

SUMMER/FALL 2019

# EINSTEIN

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



## The Search for **Autism Therapies**

Einstein and Montefiore researchers  
are testing promising treatments

Collaborating to Cure Cancers • ECHO Clinic Marks 20 Years • An Out-of-This-World Clerkship

# A Message from the Dean

**M**y first year as Einstein's dean has educated and invigorated me. When I walked on stage for this year's Commencement, I felt tremendous pride for our graduates, the first to receive diplomas carrying the Einstein seal (page 4). This milestone fittingly occurred on the 60th anniversary of our initial graduating class (page 69).

Our newest graduates are the best of the best, taught by a faculty doing outstanding work. A prime example is given in our cover story, "The Search for Autism Therapies," which begins on page 16. It describes the research of Eric Hollander, M.D., a national leader in seeking new treatments for autism spectrum disorders, which affect 6,000 children in the Bronx and another 12 million nationwide. There are shockingly few treatments for autism symptoms, which include an impaired ability to communicate and form social relationships. Dr. Hollander directs the Autism and Obsessive Compulsive Spectrum Program at Einstein and Montefiore, and he and his team are evaluating promising therapies.

Another example of our outstanding research is a decade-long partnership to develop better treatments for bone-marrow and blood diseases that currently have low survival rates. The article "Collaborating to Cure Cancers" (page 32) describes the efforts of Amit Verma, M.B.B.S., and Ulrich Steidl, M.D., Ph.D., to cure myelodysplastic syndrome and acute myeloid leukemia by finding their root causes.

Our students are doing some great things as well. This year the student-run



Einstein Community Health Outreach free clinic marks 20 years of service to Bronx residents who lack health insurance (page 28). And one of our May graduates, Jennifer Ma, M.D., was part of a select group that experienced the life of a flight surgeon during her month in NASA's Aerospace Medicine Clerkship program (page 38).

These are exciting times to be in science and medicine, and I'm looking forward to another dynamic and productive year.

A handwritten signature in black ink, which appears 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 2019

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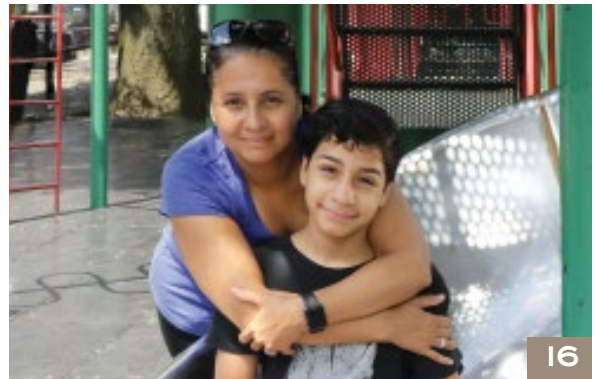
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**ON THE COVER:** Carlos Rodriguez, 14, is one of 6,000 children in the Bronx who fall somewhere on the autism spectrum. Einstein and Montefiore researchers are testing promising treatments for autism (page 16). Cover and page 16 photos: © Rick Guidotti, Positive Exposure



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32



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or scan code

## Dr. Cuervo Elected to National Academy of Sciences



**A**na Maria Cuervo, M.D., Ph.D., has been elected to the National Academy of Sciences, becoming the 14th current or former faculty member to join the academy. Dr. Cuervo is a leader in the field of autophagy, the cellular-waste management process that is critical to human health.

Among her early major discoveries, Dr. Cuervo found that autophagy is highly selective, not random as was previously thought. In addition, she and her collaborators discovered that specialized proteins guide old and damaged proteins to lysosomes for digestion, a process they dubbed “chaperone-mediated autophagy.”

Dr. Cuervo also made the major

finding that autophagy slows with age. Her current research focuses on developing therapies to restore autophagy, thereby preventing the accumulation of toxic protein by-products that can lead to age-related conditions such as Alzheimer’s disease, Parkinson’s disease, and diabetes.

“I’m very happy for the people in my lab. The team really deserved it—they are the ones who are driving the research,” Dr. Cuervo says of her election, which was announced on April 30. Dr. Cuervo is a professor of developmental and molecular biology, of anatomy and structural biology and of medicine, and is the co-director of the Institute for Aging Research. She holds the Robert and Renée Belfer Chair for the Study of Neurodegenerative Diseases at Einstein.

## New Chair of Pediatrics at Einstein and Montefiore

**M**ichael deCastro Cabana, M.D., M.P.H., has been named a professor and the Michael I. Cohen, M.D., University Chair of Pediatrics at Einstein and physician-in-chief at Children’s Hospital at Montefiore.

Dr. Cabana was most recently a professor of pediatrics and of epidemiology and biostatistics at the University of California, San Francisco (UCSF), where he also served as the chief of the division of general pediatrics. He assumed his new role at Montefiore and Einstein in September.

