in

New York City. I also got the feeling that there was great camaraderie. I wanted a school with a focus on learning, not on competition. Einstein felt like family to me.

One of my first clinical experiences was in a methadone clinic in the South Bronx. I can't say that working with marginalized populations was what drew me to Einstein, but working with the underserved quickly became my passion. My favorite place to do rotations was Jacobi, a city hospital and Einstein affiliate. My father had said that it's the type of place where you want to train, where you could really make a difference in patients' lives. I took that advice to heart and have made it my clinical home.

I went to San Francisco for an adventure, and UCSF allowed me to continue working with marginalized populations while being trained by world-class physicians. But ultimately, I missed my family, which included Einstein.

Although I had offers at other hospitals in New York City, I chose a position at Montefiore for the opportunity to teach. Most teaching hospitalists are allowed to teach for three months a year, if that. But Montefiore gave me six months right off. I moved to Jacobi after a year when I was given

an opportunity to expand my teaching role both with the residents and with the Einstein medical students.

It has been just over 20 years since I first came here, and much has changed. First, there are closer ties between the medical school and Montefiore, which is wonderful. As for the students, what they've accomplished before even coming here is mind-boggling. They inspire me every day. At the same time, the heart of Einstein has not changed. It remains a place where camaraderie drives progress. I consider myself lucky to call my colleagues friends.

**"The heart of Einstein has not changed. It remains a place where camaraderie drives progress. I consider myself lucky to call my colleagues friends."**

— ALLISON LUDWIG, M.D.



At left, Allison Ludwig, M.D., with her Einstein classmates; above she wears an "Einstein Strong" T-shirt as she holds her baby daughter.

# CLASS OF 2004



**"I co-founded the Bronx Community Health Leaders program so that others could follow in my footsteps."**

— JUAN ROBLES, M.D.

## JUAN ROBLES, M.D.

A native of Honduras, Dr. Robles graduated from Einstein in 2011 and completed a residency in family medicine at Montefiore in 2014. He is currently an assistant professor of family and social medicine at Einstein and an attending physician in the Family Health Center at Montefiore. In 2021, he was selected as Mentor of the Year by the national Latino Medical Student Association.

**W**hen I was growing up in the Bronx, our family pediatrician at Montefiore was Dr. Alan Shapiro, who is still a member of the faculty and is now a colleague and friend. I was taken by his compassion and his interest in my family's story. I wanted to be just like him and to study at Einstein—even though that goal seemed unattainable. I didn't get accepted to Einstein the first time I applied. I wasn't ready. I earned a master's, taught high school, and did biomedical research and community service. That made me a better individual and a stronger applicant.

There weren't many students at Einstein who looked like me, but from the outset everyone was so welcoming. I was embraced for who I was. My clinical rotations at Montefiore convinced me that this was the right place for me, where I could reach my fullest potential.

I considered many residency pro-

grams, all with similar missions, but Montefiore's felt the most compelling, with its many services for the underserved. That commitment hasn't changed. You could see this most recently in the hospital's response to the pandemic. No matter how bad it got, we didn't give up on caring for the community.

In the last year of my residency, I co-founded the Bronx Community Health Leaders program so that others could follow in my footsteps. The program helps socially and economically disadvantaged students pursue careers in medicine; at last count, 20 of my students had become doctors. Since I first came here, Einstein has increased its commitment to diversity and inclusion.

I still live in the Bronx, near Yankee Stadium. People always ask me, 'You could live elsewhere—why choose the Bronx?' I answer that I have a pretty good life here. This is my home. **E**

From the top: Juan Robles, M.D., today and as a young boy riding his tricycle in Honduras; with his wife and infant daughter this past summer; and with his sister and mother at his Einstein graduation.



CLASS OF 2011





# THE *Change* AGENT

**How Kathy Anastos, M.D., is advancing HIV/AIDS research and treatment on the global stage**

BY TERESA CARR

In late 2003, Kathryn Anastos, M.D., received an emailed plea from a grassroots organization of women widowed by the 1994 genocide in Rwanda. Many of the women had been infected with human immunodeficiency virus (HIV) through genocidal rape, and their organization was appealing for access to lifesaving treatment. "Men with HIV being tried for war crimes at an international tribunal were receiving state-of-the-art care," says Dr. Anastos. "The women were outraged." And luckily, Dr. Anastos was uniquely qualified to respond.

Kathryn Anastos, M.D., stands in a tea field in southwestern Rwanda.







**"A woman from one of the NGOs pulled me aside and said, 'You know, a lot of people come and visit, but nobody comes back.'"**

— DR. KATHY ANASTOS



In the early days of the AIDS epidemic, Dr. Anastos' research and advocacy helped convince public health officials that HIV—then viewed as largely limited to gay men and intravenous drug users—also spread to women through heterosexual transmission. In 2003, she was a professor of medicine, of epidemiology & population health, and of obstetrics & gynecology and women's health at Einstein and the co-director of Einstein's Global Health Center, and an internist at Montefiore. "I was in a position to respond," she says, "and so I did."

By April 2004, Dr. Anastos and four other women activists had secured a small foundation grant and were on a plane to Rwanda. Their arrival coincided with the 10th anniversary of the systematic killing of an estimated one million Tutsi and moderate Hutu over 100 terrible days. "It was an emotional time—for us, but much more so for the Rwandan people," says Dr. Anastos. People infected with HIV in the wake of the genocide were now progressing to the most advanced stage of AIDS, without access to antiretroviral treatment that could help them.

On arriving in Rwanda, Dr. Anastos found that a network of well-organized nonprofit governmental organizations (NGOs) was already in place, with clinics providing palliative care for Rwandans with advanced HIV and AIDS. A brief interaction at one of those clinics would change the course of her life. "A woman from one of the NGOs pulled me aside and said: 'You know, a lot of people come and visit, but nobody comes back.' More than anything else, that compelled me to return."

True to her word, Dr. Anastos has returned more than 50 times to Rwanda.

She and three other women founded the nonprofit Women's Equity in Access to Care and Treatment (WE-ACTx), which works with 24 grassroots community groups and the Rwandan government. WE-ACTx provides comprehensive medical and psychological care to thousands of Rwandans living with HIV, mostly women and children, and is now fully run by Rwandans.

## THE POWER OF PERSISTENCE

"Persistent" is a word that colleagues often use to describe Dr. Anastos. Paul Volberding, M.D., a professor emeritus at the University of California San Francisco School of Medicine, was her research collaborator at the start of the AIDS epidemic. "Kathy is the most focused, persistent person I know," he says. "She's ambitious in that she has a clear sense of direction and is determined to make progress. I think that's what the world needs."

At age 72, sitting at her well-worn enamel-top table in her cozy kitchen, Dr. Anastos focuses like a bird, with a shock of short white hair, bright blue eyes highlighted by blue eyeglass frames, and shiny danglers on her ears. Her intensity is coupled with the warmth of human connection. Broad smiles crinkle the corners of her eyes, which mist over when she recalls the patients she lost to AIDS when no treatments were available.

She recalls two influences that led her to medicine as a way to make a difference in the world. One was her mother, who became a Unitarian minister after she and Dr. Anastos' father divorced. "My mother

Liberathe Uwimana, dressed in blue, director of Solidarity, a community-based organization, celebrates the start of the Rwandan Children's Education program with Dr. Kathy Anastos.







taught me that your obligation in life is to figure out the right thing to do and then do it,” Dr. Anastos says. The other was Oberlin College in Ohio—a place, she says, “where you are surrounded by the idea of social justice and personal responsibility.”

## FINDING A PURPOSE

Kathy Anastos grew up in Natick, Mass., in a family of five children raised by a single mother struggling to make ends meet—even though her mother’s family, who had disowned her, were solidly middle class. “She taught me what propriety was so that I could reject it,” says Dr. Anastos. A self-described outlier, she graduated from high school in 1968—a heady time for a young woman determined to break free of societal constraints—and accepted a full scholarship to Oberlin College.

Feeling directionless, she dropped out after her second year. She worked for three years on an organic vegetable farm in Vienna, Va., attending agriculture school and hitchhiking across Europe in the off-seasons. She eventually decided to return to college and, to earn some money, answered an ad to be a bike messenger in Washington, D.C. But it was 1973, and the company’s management didn’t think a woman could handle fast biking in heavy traffic.