His research focuses on understanding



and improving the diagnosis, prevention, and management of common childhood conditions such as pediatric asthma.

He has conducted clinical trials on the effect of probiotics and prebiotics on asthma, infant colic, and growth.

Dr. Cabana received his bachelor of arts degree magna cum laude in government at Cornell University and his M.D. and M.A. at the combined-degree program at the University of

Pennsylvania School of Medicine and the Wharton School. He completed his residency at Johns Hopkins, where he received his master’s degree in public health. Dr. Cabana completed his fellowship as a Robert Wood Johnson Clinical Scholar in 1999 before moving to the University of Michigan and, later, UCSF.

He is a member of the editorial board of *The Journal of Pediatrics* and edited the popular pediatric textbook *The Five-Minute Pediatric Consult*. He is currently serving a four-year term on the United States Preventive Services Task Force.

# Drs. Joan Berman and Chinazo Cunningham Give Presidential Lecture

**T**he third annual Presidential Lecture, which highlights outstanding research conducted at Einstein and Montefiore, featured the work of **Joan W. Berman, Ph.D.**, and **Chinazo Cunningham, M.D., M.S.**

Their speeches, given on June 3, focused on buprenorphine, a drug used in medication-assisted treatment to help people reduce or quit their use of heroin or other opiates. Dr. Berman, who studies the interaction of HIV with the central nervous system, including neuroAIDS, spoke about buprenorphine as a novel therapy for HIV-associated neurocognitive disorders.

Dr. Berman was followed by Dr. Cunningham, whose research has shown that buprenorphine is highly effective in

treating opioid-use disorder and carries a low risk of overdose and misuse, making it appropriate for office- and community-based treatment.

Dr. Berman is a professor of pathology and of microbiology & immunology and holds the Irving D. Karpas Chair in Medicine at Einstein. Dr. Cunningham is the associate division chief of general internal medicine at Einstein and Montefiore and a professor of medicine, of family and social medicine, and of psychiatry and behavioral sciences at Einstein.



## WATCH THE VIDEO

View the Presidential Lecture:  
[magazine.einstein.yu.edu/lecture19](http://magazine.einstein.yu.edu/lecture19)



From left, Dean Gordon F. Tomaselli, M.D.; Pamela Stanley, Ph.D., presidential lecture chair and professor of cell biology; Dr. Chinazo Cunningham; Dr. Joan Berman; and Montefiore Medicine CEO Steven M. Safyer, M.D.

## Tenure for 16 Einstein Professors

### Leonard H. Augenlicht, Ph.D.

Professor of Medicine and of Cell Biology

### Karen A. Bonuck, Ph.D.

Professor of Family and Social Medicine, of Obstetrics & Gynecology and Women's Health, and of Pediatrics

### Anne R. Bresnick, Ph.D.

Professor of Biochemistry

### Philip E. Castle, Ph.D.

Professor of Epidemiology & Population Health

### Kelvin Davies, Ph.D.

Professor of Urology and of Physiology & Biophysics

### Andras Fiser, Ph.D.

Professor of Systems & Computational Biology and of Biochemistry

### Evrpidis Gavathiotis, Ph.D.

Professor of Biochemistry and of Medicine

### Andreas Jenny, Ph.D.

Professor of Developmental and Molecular Biology and of Genetics

### Gregoire Lauvau, Ph.D.

Professor of Microbiology & Immunology

### David M. Loeb, M.D., Ph.D.

Professor of Pediatrics and of Developmental and Molecular Biology, and Chief of Pediatric Hematology/Oncology

### Carlos Rodriguez, M.D., M.P.H.

Professor of Medicine and of Epidemiology & Population Health

### Jonathan Shuter, M.D.

Professor of Medicine and of Epidemiology & Population Health

### David Q. H. Wang, M.D., Ph.D.

Professor of Medicine and of Genetics

### Tao Wang, M.D., Ph.D.

Professor of Epidemiology & Population Health

### Melissa P. Wasserstein, M.D.

Professor of Pediatrics and of Genetics and Chief of Pediatric Genetic Medicine

### Liang Zhu, M.D., Ph.D.

Professor of Developmental and Molecular Biology, of Ophthalmology and Visual Sciences, and of Medicine

## CNN's Dr. Sanjay Gupta at Einstein's Commencement

**S**anjay Gupta, M.D., CNN's chief medical correspondent and a practicing neurosurgeon, delivered the commencement address at Einstein's graduation ceremony on May 23, held at David Geffen Hall in Lincoln Center. Einstein conferred 156 M.D. and 31 Ph.D. degrees as it celebrated its 61st commencement. In addition, 16 graduates of Einstein's Medical Scientist Training Program received both an M.D. and a Ph.D. degree.

This year's ceremony was the first in which graduates received diplomas with the Einstein seal, after the College of Medicine was awarded independent degree-granting authority earlier this year.

Dr. Gupta reported on the successful 27-hour surgical separation of conjoined twins Jadon and Anias McDonald at

Children's Hospital at Montefiore in 2016. His in-depth account of the boys' life before, during, and after their operation won the News & Documentary Emmy Award for Outstanding Science, Medical, and Environmental Reporting in 2018. Einstein conferred an honorary Doctorate of Humane Letters on him.

Dr. Gupta told the graduates that "there can be tremendous value in embracing fear" and to challenge those who doubt their abilities: "I'm talking about savoring it when someone tells you no, that it can't be done. Because you know deep down, you now have an opportunity to do the impossible."



### WATCH THE VIDEO

See Dr. Gupta's

commencement address:

[magazine.einstein.yu.edu/Gupta19](http://magazine.einstein.yu.edu/Gupta19)



## First Diversity and Inclusion Chief Named

**N**erys Benfield, M.D., M.P.H., has been named Einstein's first senior associate dean for diversity and inclusion. Currently an associate professor of obstetrics & gynecology and women's health at Einstein and director of family planning and the fellowship in family planning at Montefiore, Dr. Benfield will report directly to Gordon Tomaselli, M.D., the Stanley and Marilyn Katz Dean at Einstein, in her new role.

The creation of this position was the top recommendation of Einstein's Strategic Plan for Diversity and Inclusion, which reflected the input of more than 90 participants. The plan was



launched in 2017 under the leadership of Allen Spiegel, M.D., with leadership from Edward Burns, M.D., executive dean, Irene Blanco, M.D., associate dean for the office of diversity enhancement, and Yvonne Ramirez, vice president of human resources and diversity. Dr. Benfield will work closely with them, as well as with Dorcas Lind, assistant vice president of diversity and inclusion at Montefiore.

She received a bachelor's degree from Harvard College, an M.D. from the University of California, San Francisco, and a master's degree in public health from the University of California, Berkeley.

Dr. Benfield arrived at Einstein and Montefiore in 2011 following her fellowship. "I was drawn to the diversity of the staff, faculty, and patients," she says. She started a diversity and inclusion group in her department and has focused on recruiting at the resident, fellow, and faculty level. Nationally, she co-chairs the diversity, equity, and inclusion group for the Society of Family Planning.

## Forbes Ranks Einstein Among the Nation's Best Midsize Employers

Einstein has been recognized by *Forbes* magazine as one of the country's best midsize employers in 2019. *Forbes* ranked Einstein in the top 200 overall nationally among midsize employers, and

- 3rd within the education category in New York State,
- 9th within the education category nationally, and
- 16th among all midsize employers with New York State headquarters.

*Forbes* selected America's Best Employers based on an anonymous, independent online survey of a diverse group of more than 50,000 full- and part-time employees of midsize and large companies employing at least 1,000 people in their U.S. operations.

Overall scores were based on a combination of two elements: employees' willingness, on a rating scale of 0 to 10, to recommend their employers to friends or family members, and their willingness to recommend other employers in their respective industries to acquaintances.



## Einstein M.D./Ph.D. Student Wins Lasker Essay Contest



Peter John, M.D./Ph.D. student

When it comes to education, Einstein M.D./Ph.D. student Peter John knows what motivates students to learn. "The most-effective lessons are intellectually engaging and entertaining. Electronic games are a good strategy for achieving both goals," he says.

He wrote an essay about just that—"Making It All Fun and Games in the Biomedical Sciences"—and submitted it earlier this year for consideration in the 2019 Lasker Foundation Essay Contest. He found out in July that his nearly 800-word essay had earned the top prize of \$10,000, to be used for educational expenses.

The rising sixth-year student, who studies cancer immunology in the lab of Xingxing Zang, Ph.D., proposed the creation of video games that would immerse young players in biomedical research, providing an instructive yet rewarding experience.

"Video games have been effective for teaching other subjects, such as history," Mr. John says. "Thanks to new technologies, they have great potential for teaching science as well." He gives an example of teaching immunology by using a strategy-game format where players coordinate different types of immune cells to fight off pathogens.

One of three co-winners of the essay contest, Mr. John also met the winners of the 2019 Lasker Award at a luncheon in New York City in September. The Lasker Awards have been given annually since 1945 to recognize people who have made major contributions to biological discoveries that improve human health; they are sometimes referred to as "America's Nobels" and have often identified future winners of the Nobel Prize.



### READ MORE

Find Mr. John's prize-winning essay here:

[magazine.einstein.yu.edu/Lasker19](http://magazine.einstein.yu.edu/Lasker19)

## Dr. Dominick P. Purpura, Longest-Serving Dean, Dies at 92



**“Dr. Purpura revolutionized the way medical education was taught.”**

— DR. EDWARD R. BURNS

**D**ominick P. Purpura, M.D., who served as the Marilyn and Stanley M. Katz Dean at Einstein from 1984 to 2004, died on May 16, 2019, at the age of 92.