Daniel Murokora, M.D., M.Med., an obstetrician-gynecologist working in partnership with Einstein and Montefiore, instructs Chantal Mukazayire how to screen patients for cervical cancer during a first-ever training of this type for Rwandan nurses.

“Imagine saying someone couldn’t be a bike messenger because she’s a woman—what kind of BS was that?” Dr. Anastos asks.

Although Dr. Anastos has a weak leg due to childhood polio, years of farm labor had left her strong and confident in her physical abilities. She talked her way into the job and, shortly thereafter, recruited her two sisters and a few women friends. “We were a gang of women

bikers,” she jokes. Her future husband, Jon Wallen, now a photographer, also worked as a bike messenger that summer. “The two of us biked around D.C. in matching buzz cuts, wearing as few clothes as possible due to the heat,” she remembers.

On returning to Oberlin she found her groove, majoring in neuroscience and playing varsity basketball. But later, in medical school at the University of

## Dr. Kathy Anastos

*Across the years*



At left, Kathy Anastos as a 2-year-old in Natick, Mass. Above, she appears at far right with her siblings, from left, Peter, Beth, George, and Ellen Anastos.



California San Diego, Dr. Anastos once again felt like an outlier: an openly bisexual liberal who had worked from the age of 12 and didn't fit in with her classmates—mainly wealthy, conservative white males. A good therapist—and the specter of student-loan debt if she failed to finish med school and become a physician—convinced her to stick it out.

After graduating from medical school in 1980, Dr. Anastos accepted a residency in Montefiore's social medicine program because of its mission to improve the health of underserved communities. "That's why I went to medical school," she says. "And it's where I learned to love medicine."

At Montefiore, Gerald Friedland, M.D., then a faculty adviser in internal medicine, selected Dr. Anastos as chief resident. "First of all, it was clear that she was an excellent doctor," says Dr. Friedland, now a professor emeritus and senior research scientist at the Yale University School of Medicine. "But I was also struck by her leadership qualities—determination, clear focus, and a great sense of responsibility and commitment to women's health."

He remembers that Dr. Anastos often biked to work in the Bronx from lower Manhattan. "That's quite remarkable, given the rigors and long hours of medical training," he says. "And

just another mark of her strength and determination." Dr. Friedland compliments his own foresight. "So I made a good choice," he says, chuckling at the understatement.

### THE MAKING OF AN ACTIVIST

In 1983, midway through her stint as chief resident, Dr. Anastos was hit with intense nausea and vomiting. She was pregnant—something, she notes, that was "very much frowned upon [for someone in her job] in those days."

Maternity leave didn't exist. In late 1983 she gave birth to the first of three daughters. "You can do all these things, but it ain't easy," is her message to younger women and, now, men. "Things have changed since the 1980s, but it's still really hard to have small children and work as a young physician."

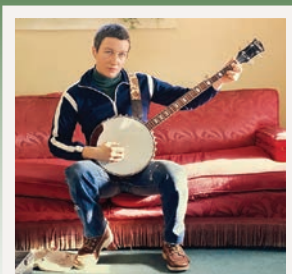
Dr. Anastos never felt guilty about being a working mom with young kids, says her middle daughter, Rebecca Anastos-Wallen, M.D., a physician and healthcare administrator who has two young sons herself. "Instead," recalls her daughter, "she said that being a working mom to three girls was a gift to us, demonstrating what our lives could look like. She showed by her example that there's value in work and modeled for us how strong women can change the world. It was sometimes hard for

**"She said that being a working mom to three girls was a gift to us, demonstrating what our lives could look like. She showed by her example that there's value in work and modeled for us how strong women can change the world."**

— DR. REBECCA ANASTOS-WALLEN



A cereal box cover drawn by Rebecca Anastos-Wallen, M.D., when she was in grade school shows she imagined herself as a future AIDS researcher like her mom.



Learning to play the banjo in 1975.



Taking a break from building an A-frame in the mid-1970s.



Graduating from the University of California San Diego School of Medicine in June 1980.



Pedaling a bike as part of the Montana AIDS Ride, a 550-mile fundraiser, in 2001.

us, when she'd come home late or not at all because of her job. But she was an amazing mother who always managed to find time for us."

For a grade-school assignment, asked to picture her future self on a cereal box, Dr. Anastos-Wallen drew herself as an AIDS researcher like her mom.

After her Montefiore residency, Dr. Anastos joined the Einstein faculty, working as a primary-care physician/researcher in the South Bronx and specializing in HIV. She quickly realized that research ignored patients like hers—mostly women and mostly people of color.

"The NIH had funded a big study on the natural history of HIV in men, but we had no such information on women," she says. "It made me angry."

It also made her an activist and researcher. In 1993, when the National Institutes of Health (NIH) bowed to pressure and finally agreed to fund a study of women with HIV at six centers across the country, Dr. Anastos applied to participate in what became known as the Women's Interagency HIV Study (WIHS). WIHS eventually enrolled nearly 5,000 women infected with HIV or considered at risk for acquiring the infection across the United States; it is the largest and oldest ongoing, prospective study documenting the health outcomes

of women living with HIV.

"At that time I didn't actually know much about what research entailed, but I wrote a good grant application," she says. In 1993, she took on the leadership of the WIHS study for the New York City area. "We asked the women why they were enrolling," she says. "The most common reason they gave was 'to help my sisters,' meaning other women with HIV."

Fellow AIDS researcher Dr. Volberding credits Dr. Anastos with making him aware of issues affecting women with HIV. "It helped me un-

derstand how important it was to make sure that we were bringing women into clinical research," he says. "It absolutely directed my work, and I think that's true for the entire field."

Dr. Anastos has been similarly influential in what she considers one of her most important roles: mentoring young clinicians and researchers. "She has fostered the research careers of many people, including me, and given us so many opportunities to grow," says David Hanna, Ph.D., research associate professor of epidemiology & population health, who came to Einstein a decade



## Dr. Kathy Anastos

*Across the years*



With husband Jonathan Wallen on their 1980 wedding day.



Playing "pile of girls" with her three daughters in 1990.





Dr. Kathy Anastos meets with researchers at Masaka District Hospital in Rwanda. From left are Isabelle Izimukwiye, M.D., M.Med., Jean Claude Dusingize, M.D., Ph.D., and Benjamin Muhoza, M.S.

• **The MACS/WIHS Combined Cohort Study.** In 2019, the NIH merged Dr. Anastos' and other national WIHS sites with a parallel study of more than 7,000 gay and bisexual men called the Multicenter AIDS Cohort Study (MACS). The resulting MACS/WIHS Combined Cohort Study is investigating the progression of chronic diseases affecting people living with HIV.

Backed by a \$27 million NIH grant, Dr. Anastos is heading up the Montefiore/Einstein Bronx MACS/WIHS research site, one of 13 in the country. Her co-principal investigators are Anjali Sharma, M.D., M.S., professor of medicine at Einstein and an internist and infectious-disease doctor at Montefiore, and Dr. Hanna.

"Thanks to the miraculous success of antiretroviral therapy, people are highly unlikely to die of HIV today," says Dr. Anastos. "But we've discovered that even people who no longer have detectable virus in their blood face chronic inflammation. Their immune systems are effectively stuck in high-alert mode, increasing the risk of a host of diseases affecting the heart, liver, kidney, bones,

"The NIH had funded a big study on the natural history of HIV in men, but we had no such information on women. It made me angry."

— DR. KATHY ANASTOS

ago, fresh out of graduate school, in large part to work with Dr. Anastos. "Her leadership has led to extremely productive and collaborative science that has helped us better understand the complexities of HIV, particularly among women. I'm fortunate to work with and learn from her."

## ADVANCING RESEARCH ON HIV/AIDS

Today, Dr. Anastos is a principal investigator on three large HIV-related studies funded by the NIH—one in the United States and two in Africa.



Riding their bikes in 1993 are her daughters Caitlin, age 9, Rebecca, 6, and Emma, 4.



In 2001 with her mother, the Rev. Dr. M. Elizabeth Anastos, and daughter Rebecca.



Daughters Rebecca, Emma, and Caitlin at their grandfather's 90th birthday party in 2010.