Dr. Purpura joined Einstein in 1967 as a professor and the chair of anatomy. In 1969, he was appointed the scientific director of Einstein’s Rose F. Kennedy Center, which focuses on research into the causes of intellectual and developmental disabilities; he was named the center’s director in 1972. Two years later, he founded the department of neuroscience, which was named in his honor in 2006.

### PIONEERING NEUROSCIENTIST

In presenting Dr. Purpura with the 1996 Presidential Award from the Society for Neuroscience, Dr. Pasko Rakic noted that Dr. Purpura “was a neuroscientist before the word ‘neuroscience’ was invented to denote our multidisciplinary field.”

Dr. Purpura’s exceptional contributions span the field and had a significant impact on a range of conditions, including epilepsy and developmental disabilities. Dr. Purpura served for 30 years as editor-in-chief of *Brain Research*, and held leadership roles in numerous professional organizations, including president of the American Epilepsy Society and of the Society for Neuroscience.

He also was elected to the National Academy of Sciences and was one of just two scientists in the nation to receive an inaugural National Medical Research Award, bestowed at a White House ceremony in September 1988.

### DEANSHIP AT EINSTEIN

After Dr. Purpura served as dean at Stanford’s School of Medicine for two years, Einstein recruited him to come back to the Bronx as dean in 1984. His vision and leadership positioned the College of Medicine as the educational hub of a network of major hospitals. During his tenure, Einstein became the first private medical school in New York City to establish a department of family medicine. He also established an academic department of emergency medicine to complement Montefiore’s.

“Dr. Purpura revolutionized the way medical education was taught,” says Edward R. Burns, M.D., executive dean at Einstein. “He recognized that students could more successfully retrieve long-term memories of the science they learned when it was taught by great teachers who informed them broadly, rather than by research experts who focused more narrowly on their own particular lab work, as was the tradition at medical schools at the time.” This new approach was adopted by medical schools across the nation.

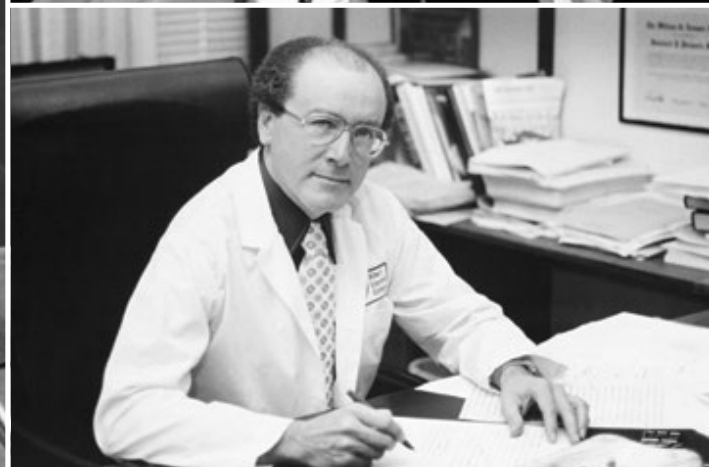
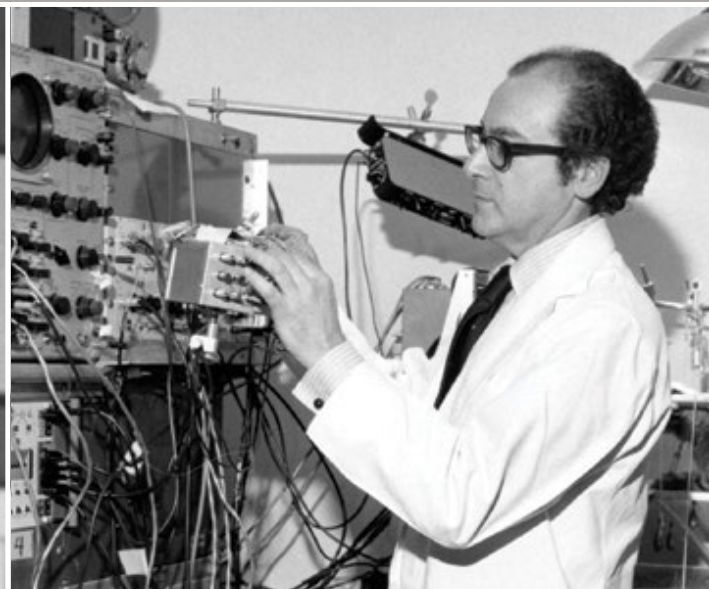
In the commencement address he gave upon his retirement, Dr. Purpura said, “It is no secret that Einstein graduates are among the most effective and skilled interns and residents in any program. ... I predict you will be a joy to your attendings and a savior to your patients.” **E**



### READ MORE

Learn more about Dr. Purpura or leave a remembrance:

[magazine.einstein.yu.edu/Purpura19](http://magazine.einstein.yu.edu/Purpura19)



# MONTEFIORE AND EINSTEIN MAVENS OF MEDICINE



## A Champion for Women's Health

Q&A With  
Dr. Sharmila Makhija

Sharmila Makhija, M.D., M.B.A., is a professor and the Chella and Moise Safra Chair in Obstetrics & Gynecology and Women's Health at Einstein. She is a gynecologic oncologist and translational researcher who has published and lectured widely on cancer therapeutics. Dr. Makhija joined Montefiore-Einstein in 2015, after holding leadership positions at the University of Alabama at Birmingham (UAB), Emory University, and the University of Louisville.

**You have a Southern accent. Where is it from?**

My parents are from India and completed graduate school in the United States. My dad accepted a teaching position in Alabama, where I was born and raised.

**Did your parents influence your career?**

My dad was a college chemistry professor, my mom a high school biology teacher. At dinnertime, we would talk about the day's events and how we could make things better for others. I try to bring the same approach to department meetings. You can get a bit removed from day-to-day clinical practice as you move along the administrative path, so I feel it's important to communicate and connect often with others.

**Tell us about your work in India.**

I worked with Tata Hospital and its oncologists to improve cervical cancer care. Though it is a preventable disease and the early stages are treatable, barriers to accessing care in rural India often lead to diagnoses at incurable, late stages. Most women can't afford to spend days traveling to a clinic, and a cancer diagnosis carries a social stigma for women that can lead to abandonment. For social survival, women often ignore both cancer symptoms and attending to basic healthcare needs. It was a valuable lesson on the importance of taking culture into account in healthcare delivery.

**Does that experience inform your work here in the Bronx?**

Yes. Patients often can't keep appointments for social and financial reasons. Having a diverse faculty helps bring awareness of cultural issues to the forefront of how we deliver care.

**What was your role in the HPV vaccine trials?**

Our research team collaborated with Merck & Co. to enroll patients into trials at UAB. We noted flaws in the trial design and helped Merck revise the trials to better enroll patients and address the vaccine's clinical impact. As the top recruiter, I was the lead author. We also helped educate physicians and patients about the vaccine.

**Why did you get an executive M.B.A. degree?**

In 2008, when I was recruited as division chief of gynecologic oncology at Emory University, all budgets were cut by a third because of the financial crisis. While trying to convince the finance team that we needed more resources for clinical research programs, I realized we weren't speaking the same language. I visited Emory's Goizueta Business School and enrolled in the executive M.B.A. program to learn accounting and finance. But most important was what I learned about organizational behavior and the complexities of human behavior.

**What attracted you to Einstein and Montefiore?**

I knew about Einstein's reputation for research, which has always been an important part of my career. As I learned more about Montefiore, I was drawn to its dedication to the social aspects of care. I haven't seen this level of commitment at any other place I've worked.

**What has been your biggest challenge in your department?**

Changing the culture in delivering care. It is easy to say, "We have always done it this way, and we are pretty good at it." What matters is whether we're making

an impact. If not, we should be asking, "How can we do better?" We initiated monthly meetings with the leadership quality and safety team to address problems—not to assign blame, but rather to observe patterns and find solutions.

**What has been the reaction?**

Changing culture is disruptive. We reminded ourselves of our mission to improve the care we deliver and recruited faculty who align with this mission. Our relationship with Every Mother Counts, a nonprofit focused on respectful maternal care, has broadened our knowledge of patients' needs. We will always strive to improve—and this year, for the first time, our department was nationally ranked in *U.S. News and World Report*, a testament to our dedicated and caring faculty and associates.

**Are you taking advantage of the recent affiliation between Einstein and Montefiore?**

We encourage our faculty to become more involved in research at Einstein. We have an established collaboration with colleagues in molecular pharmacology and, most recently, in genetics. I see a direct benefit in learning from one another to improve the health of our patients.

**How did you become a movie producer?**

A neighbor asked me about a Bollywood actress for a movie she was producing. It's based on the true and fascinating story of undercover female spies for the British during World War II. I created a production company, and the movie, *Liberté: A Call to Spy*, is my first project. It premiered at the Edinburgh International Film Festival in June 2019. [E](#)

# RESEARCH NOTES

## First Complete Wiring Diagram of a Nervous System

In a study published online this past July in *Nature*, Einstein researchers described the first complete wiring diagram of the nervous system of an animal, the roundworm *Caenorhabditis elegans*, used by scientists worldwide as a model organism. The study included adults of both sexes and revealed substantial differences between them.

The findings mark a major milestone in the field of “connectomics”—the effort to map the myriad neural connections in a brain, brain region, or nervous system to find the specific nerve connections responsible for particular behaviors.

“Structure is always central in biology,” says study leader Scott Emmons, Ph.D., professor of genetics and in the Dominick P. Purpura Department of Neuroscience and the Siegfried Ullmann Chair in Molecular Genetics at Einstein.