**“Kathy is very much attached to Africa and its people. She has a true passion for creating new clinical programs and improving research skills in areas such as HIV/AIDS and oncology.”**

— DR. MARCEL YOTEBIENG

and nervous system, as well as certain cancers.”

• **The Central Africa International Epidemiology Databases to Evaluate AIDS (CA-IeDEA).** Begun more than a decade ago, CA-IeDEA studies the treatment and care of tens of thousands of people living with HIV/AIDS in Burundi, Cameroon, the Democratic Republic of the Congo (DRC), the Republic of the Congo, and Rwanda—five countries with a substantial burden of HIV infection. In 2021, the NIH awarded researchers a five-year, \$14.5 million grant to continue and expand the study’s research efforts.

In addition to Dr. Anastos, CA-IeDEA’s principal investigators are Marcel Yotebieng, M.D., Ph.D., M.P.H., associate professor of medicine at Einstein, and Denis Nash, Ph.D., M.P.H., distinguished professor of epidemiology and the executive director of the Institute for Implementation Science in Population Health at the City University of New York Graduate School of Public Health and Health Policy.

“This award allows us to enroll more children and adults with HIV who visit health clinics in our five partner countries,” Dr. Anastos says. “Our overall goal is to increase access to HIV services and improve outcomes for patients.”

• **The Einstein/Rwanda/DRC Consortium for Research in HIV-Associated HPV-Related Malignancies.**

In 2020, Dr. Anastos, with Dr. Yotebieng and other Einstein colleagues, received a five-year, \$4.9 million NIH grant to establish a research center to investigate cancers related to HIV and to HPV (human papillomavirus) among people living with HIV in Rwanda and

the DRC. (Kaposi’s sarcoma affects people with HIV/AIDS almost exclusively, and people with HIV are more likely to develop HPV infections—by far the leading cause of cervical and anal cancer and a major cause of other types of cancer.)

Dr. Anastos leads a team of more than a dozen Einstein researchers from a range of specialties, who partner with three African institutions. The new center will expand programs Dr. Anastos previously initiated in Rwanda. Those programs have already contributed to a better understanding of HPV infection and disease among Rwandans living with HIV, and to improvements in Rwanda’s research ability and laboratory capacity.

In addition, the center will launch similar programs in the DRC, plus two research projects in both countries: the first population-based assessment of an HPV vaccine’s effectiveness in women living with HIV, and a study of HPV prevalence and disease burden in men who have sex with men.

“We aim to develop a cadre of Rwandan and DRC scientific leaders and build the physical and administrative infrastructure needed to sustain this project,” says Dr. Anastos, the lead investigator on the grant. “The goal is for our African colleagues to be able to direct their own research, set their own research priorities, and apply for funding independently. We want them to collaborate with us forever. But we don’t always need to be ‘in charge.’”

## A SUSTAINABLE VISION FOR AFRICA

Over the years, one of Dr. Anastos’ closest research collaborators has been Dr. Yotebieng, a co-principal investigator on both of her NIH-funded projects in Africa. “Kathy is very much attached to





Dr. Kathy Anastos meets with Rwandan oncologist Fidel Rubagumya, M.D., M.Med., on the front porch of her Yonkers home during his visit to Montefiore Einstein Cancer Center in August.

Africa and its people,” says Dr. Yotebieng. “She has a true passion for creating new clinical programs and improving research skills in areas such as HIV/AIDS and oncology, where research can have a huge impact. And she’s determined to see everything through before she retires.”

Dr. Anastos says she’s not quite ready for retirement. “Big things remain unachieved—in particular, building sustainable research capacity in our teams in Africa,” she says. Her goal is a \$5 million endowment that Einstein would help create. It would fund an institute for research and education in Central Africa that wouldn’t depend on the vagaries of grants. To launch the effort, she has committed \$400,000 of her own money over six years.

Looking back, Dr. Anastos says, there

are “a couple of things” she wishes she could have told her younger self. For one, medicine is an excellent vehicle for social change, but progress isn’t always immediately evident. “You have to take a really long view,” she says.

She could also offer her younger self some reassurance regarding advances in healthcare and with respect to the discrimination people can experience because of their race, gender, or sexuality: “It does get better,” she says, “although we still have a very long way to go. There are periods of discouragement when it feels so hard, when you think ‘I don’t want to do this, I can’t do this,’” she says. “But you can, and you will. In time, you’ll feel better about the world and your place in it. In fact, if you’ve persisted long enough, you’ll feel great.” **E**

**“Medicine is an excellent vehicle for social change, but progress isn’t always immediately evident. You have to take a really long view.”**

— DR. KATHY ANASTOS



# PASSIONATE PURSUITS

## The Plant Doctor

BY MANDY WALKER

**L**isa Buonocore's room on the fifth floor of the Forchheimer Building may remind you of the nearby New York Botanical Garden. More than 40 plants thrive in her small, rectangular space, where this lab assistant has cleaned and sterilized glassware at Einstein for the past 32 years.

On two sides of her room, the shelves, the supply cabinet, and even the

top level of a supply cart are lined with colorful pots. Arrowhead vines, avocados, angel wing and star leaf begonias, Boston ferns, peperomias, purple shamrocks, spider plants, and succulents, including small cactuses and striped zebra haworthias, all coexist happily. A shelf across the room is stacked with boxes and supplies for the nearby labs and fronted by leaf cuttings taking root in glasses of water.

What's remarkable about this collection of thriving plants is the absence of windows in the room. The steam from an autoclave provides moisture, and two nearby ovens for drying keep things toasty. The ceiling's fluorescent bulbs—the sole source of light—are clearly sufficient for photosynthesis.





Ms. Buonocore is in her office Monday through Friday from early morning to midafternoon, but the lights typically stay on much longer as people come in and out to collect glassware, including on weekends. The closer the plants are to the fluorescent fixtures, the greater the amount of light they absorb to help make the sugars they need to thrive. If a plant on a lower shelf starts to look a bit faded, Ms. Buonocore knows to rotate it to a higher shelf.

### INSPIRED BY HER GRANDFATHER

Ms. Buonocore's plant education began when she was young and she helped her grandfather in his backyard garden. "He grew tomatoes and zucchini, plus he had some peach trees," she says. "I also helped him trim the hedges."

She lives now in the house her grandfather lived in, eight blocks from Einstein—close enough for her to walk to and from work every day, often carrying plants that need repotting, bags of soil, or fertilizer. Nearly all the plants in her office have sprouted from leaf cuttings or from seeds.

Over the years, Ms. Buonocore has augmented her grandfather's tomato and zucchini patch with other vegetables, including carrots, celery, lettuce, peppers, green beans, and an assortment of herbs.

### DOING ESSENTIAL WORK

While many plants in offices withered during the COVID-19 lockdown, hers flourished and even multiplied. "The education buildings were closed, but I knew the doctors were in the labs doing experiments they had to come in to complete," she says. So as soon as she was told she could return, she did.

"Lisa's work, including coming in during the COVID-19 pandemic, was



Lisa Buonocore is surrounded by greenery in her Forchheimer Building office. Below, she tends to the many varieties of plants perched high on the shelves there.

absolutely essential for my lab and for the other labs on the floor," says Rajat Singh, M.D., M.B.B.S., professor of medicine and of developmental and molecular biology at Einstein, who has worked with Ms. Buonocore for 12 years. "She is an amazing worker, but she is also one of the nicest people on this planet."

When some labs were short on staff, Ms. Buonocore pitched in at a nearby office. "It felt so bare because there were no plants in there," she says. So she brought some in, including a tiny lemon tree she'd recently started from a seed. "Having plants in an office just makes you feel better," she notes.

As Ms. Buonocore's plant collection has grown, so has the number of friends and colleagues who stop by to admire it. Some trade plants with her or give her flowerpots. She has also given some plants, especially varieties that do well near large windows, as gifts to colleagues who work in nearby labs. And she has become the go-to source for people with failing plants in need of emergency care.

"A student gave me a money tree [a tropical houseplant] when he left the department, and I left it in my office," says Rachel Hazan, Ph.D., professor of pathology, who has worked with Ms.

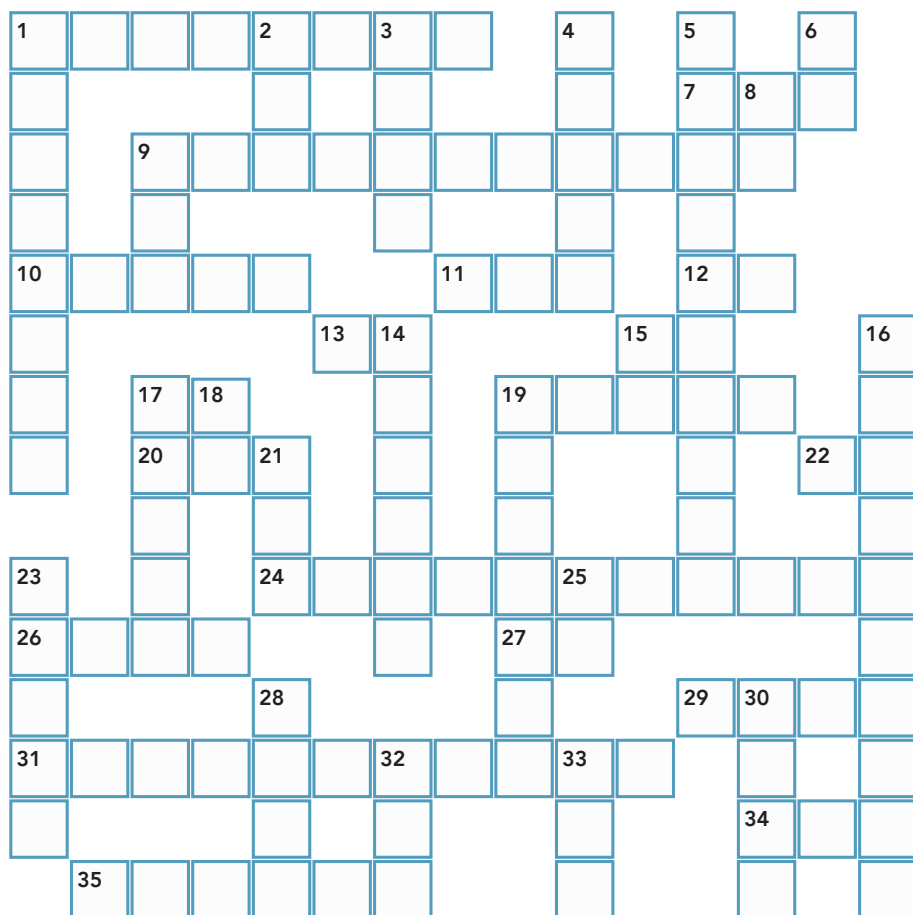


Buonocore for 20 years. "Soon it looked completely dead. I asked Lisa, 'Should I throw it out?' She said, 'No, no, no,' and she took it, and now it looks beautiful." It sits near a lab window close to Ms. Buonocore's lemon tree, which is now seven feet tall. "I tell Lisa she runs Einstein's plant hospital," adds Dr. Singh with a smile. **E**

# ALBERT'S PUZZLER

BY DEIRDRE BRANLEY

## Cancer Quiz



### Across

- 1 Gene that makes cells cancerous (8)
- 7 Virus closely associated with Ewing sarcoma (3)
- 9 Ancient Greek credited with the origin of the word "cancer" (11)
- 10 Hepatitis B or C can lead to cancer of this organ (5)
- 11 Ribonucleic acid (3)
- 12 Metric mass measure (2)
- 13 Rarest blood type (2)
- 15 Blood pressure, briefly (2)

- 17 Nickel on the periodic table (2)
- 19 Blockbuster cancer drug whose mechanism of action was identified by an Einstein scientist (5)
- 20 The most common type of breast cancer, for short (3)
- 22 Patient, abbreviated (2)
- 24 Differences in incidence, prevalence, and mortality among groups (11)
- 26 Cancer of this organ is the leading cause of cancer deaths in the U.S. (4)
- 27 Short for chemo (2)

- 29 Genes that when mutated put women at high risk for breast and ovarian cancer (4)
- 31 Screening procedure for colorectal cancers (11)
- 34 NIH component that funds cancer research (3)
- 35 A tumor that is not cancerous (6)

### Down

- 1 The study and treatment of cancer (8)
- 2 Guidelines, or good clinical practice, briefly (3)
- 3 A bright element (4)
- 4 President who launched the Cancer Moonshot program (5)
- 5 These inhibitors are a type of immunotherapy (10)
- 6 A way to administer fluids (2)
- 8 Exists (2)
- 9 Virus that causes cervical and other cancers (3)
- 14 The removal of tissue for examination (6)
- 15 Our borough, briefly (2)
- 16 The spread of cancer (10)
- 17 President who signed the National Cancer Act (5)
- 18 Identification, for short (2)
- 19 Carcinogen first recognized by Dr. John Hill in the 18th century (7)
- 21 Cardiovascular disease, to docs (3)
- 23 The bile that Hippocrates blamed for cancer (5)
- 25 Radiation therapy, for short (2)
- 28 Pro's opposite (4)
- 30 Many cancer patients do this to a bell at their last treatment (4)
- 32 Celestial object that causes most cases of skin cancer (3)
- 33 First widely used cancer-screening test (3)



See how well you did at: [magazine.einsteinmed.edu/puzzler22](https://magazine.einsteinmed.edu/puzzler22)



# MOTIVATIONS

The Front Line of Philanthropy at Einstein and Montefiore



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MOTIVATIONS | CONTINUED CONNECTION

## DR. RICHARD S. FRANKENSTEIN, CLASS OF '74

Einstein's new Alumni Association president says Einstein can lead in modeling justice, equity, diversity, and inclusion

BY JOE LEVINE

From the stage of Carnegie Hall, Richard S. Frankenstein, M.D. '74, welcomes members of the Class of 2022 to the Einstein Alumni Association.

**R**ichard S. Frankenstein, M.D. '74, has served as an intern, resident, and fellow at Montefiore; practiced pulmonology and internal medicine; and served as the chief medical officer at two California hospitals. He is also a past president of the California Medical Association, the chair of the Joint Commission's Standards and Survey Procedures Committee, and the governor for Southern California of the American College of Physicians.

### **Why did you want to be president of the Alumni Association?**

Eleanor Roosevelt said, "You must do what you think you cannot do," and Einstein helped me do that.

### **How so?**

I'm a product of New York City public education. I went to Brooklyn College in a class of 5,000, where you wrote your student number on your exam papers. And Einstein was so different. I had



## ALUMNI DAY 2022

world-famous scientists in the laboratory. Harry Eagle, M.D., who invented a synthetic cell culture called Eagle's medium, taught me how to administer a smallpox vaccine.

### Have there been moments when you've since thought, "That's my Einstein training at work"?

At the University of California at Irvine, a student said, "Our friends don't do as much work as you make us do." I said, "I want you to be the best doctors you can be." And that came from Einstein's Juden Reed [M.D.] and Phil Rogal [M.D.], who'd say, at the end of the day, "OK, nice job, guys," and then take us to see patients who had findings we could learn from.

On day one at Einstein you were taught, "Your patient comes first. Before you figure out how to get breakfast, you take care of your patients." And by the end of your internship year, you were confident you could safely care for every patient you might see. I interned in Morrisania on the inpatient service. On my last night, an emergency room nurse—a real tough lady, six feet tall, who literally knocked heads together—said, "Hey, Frankenstein, I've been watching you; you're gonna make it." And then I knew I would.

### Why should alumni engage with Einstein right now?

At the American College of Physicians, we talk about justice, equity, diversity, and inclusion—JEDI, as we call it. This country has taken some steps backward, but we think that if healthcare can get it right, the nation will, too. Because healthcare is like the Transportation Security Administration line at the airport. Even the rich and mighty have to



Clockwise from top left: Michael J. Reichgott, M.D. '65, Ph.D., Einstein professor emeritus of medicine, and his wife, Lynn, enjoy the Alumni Association's dinner-dance at Wave Hill in the Bronx in May; Dionna W. Williams, Ph.D. '14, with her son after receiving the Rising Star-Scientific Investigator Award (page 67); members of Einstein's Class of 1992 celebrate their 30th anniversary; Dr. Richard S. Frankenstein addresses dinner-dance attendees; and Einstein student speaker Nicholas Forelli, Class of 2023, and his mother, Marie Forelli-Ausili.