“The structure of DNA revealed how genes work, and the structure of proteins revealed how enzymes function. Now the structure of the nervous system is revealing how animals behave and how neural connections go wrong to cause disease,” Dr. Emmons says.

Researchers have hypothesized that some neurological and psychiatric disorders, such as schizophrenia and autism,

are “connectopathies”—that is, problems caused by “faulty wiring.” “This hypothesis is strengthened by the finding that several mental disorders are associated with mutations in genes that are thought to determine connectivity,” Dr. Emmons says. “Connectomics has the potential to help us understand the basis of some mental illnesses, possibly suggesting avenues for therapy.”

Because *C. elegans* is so tiny—adults are just one millimeter long and have only about 1,000 cells—its simple nervous system of a few hundred neurons

(302 in the hermaphrodite/female sex, 385 in the male) makes it one of the best animal models for understanding the billions-times-more-complex human brain. It was also the first multi-cellular organism to have its entire genome sequenced.

Dr. Emmons’ study builds on the groundbreaking work of the late South African-born biologist Sydney Brenner, who in 2002 shared the Nobel Prize in Physiology or Medicine for his *C. elegans* research. Dr. Brenner’s laboratory published the first map of the *C. elegans* nervous system in 1986, after painstakingly analyzing neural structures visible on thousands of serial electron micrographs. That tour de force effort, 20 years in the making, launched the field of connectomics and established the roundworm as an essential animal model for studying biology and human disease.

“Since the roundworm nervous system contains many of the same molecules as the human nervous system, what we learn about the former can help us understand the latter,” says Dr. Emmons, who is currently studying how the roundworm connectome is encoded by its genome.



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### WATCH THE VIDEO

See Dr. Emmons explain his research:

[magazine.einstein.yu.edu/worm19](http://magazine.einstein.yu.edu/worm19)

## New Acute-Migraine Therapy Shows Promise

A drug belonging to a new generation of acute-migraine treatments eliminated pain and reduced bothersome symptoms for people with migraine in a large-scale trial reported in the July 11 issue of *The New England Journal of Medicine*. The drug, rimegepant, may offer advantages over currently available migraine medications.

The study's first author was Richard B. Lipton, M.D., the Edwin S. Lowe Chair and vice chair of the Saul R. Korey Department of Neurology at Einstein and director of the Montefiore Headache Center.

Currently, many people with migraine take triptan drugs (such as sumatriptan, eletriptan, and rizatriptan),

which were introduced in the 1990s. People not helped by triptans, or who can't take them, may benefit from the new class of drugs called gepants, which includes rimegepant.

Gepants work by targeting the receptors for a small protein, called CGRP, long implicated in migraine. During migraine attacks, CGRP is released, resulting in pain. Gepants relieve the pain and other symptoms of migraine by blocking the CGRP pathway.

Rimegepant was assessed in a randomized, double-blind trial involving more than 1,000 men and women with migraine at 49 centers in the United States. Each participant took a tablet of rimegepant or a matching placebo



tablet during a migraine attack. Two hours after taking their tablets, 19.6% of patients in the rimegepant group were free from pain, compared with 12% in the placebo group—a statistically significant difference. Freedom from their most bothersome symptoms occurred in 37.6% of patients in the rimegepant group and 25.2% in the placebo group.

## How Lupus Occurs in the Brain

Patients with the autoimmune disease systemic lupus erythematosus (SLE) have poor outcomes despite aggressive treatment with immunosuppressive drugs. In a study published this past June in *JCI Insight*, Chaim Putterman, M.D., and colleagues identified how SLE develops in the central nervous system (CNS) independent of its occurrence elsewhere in the body.

The scientists found that the immune system forms a tertiary lymphoid structure—which functions like a lymph



node—deep within the brain. The newly discovered structure may be the route through which the immune system promotes CNS lupus. The findings may lead to new therapies for CNS

lupus, which is extremely difficult to treat. Dr. Putterman is a professor of medicine and of microbiology & immunology at Einstein and chief of rheumatology at Einstein and Montefiore.

## RESEARCH NOTES

### Lab Chat

**H**elena M. Blumen, Ph.D., is a cognitive neuroscientist who studies the brain networks we use to walk, reason, make decisions, and form memories. An assistant professor in the department of medicine and in the Saul R. Korey Department of Neurology, Dr. Blumen was born in Sweden, came to the United States to attend college, and landed at Einstein in 2013, after completing a postdoctoral fellowship at Columbia University Medical Center.

#### What is your research focus?

I'm interested in optimizing gait and cognition in older people. My colleagues and I view cognition and mobility—particularly in the elderly—as being closely related. For older people, walking is not so automatic as it was when they were young, and they have to think about the steps they're taking. So walking becomes a cognitive task that relies on the same or similar brain networks as cognitive processes such as memory and attention. Our studies will investigate whether training older people to improve their gait can also improve their cognitive processes, and vice versa.