## MOTIVATIONS | CONTINUED CONNECTION

take off their shoes and walk through. Everyone, sooner or later, needs to see a doctor—and people listen to doctors, especially now.

And Einstein, in particular, can be influential. When I was a student, we were mostly white and Jewish, but it was decided that this should change. The Martin Luther King Jr.–Robert F. Kennedy Program for Special Studies [established in the wake of their assassinations in the late 1960s] was designed to help college students from groups that were underrepresented in medicine prepare for medical school. The program enrolled excellent students—future leaders at many institutions.

Meanwhile, Montefiore and its affiliates basically were the definition of healthcare during the height of the pandemic in the Bronx—the epicenter of the epicenter of COVID-19. During the first wave's peak, about 2,000 patients per week were being admitted to the health system, and the average resident saw more death than most doctors see in their careers. But our doctors did what doctors do: They cared for patients as best they could, with limited knowledge and at great risk.

So if we can tie people's respect for doctors to a respect for all Americans, we'll achieve the vision of America we thought we all believed in—the America to which my Lithuanian and Polish grandparents immigrated.

### **Governance in medicine has been important for you. Does that come from your commitment to diversity?**

As Michael Reichgott [M.D. '65, Ph.D.], an Einstein dean who took students to American Medical Association [AMA] meetings, used to say, “Watch out for

the politics, but learn how it's done.” Because even though people say, “Oh, the AMA is a very conservative organization,” it has evolved. In 2021 it documented its own history of discrimination and the need for change. And again, that's because of progress made by trailblazing places like Einstein.

### **What do you want to achieve as president?**

Here's my vision of a strong alumni connection. A friend of mine died in 2000, and his widow still occasionally goes to his prep school reunions. And she was his second wife, who married my friend decades after he went to prep school!

Now maybe we won't quite achieve that, but there's potential for vastly greater engagement. At Einstein, you knew everyone in your class within two weeks, and during the preclinical years, you helped one another in the lab. You leaned on one another the first time a patient died on your service.

But then we got atomized to the wards and further atomized when we spread out across the nation. If Einstein can reconnect people to those intimate friendships, we'll generate a much greater commitment among alumni. So, for example, EinsteinConnect.org [an online alumni directory and mentoring platform created during the pandemic] not only links students to alumni mentors but also links alumni to one another. It could be even more effective if we trained mentors or expanded our availability to graduates who are wondering about, for example, the climate for a practice

in Milwaukee, or whether a specialty is right for them.

### **You recently made a gift to Einstein to fund scholarships that blends scholarship support with planned giving. Why is that combination important?**

Over several years, I'll create a specific scholarship as part of the endowment, because that's money in the bank for Einstein and helps students right now. We really don't want great student applicants to go elsewhere over a “few” tuition dollars that, for them, can be significant money. Professor Albert Einstein said we need a college of medicine that's open to everyone, and this school *is* just that. We see that for ourselves each year at graduation. **E**



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#### **TO LEARN MORE**

Explore the Alumni Association's new online platform:

[EinsteinConnect.org](https://EinsteinConnect.org)

*Thank you*

Albert Einstein College of Medicine deeply appreciates the generosity of Dr. Richard S. Frankenstein in establishing a student scholarship fund, and his investment in future generations of physicians at Einstein.



# The Dean's Society

Albert Einstein  
College of Medicine

The Dean's Society is a new annual leadership giving society, celebrating the alumni, parents, and friends who generously provide critical unrestricted support to Albert Einstein College of Medicine each year.

The generosity of this community of benefactors enables us to meet pressing needs in our classrooms and laboratories and elsewhere across campus so that we can invest in scholarship, innovation, research, and the academic and practical opportunities that benefit our students' and scientists' growth at Einstein.

## Annual Society Levels

<b>Benefactor</b>	→	\$50,000 +
<b>Founder</b>	→	\$25,000 – \$49,000
<b>Patron</b>	→	\$10,000 – \$24,999
<b>Sustainer</b>	→	\$5,000 – \$9,999
<b>Partner</b>	→	\$2,500 – \$4,999
<b>Associate</b>	→	\$1,500 – \$2,499
<b>Recent Graduate</b>	→	\$250 per year through the first five years after graduation



Members of the Dean's Society will receive a variety of benefits, including invitations to special events; recognition on campus, on the website, and in the annual report; and regular news and updates. The first 216 contributors making gifts to the Dean's Society at any level will be named "Inaugural Members" and will receive recognition in our annual report and an invitation to an exclusive update event with the Alumni Association Board of Governors.

Learn more about the Dean's Society at [einsteinmed.edu/deanssociety](http://einsteinmed.edu/deanssociety).



MOTIVATIONS | SPOTLIGHT





A hand with a black wristband points towards a computer monitor displaying a blue interface. The background is a blurred recording studio.

# New Tools for Teaching

The Patel Recording Studio will help address the digital demands of 21st-century medical education

BY GINGER SKINNER

Since September 2021, equipped with just his cell phone and laptop, second-year medical student Justin Olivera has recorded a podcast every two weeks from his Einstein apartment. The episodes—interviews with physicians of color from diverse backgrounds—are intended to inspire the next generation of doctors from groups that are underrepresented in medicine.

Now, thanks to a gift from Amit Patel, M.D. '88, and his wife, Lisa, Mr. Olivera will soon be able to record his podcasts in a professional studio equipped with two soundproof booths and an advanced mixing and editing station. The Patel Recording Studio, located on the fourth floor of the Van Etten Building, is expected to open later this fall.

## INDEPENDENT LEARNING

The recording studio is the brainchild of Joshua Nosanchuk, M.D., Einstein's senior associate dean for medical education, who was looking for a way to

enhance how educational materials were being delivered to students. "Einstein requires medical students to engage in independent learning in advance of small-group active learning, such as anatomy laboratories and physical-exam practice," he explains. "High-quality online learning requires on-demand content that engages our learners."

The new studio will also help the office of medical education produce videos and other effective online learning resources for students, says Dr. Nosanchuk, who is a professor of medicine and of microbiology & immunology at Einstein as well as an infectious-disease clinician at Montefiore. Also, he notes, students will be able to use the studio to practice their presentations, speeches, and thesis and dissertation defenses and to develop e-portfolio materials.

He says that in addition to being employed for curricular activities, the Patel Recording Studio will be used to interview faculty members about their research discoveries, advances in patient

Second-year medical student Justin Olivera works with Einstein information technology support analyst Ralph Rodriguez at the Patel Recording Studio in the Van Etten Building.

Photos by Jason Torres

Photo Courtesy of Dr. Amit Patel



**"The podcasts, videos of lectures, and other programming recorded in this studio not only will help today's students but also will be available to benefit students in the years to come."**

— DR. AMIT PATEL

care, and developments in community programs.

### ADDRESSING STUDENT WELL-BEING

Dr. Patel says that he hopes the innovative space will encourage creativity and nurture a sense of community on campus. A vascular surgeon at Morristown Medical Center in northern New Jersey, he says he enjoyed his time as an Einstein student and Montefiore resident and wants current students to have good experiences as well.

"Today's medical students are under many stresses—more so in the era of COVID-19, when so much learning is remote and there's more social isolation," he says. "During the first months of the pandemic, my nephew and his fiancée graduated from Einstein and my son was finishing his master's degree in business administration. We were all at home discussing Einstein and the needs of its students—and I

felt motivated to help."

Those family conversations gave way to discussions with Einstein's leadership, which led to the creation of the on-campus recording studio. Its design and construction began in 2021. Besides its purpose as a tool for medical education, the studio will be available to Einstein students, faculty, staff, and alumni to produce superior-quality podcasts, interviews, narrations, voice-overs, speeches, alumni programming, and videos for training and professional development.

A special hope, says Dr. Patel, is that more alumni will see the studio and be inspired to fund similar projects designed to better support Einstein students and enrich campus life.