#### If you had to focus on improving just one—gait or cognition—which would you choose?

I'd say improving gait. It would improve cognition as well. Plus, when brain function declines in the elderly, gait problems usually precede cognitive decline and dementia. So improving someone's gait could conceivably help delay cognitive difficulties.

#### What do you especially like about working with older people?

The people who participate in our studies are very happy to be here and excited about being involved in research. And from our perspective, we really value the research data they provide.

#### What's your opinion of brain-training programs, such as Lumosity or CogniFit?

I think some of them have potential, but we don't know yet if they work. I'm now involved in two trials that are assessing whether behavioral interventions can help. One is an imagery study in which we teach older people to imagine themselves walking. The idea is that imagining walking will stimulate the brain regions involved in actual walking and improve walking ability—and, by extension, cognitive processes as well. This might especially help people who are frail and not able to get outside. The other trial is comparing social dancing with treadmill exercising with respect to gait and cognitive outcomes.

#### Where in Sweden are you from?

I was born in the town of Luleå, a couple of hours by car from the Arctic Circle.

#### Did you ski there?

Yes, I was an athlete growing up and did cross-country skiing, and also played soccer. I don't ski much anymore but I stay active by doing cross-training exercises at a health club.



Dr. Helena M. Blumen, left, works with a participant in a study of gait and cognition.

#### What else do you do in your spare time?

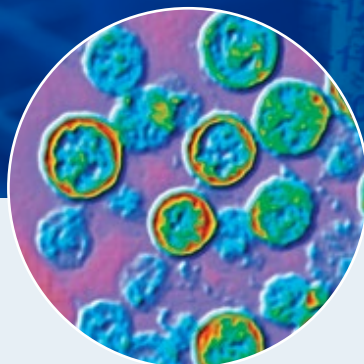
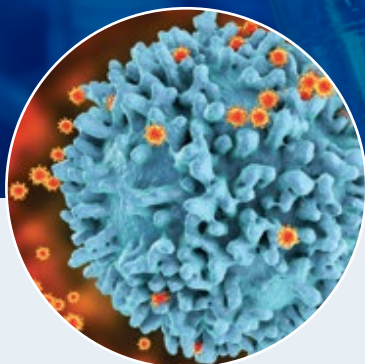
Well, I have two kids, a 15-year-old girl and a 5-year-old boy, so there's not much of that!

#### Do you make any Swedish dishes?

I make my own gravlax, which is cured salmon. You rub a mixture of salt, sugar, lemon, and pepper into two salmon filets, then use a heavy object to press the meat sides of the filets against each other for a couple of days in the refrigerator. It's not that hard to make, and it tastes great.

## RESEARCH NOTES

### MAJOR NIH RESEARCH AWARDS



#### Focusing on Post-HIV Problems

The National Institutes of Health (NIH) has awarded Kathryn Anastos, M.D., and Anjali Sharma, M.D., a seven-year, \$23 million grant to study HIV and the chronic illnesses that often accompany HIV infection, including cardiovascular and lung disease, diabetes, and cancer. The multicenter trial merges two existing studies that for decades have followed women and men who are HIV positive or at risk for HIV infection. The team will enroll 2,500 new participants as well. Researchers will also study disease-related outcomes such as heart attacks and strokes, conduct neuropsychiatric testing to assess cognition, and administer detailed psychiatric evaluations. Dr. Anastos is a professor of medicine, of epidemiology & population health, and of obstetrics & gynecology and women's health at Einstein and a general internist at Montefiore. Dr. Sharma is an associate professor of medicine at Einstein and an internist and infectious-disease physician at Montefiore.

#### Targeting Deadly Viruses

The National Institute of Allergy and Infectious Diseases (NIAID) has awarded an international consortium led by Kartik Chandran, Ph.D., a five-year, \$22 million grant to develop antibody-based therapies against four lethal viruses for which approved vaccines or treatments are lacking. The viruses are the tick-borne Crimean-Congo hemorrhagic fever virus and three hantaviruses, which are spread by rodents: Andes virus, Sin Nombre virus, and Puumala virus. The NIAID has designated all except the Puumala virus as category A agents—emerging infectious diseases or pathogens that pose the highest risk to national security and public health. Other participating institutions are the U.S. Army Medical Research Institute of Infectious Diseases, Mapp Biopharmaceutical, the University of Texas at Austin, and Adimab, a biotech company. Dr. Chandran is a professor of microbiology & immunology and the Harold and Muriel Block Faculty Scholar in Virology at Einstein.