### AN ENGINEER AT HEART

The studio fits well with Dr. Patel's long-time interest in engineering. "My father's an engineer, and I was always tinkering with things, fixing things," he says. He enrolled as an engineering major at



Going over a script in the Patel Recording Studio's soundproof booth are medical student Justin Olivera and Einstein information technology support analyst Kevin O'Brien.





Rensselaer Polytechnic Institute in Troy, N.Y., but eventually switched to biology. “In a way, medicine was always in the back of my head,” Dr. Patel says.

Dr. Patel’s more than 25 years as a vascular surgeon—diagnosing, managing, and treating diseases of the arteries and veins—has allowed him to take advantage of his aptitude for engineering. “Surgeons are engineers to a degree,” says Dr. Patel. “Vascular surgery in particular involves a fair amount of engineering, from the fluid dynamics to even the equipment. Where engineers might focus on reestablishing water flow, vascular surgeons reestablish blood flow.”

Those combined skills and interests have enabled Dr. Patel to give this valuable gift to the Einstein community. “I especially like the fact that the podcasts, videos of lectures, and other programming recorded in this studio not only will help today’s students but also will be available to benefit students in years to come,” he says.

Meanwhile, Mr. Olivera’s podcast, Med MentoRx, is steadily gaining listeners, and he’s looking forward to recording his second season in the studio. “I’m really excited because the advanced recording technology will allow for high-quality audio and video projects here at Einstein,” he says. “I can’t wait to see how the studio will improve the sound.” **E**



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## Inside the Patel Recording Studio

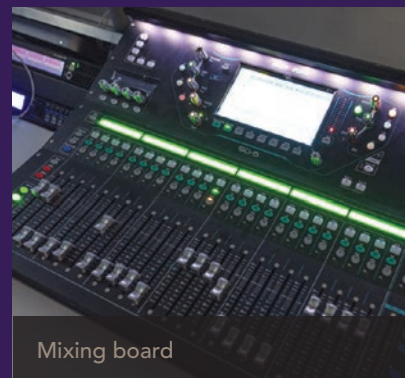
Podcasters and videographers at Einstein—from amateurs to pros—will be able to take their work to the next level at Einstein’s new Patel Recording Studio, which will initially offer audio recording capabilities and later add video options. The studio is currently equipped with two soundproofed recording booths—one that accommodates a single person and another that fits two. People will be able to make audio recordings in three ways:

- By bringing in their own laptops to make any audio presentation—narrating a slideshow, for example—sound more professional;
- By reading their scripts using a tablet provided by Einstein’s information technology (IT) department to eliminate distracting sounds, such as rustling paper or computer fans;
- By taking advantage of the audio and video expertise of the IT department and medical education innovations team.

“The third option allows for a lot more sophistication,” says Shailesh Shenoy, assistant dean for information technology at Einstein. “We can use a control board to capture the recording, filter what’s coming through, and adjust the tone in real time. A lot of processing can be done after you’ve recorded, but the better the recording quality you begin with, the better the end product will be.”



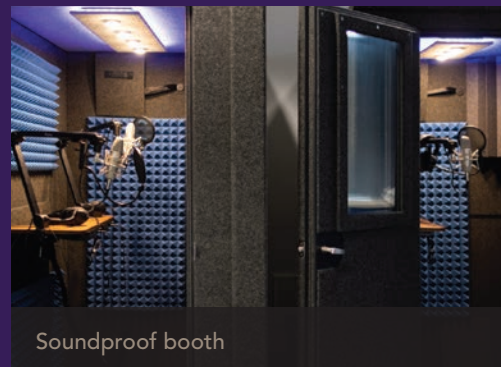
Digital audio workstation



Mixing board



Microphone



Soundproof booth

## MOTIVATIONS

# CLASS NOTES

## 1950s

**Lou Aledort, M.D. '59**, retired in May 2022 after 56 years at Mount Sinai and the Icahn School of Medicine. For the past nine years, he and his partner, Natasha, have traveled a great deal, recently spending time in Turks and Caicos, and they plan to go to Amsterdam in the spring to see the tulips in bloom.

Health grant to study the effect of carotid endarterectomy on cognitive performance after surgery. He currently is looking into volunteer positions.

**David Wisotsky, M.D. '74**, is the chief executive officer and medical director of Tenafly Pediatrics, a private pediatric practice with 10 locations in northern New Jersey. He is looking forward to seeing all his classmates at their 50th reunion in the near future.

to meeting two more: a brother for the twins in October and a sister for Samuel in November. Dr. Levy is still working full time at CareMount Medical in Mount Kisco, and he spends his free time at Candlewood Lake.

**George Y. Wu, M.D., Ph.D. '76**, received a Fulbright Scholarship to teach the Egyptian medical community about challenging problems in liver disease. He is spending four months at the National Research Centre in Cairo. Dr. Wu is a professor emeritus at the University of Connecticut Health Center, former chief of gastroenterology-hepatology and director of the hepatology section there,

## 1970s

**Miriam Levitt, M.D. '71**, is the medical director of the school district in Bronxville, N.Y. She has an active pediatric practice and serves on the voluntary staff and faculty at Einstein and Montefiore. Approved for COVID-19 vaccine administration, she has given 1,097 doses since the vaccine's release. She is co-chair of the Class Ambassadors Committee of the Einstein Alumni Association board of governors. Dr. Levitt and her husband, Harvey, live in Scarsdale, N.Y., where she has served as the fire commissioner, police commissioner, and mayor. She and her husband have three grown children and seven grandchildren.

**Eric Heyer, Ph.D. '74, M.D. '75**, is an emeritus professor of anesthesiology and neurology at the Columbia University College of Physicians and Surgeons. He entered with the Einstein class of 1972 and retired in 2016. Shortly after retiring, he was awarded a National Institutes of

**Ross Levy, M.D. '76**, will be adding to his collection of grandchildren this fall. Currently he has three: Samuel and twins Mae and Margot. He is looking forward

## ALUMNA SHARES JOURNEY FROM EINSTEIN TO OXFORD



**Ruth Muschel, M.D., Ph.D. '78**, was the featured speaker at Einstein's annual alumni reunion in May. She is a professor emerita of molecular pathology in the department of oncology at the University of Oxford in England and previously served as the deputy director of the Oxford Institute for Radiation Oncology. Dr. Muschel's research has focused on cancer metastasis and tumor response to therapy, including radiation therapy.

Her talk in Robbins Auditorium, in which she shared her journey from Einstein to Oxford, was presented by the Alumni Association in partnership with Montefiore Einstein Cancer Center.

During commencement on May 25, Dr. Muschel was given the 2022 Distinguished Ph.D. Alumna Award (see page 67).



and the former Herman Lopata Chair in Hepatitis Research.

**Sten H. Vermund, M.D. '77**, has been named vice president/president-elect of the Connecticut Academy of Science and Engineering. He has served as the dean of the Yale School of Public Health since 2017. Dr. Vermund also is a member of the Einstein board of governors.

## 1980s

**Steven Merahn, M.D. '82**, wrote and published *Care Evolution: Essays on Health as a Social Imperative*, a collection of essays based on his diverse career across the healthcare system that presents an “aspirational vision for the health of our nation.” A review called it “an intensive, mindful critique of modern healthcare that confronts its flaws and proposes solutions.”

**Debrah Aronson-Simkovic, M.D. '83**, and Neal Simkovic report that they were thrilled to celebrate the marriage of their daughter Sherry to Marty Feuerstein-Mendik on June 26, 2022.

**Stuart Marcus, M.D. '83, Ph.D.**, is dedicated to the treatment of cancer. He is the founder and chief medical officer of SonALAsense, a California-based company founded in 2019 that provides a drug-device combination treatment for recurrent glioblastoma multiforme and other deadly cancers.

**Marc Berger, M.D. '87**, is a co-chair of Commission 52, which is leading the procurement of sponsors for two bills to award Congressional Gold Medals to the 52 Americans who were held hostage for

444 days by the Islamic Republic of Iran from 1979 to 1981. The Congressional Gold Medal is the highest award that Congress can bestow.

**David P. Eisenman, M.D. '89**, has been selected to serve as a member of the National Academy of Sciences' engineering and medicine standing committee for the U.S. Centers for Disease Control Center for Preparedness and Response. The committee will discuss the scientific, technical, and social issues related to public health emergencies. Dr. Eisenman is an internist, a health services researcher, and a professor at the David Geffen School of Medicine and the Fielding School of Public Health at the University of California—Los Angeles. He also is the director of the Center for Public Health and Disasters at the Fielding School and the deputy director of the Center for Healthy Climate Solutions.

**Lane Palmer, M.D. '89**, is a professor of urology and pediatrics at the Donald and Barbara Zucker School of Medicine at Hofstra/Northwell and the chief of pediatric urology at Cohen Children's Medical Center at Long Island Jewish Medical Center. He recently finished his term as president of the Societies for Pediatric Urology and is currently serving as president of the New York section of the American Urological Association. Dr. Palmer's wife, **Lisa Menasse-Palmer, M.D. '89**, is happily retired after many years as a pediatrician and clinical geneticist. They have three children: Samantha, a veterinarian who will be married this fall; Robert, a consultant at Deloitte; and Elisabeth, a junior at the University of Michigan.

## STAY IN TOUCH

Keep your classmates up to date by submitting your news to *Einstein* magazine. We look forward to including you. Email us at [einsteinalumni@einsteinmed.edu](mailto:einsteinalumni@einsteinmed.edu).

## 1990s

**Reynaldo Alonso, M.D. '91**, was named the chief of internal medicine at Kaiser Permanente Los Angeles Medical Center in August 2021.

**Hugh Bases, M.D. '94**, is a clinical associate professor of pediatrics at the NYU Grossman School of Medicine and the program director of the developmental-behavioral fellowship. He reports being happy to have had a mini-reunion this year with classmates **Caroline Gessert, M.D. '94**, and **Jeff Hurwitz, M.D. '94**!

**Sherry C. Huang, M.D. '94**, has been appointed the inaugural vice chancellor for graduate medical education and the enterprise-wide designated institutional official at Rutgers Biomedical and Health Sciences in Newark, N.J. In this role, she will be involved in integrating the Rutgers and RWJBarnabas Health graduate medical education programs. She will help design a statewide training environment for more than 1,600 residents and fellows.

**Kim Landzberg, M.D. '95**, and **Brian Landzberg, M.D. '95**, report that they had a great time at their 27th Einstein

reunion. They got to mix and mingle with alumni from surrounding classes and had fun meeting new alumni as well. They hope to see more classmates at the next reunion!

**Camille A. Clare, M.D. '97, M.P.H.,** has been appointed the new chair of the department of obstetrics and gynecology and a professor at the State University of New York Downstate Health Sciences University College of Medicine and the School of Public Health.

**Vicki L. Goodman, M.D. '98,** has been appointed executive vice president, product development and medical affairs, and chief medical officer at Exelixis, a genomics-based drug-discovery company. She will lead Exelixis's clinical development and medical affairs efforts and play a leadership role in building an Exelixis team that will expand the company's development activities on the East Coast.

**Jennifer Meyer, M.D. '98,** specializes in preventive medicine, women's health, and eating disorders at the Medical Clinic of Houston. She is also a clinical assistant professor of medicine at the Baylor College of Medicine and assistant professor of clinical medicine at the Houston Methodist Institute for Academic Medicine.

**Stefanie J. Schluender, M.D. '99,** is a colorectal surgeon at Colorectal Surgical Specialists in Tucson, Ariz. She was named a top doctor by *Tucson Lifestyle* magazine, according to the Castle Connolly Regional Top Doctors listing, and cited in its Exceptional Women in Medicine list.

## 2000s

**Kenneth A. Goldstein, M.D. '00,** has been appointed regional medical director of ambulatory surgical services for Northwell Health's northern region. He served as chief of vascular surgery at Phelps Hospital and Northern Westchester Hospital in Westchester County, N.Y., for the past six years. Dr. Goldstein is married and has two children.

**Neeta Ogden, M.D. '00,** is a nationally recognized allergy, asthma, and immunology specialist. He is a member of the medical-scientific council of the Allergy and Asthma Foundation of America, a fellow and spokesperson for the American College of Allergy, Asthma, and Immunology, and a member of the American Academy of Allergy, Asthma, and Immunology.

**Neelufar A. Mozaffarian, M.D., Ph.D. '01,** has been appointed chief medical officer at GentiBio, a biotechnology company. She has more than 25 years of pharma and biotech experience and has worked with multiple small- and large-molecule immunology/autoimmunity programs that cover all phases of drug development.

**Steven E. Helft, M.D. '02,** is a gastroenterologist at CareMount Medical in Poughkeepsie, N.Y. He is looking forward to a hiking trip in Rocky Mountain National Park in Colorado.

**Daniel Cousin, M.D. '05,** co-founded Doctors for Providers, a company that connects providers with collaborating physicians. It acts in a matchmaking capacity, allowing more people to receive

healthcare while there is a shortage of physicians. He reports that he finds it rewarding and fulfilling, like academics and teaching.

**Shelly-Ann Sharpe, M.D. '05,** was selected this year for the clinical quality fellowship program of the Greater New York Hospital Association.

**Josh Levitsky, M.D. '08, M.S.,** has been named president-elect of the American Society of Transplantation, which has more than 4,000 members. The society is the largest transplant organization in North America and is a recognized authority on research, advocacy, education, and organ donation. Dr. Levitsky, a professor of medicine in the division of gastroenterology and hepatology at the Northwestern University Feinberg School of Medicine, is also a professor of surgery in the divisions of organ transplantation and of medical education. His research involves liver transplant immunosuppression, transplant organ tolerance, and biomarkers. He is the principal investigator or a co-investigator for several National Institutes of Health, pharmaceutical, and investigator-initiated trials.

## 2010s

**Benjamin J. Levy, M.D. '14,** joined the department of orthopaedic surgery at Einstein and Montefiore in May 2022. Before that, he had been an orthopaedic surgeon at UBMD Orthopaedics & Sports Medicine in Cheektowaga, N.Y., and was a clinical assistant professor in the department of orthopaedics at the Jacobs School of Medicine and Biomedical Sciences at the University at Buffalo. Dr. Levy received the Arciero-



## ALUMNI HONORED AT COMMENCEMENT

The Einstein Alumni Association honored several alumni with awards during Einstein's 64th commencement on May 25 in Carnegie Hall. They are:



### **DOMINICK P. PURPURA DISTINGUISHED ALUMNA AWARD:**

**Anne E. Goldfeld, M.D. '81**, professor of medicine and of pediatrics, Harvard Medical School; senior investigator in the program of cellular and molecular medicine, Boston Children's Hospital; professor of immunology and infectious diseases, Harvard T. C. Chan School of Public Health; infectious-disease physician, Brigham and Women's Hospital, Boston.



### **DISTINGUISHED ALUMNA/CLINICAL PRACTITIONER AWARD:**

**Nereida C. Correa, M.D. '85, M.P.H.**, associate professor of obstetrics & gynecology and women's health and of family and social medicine, senior adviser to the Hispanic Center of Excellence, and co-director of the Summer Undergraduate Mentorship Program, Einstein; attending physician, North Central Bronx Hospital of the New York City Health and Hospitals Corporation.



### **DISTINGUISHED PH.D. ALUMNA AWARD:**

**Ruth J. Muschel, M.D., Ph.D. '78**, professor emerita of molecular pathology in the department of oncology, University of Oxford, the United Kingdom (page 64).



### **LIFETIME ACHIEVEMENT AWARD:**

**Jerry A. Winkelstein, M.D. '65**, professor emeritus of pediatrics, of medicine, and of pathology, the Johns Hopkins University School of Medicine; professor emeritus of immunology, Johns Hopkins Bloomberg School of Public Health.



### **LIFETIME SERVICE AWARD:**

**Janina R. Galler, M.D. '72**, professor of psychiatry, Harvard Medical School; senior researcher, division of pediatric gastroenterology and nutrition, Massachusetts General Hospital for Children.



### **EINSTEIN HONORARY ALUMNUS AWARD:**

**E. John Gallagher, M.D.**, founding chair of emergency medicine and professor emeritus of emergency medicine, of medicine, and of epidemiology & population health, Einstein.



### **RISING STAR—CLINICAL PRACTITIONER AWARD:**

**Adam J. Friedman, M.D. '06**, professor and chair of dermatology, founding residency program director, director of translational research, and director of the Supportive Oncodermatology Program, George Washington University School of Medicine and Health Sciences.



### **RISING STAR—SCIENTIFIC INVESTIGATOR AWARD:**

**Dionna W. Williams, Ph.D. '14**, assistant professor of molecular and comparative pathobiology, the Johns Hopkins University School of Medicine; assistant professor of molecular microbiology & immunology, Johns Hopkins Bloomberg School of Public Health; co-director of the Central Nervous System Dysfunction Scientific Working Group, Johns Hopkins Center for AIDS Research.

Warner Research Award from the New England Shoulder and Elbow Society and was named an emerging leader by the American Orthopaedic Association.

**Sabriya Stukes, Ph.D. '14**, is the new chief scientific officer at IndieBio in Manhattan, where she is creating a community of scientists and engineers dedicated to designing innovative and inclusive solutions for unmet clinical needs. Previously she was the associate director of the City College of New York/City University of New York master's degree program in translational medicine to train scientists and engineers in medical technology innovation and commercialization.

**Evan Tamura, M.D. '16**, and her husband, Chris, are expecting a baby in mid-October. Dr. Tamura is still working at a federally qualified health center in Columbus, Ohio, practicing full-spectrum family medicine. More than 75% of her patients are monolingual Spanish immigrants, and she reports that she is grateful to be able to keep working with the patient population that drew her to primary care in the first place. She also serves on the board of directors of the Refugee Health Alliance in Tijuana, Mexico.

## 2020s

**Jenny Lu, M.D. '22**, married Cameron Rotblat on Feb. 20, 2022, at the Camden County Boathouse in Pennsauken, N.J. About a month later, she matched to a neurology residency at NewYork-Presbyterian/Weill Cornell Medical Center in New York City. **E**

## IN MEMORIAM

**Martin W. Adler, Ph.D. '61**, age 92, Einstein's first Ph.D. graduate in pharmacology, an internationally recognized pioneer in opiate pharmacology and substance abuse research, and emeritus professor of pharmacology at Temple University School of Medicine, July 5, 2022, Warminster, Pa.

**Herman Buschke, M.D.**, age 89, professor in the Saul R. Korey Department of Neurology and in the Dominick P. Purpura Department of Neuroscience at Einstein, whose seminal contributions to the National Institutes of Health-funded Bronx Aging and Einstein Aging studies established a blueprint for the scientific study of degenerative dementias that has since been adopted worldwide, June 29, 2022, New York, N.Y.

**German A. Camejo, Ph.D. '68**, age 85, globally recognized lipoproteins investigator who started a new era in atherosclerosis research, Nov. 29, 2021, Gothenburg, Sweden.

**Raymond Damadian, M.D. '60**, age 86, builder of the first magnetic resonance imaging scanner, which revolutionized doctors' ability to diagnose cancer and other illnesses, who received the National Medal of Technology in 1988 and was inducted into the National Inventors Hall of Fame in 1989, Aug. 3, 2022, Woodbury, N.Y.

**Sidney L. Goldfischer, M.D.**, age 95, distinguished university professor emeritus, chair emeritus of pathology, and associate dean for scientific operations at Einstein, who authored hundreds of scientific papers and made seminal discoveries in cell biology, April 29, 2022, New York, N.Y.

**Peter Satir, Ph.D.**, age 85, distinguished university professor emeritus and former chair of anatomy and structural biology, distinguished university professor emeritus of developmental and molecular biology, a pioneer in cilia biology, and a member of the Einstein faculty since 1977, July 17, 2022, Greenwich, Conn.

**Liang Zhu, Ph.D.**, age 64, former interim chair and professor of developmental and molecular biology, of medicine, and of ophthalmology and visual sciences at Einstein, who made seminal contributions highly relevant to cancer and to our understanding of how the cell cycle is regulated, June 7, 2022.

To honor his memory, Einstein has established the Liang Zhu Memorial Fund to support basic scientific and medical research and training in developmental and molecular biology. Learn more at: [einsteinmed.edu/giving/liang-zhu-memorial](http://einsteinmed.edu/giving/liang-zhu-memorial).



# A LOOK BACK



Albert Einstein College of Medicine Archives

## The Alumni Association Gets Its Start

Sixty years ago, in 1962, a group of New York City–area graduates took the first steps toward creating the Einstein Alumni Association. Pictured here are alumni and staff attending an early organizational meeting. From left: Stanley Ames, M.D. '60 (deceased); Caroline Benima; Seymour Rothman, M.D. '62; Irwin Singer, M.D. '62; Lucille Madonia, dean's representative; Martin I. Rosenthal, M.D. '59 (deceased); Robert Grenitz, M.D. '61; Margit L. Weiss, alumni secretary; Michael Zales, M.D. '64 (deceased); Neil Barton, M.D. '62 (deceased); and Edmund Zahn, M.D. '60. Today more than 10,000 Einstein M.D., M.D./Ph.D., and Ph.D. graduates, who become members of the Alumni Association upon receiving their diplomas, serve as physicians, medical educators, and biomedical scientists. The Einstein Alumni Association provides scholarships to current Einstein students, and it sponsors milestone events such as the annual white coat ceremony.

### LEARN MORE

Explore the Alumni Association's new online platform: [einsteinconnect.org](https://einsteinconnect.org)



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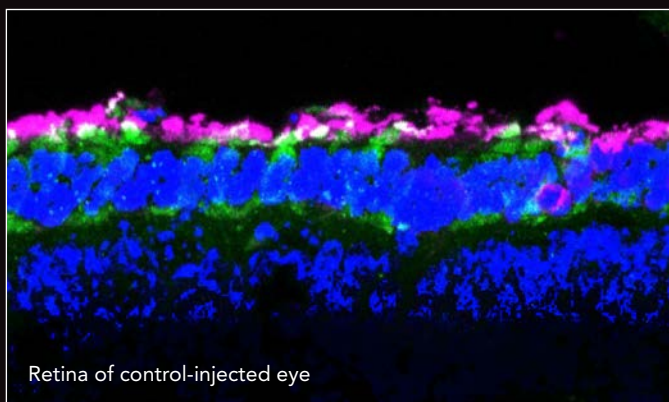
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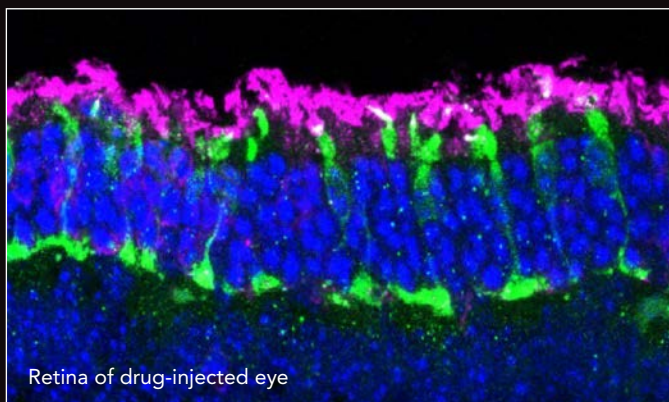
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Retina of control-injected eye



Retina of drug-injected eye

## EINSTEIN IMAGE

Drugs developed by Einstein's Ana Maria Cuervo, M.D., Ph.D., and Eviropidis Gavathiotis, Ph.D., show promise for treating vision in retinitis pigmentosa (RP), an inherited eye disease that can lead to blindness and is currently incurable. The research, involving a mouse model of RP and published in July in *Nature Communications*, is described on page 6 of this issue. In a key experiment, RP mice were intravitreally injected with the drug CA77 or a control liquid, at a time (18 days of age) when rods and cones (the retina's photoreceptor cells) were dying. These retinal cross sections, made one week after injection, show the all-important outer segments of the rods (magenta) and cones (green), which convert light energy into electrical signals that enable vision. Beneath the outer segments are the rod and cone nuclei (blue). Compared with the retina of the control-injected mouse (upper image), the retina of the drug-injected mouse (lower image) is clearly healthier, with many more photoreceptors preserved.

Images courtesy of Raquel Gomez-Sintes, Ph.D., first author of the *Nature Communications* paper and a postdoctoral student in Dr. Cuervo's lab