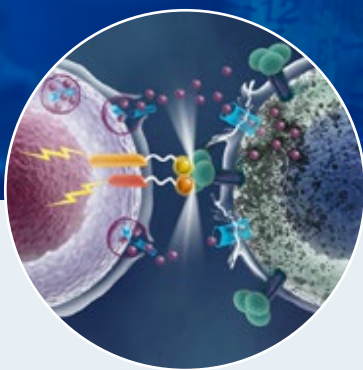
#### Obesity and Hypertension

Dongsheng Cai, M.D., Ph.D., received two NIH grants totaling \$4.5 million to study the role of the hypothalamus in obesity and hypertension. Dr. Cai has found that sustained activation of astrocytes (cells that surround and support neurons) may contribute to the metabolic dysregulation and subsequent weight gain caused by pro-inflammatory signaling in the hypothalamus. He was awarded a four-year, \$2 million grant to study how hypothalamic astrocytes are altered in inflammation and how those altered astrocytes influence hypothalamic neurons to dysregulate metabolism. Evidence also indicates that inflammation-induced activation of hypothalamic astrocytes plays a role in obesity-related hypertension (OHT), which accounts for 75% of hypertension cases and is difficult to control. The second grant, for \$2.5 million over four years, sponsors Dr. Cai's research into how the astrocyte-neuron relationship in obesity contributes to OHT. Dr. Cai is a professor of molecular pharmacology at Einstein.

## MAJOR NIH RESEARCH AWARDS

**Opioids, HIV, and Brain Damage**

HIV can invade the brain and cause chronic neural inflammation and, ultimately, cognitive impairment in most HIV-infected people. Antiretroviral therapies don't completely relieve the inflammation or reduce brain damage—and opioid abuse makes things worse. The National Institute on Drug Abuse has awarded Joan W. Berman, Ph.D., and Harris Goldstein, M.D., a five-year, \$4.2 million grant to investigate molecular mechanisms that worsen HIV-related inflammation in people who abuse opioids. By analyzing HIV and opioid-induced gene-expression changes, they hope to identify new drugs to quell HIV-caused brain inflammation. Dr. Berman is a professor of pathology and of microbiology & immunology at Einstein, the Irving D. Karpas Chair in Medicine, and the senior academic adviser to the Sue Golding Graduate Division of Biomedical Sciences. Dr. Goldstein is a professor of pediatrics and of microbiology & immunology and the Charles Michael Chair in Autoimmune Diseases.

**A Potential Path to an HIV Cure**

Curing HIV-infected individuals has not been possible because neither the human immune system nor antiretroviral therapy can eliminate cells that are latently infected with HIV. These cells become reactivated and reintroduce systemic infection when treatment is halted. The NIAID awarded Harris Goldstein, M.D., and Steven Almo, Ph.D., a five-year, \$4.2 million grant to develop novel immunomodulatory biologics to precisely and markedly expand HIV-specific CD8+ (“killer”) T cells to target and eliminate latent HIV-infected CD4+ T cells intentionally reactivated to make them “visible” to the CD8+ cells. The novel treatment strategy could lead to long-lasting HIV remission or even a functional cure for HIV infection. Dr. Goldstein is the director of the Einstein-Rockefeller-CUNY Center for AIDS Research. Dr. Almo is a professor and the chair of biochemistry, a professor of physiology & biophysics, and the Wollowick Family Foundation Chair in Multiple Sclerosis and Immunology at Einstein.

**Targeting Signals in Alzheimer's**

Diminished somatotrophic signaling (i.e., signaling that stimulates body growth) leads to delayed aging and longer life spans in both model organisms and people. Centenarians, in fact, have several mutations that weaken somatotrophic signaling. Sofiya Milman, M.D., has received a five-year, \$4 million grant from the National Institute on Aging to identify genes and gene functions that inhibit growth-related signaling. She and her colleagues will study participants in Einstein's LonGenity study—a cohort of 1,400 older adults, half of them the offspring of centenarians. The researchers will investigate the role that somatotrophic signaling plays in the brains of aging humans. They hope to identify mechanisms that confer cognitive resilience by delaying aging—findings that could lead to therapies to help protect against Alzheimer's and other aging-associated diseases. Dr. Milman is an associate professor of medicine and of genetics at Einstein and an attending physician in medicine at Montefiore.



### Unraveling the B-Cell Response Against TB

The bacterial species *Mycobacterium tuberculosis* (*Mtb*) caused 1.6 million tuberculosis-related deaths in 2017, according to the World Health Organization. Infection triggers a well-studied T-cell response against *Mtb*, but the B-cell immune response that leads to antibody production is not clearly understood. John Chan, M.D., received a five-year, \$3.5 million grant from the NIAID to investigate IgM antibodies—the first antibodies that respond to infection—and their role in the host immune response to *Mtb*. Dr. Chan and colleagues will use mouse and ex vivo macaque tuberculosis (TB) models to better understand the role and importance of IgM in immune regulation during the early and chronic stages of TB. Findings from this study may lead to novel therapies against TB infection. Dr. Chan is a professor of medicine and of microbiology & immunology at Einstein and an attending physician in infectious diseases at Montefiore.



### MS Patients, Mobility, and Falls

Impaired mobility is the most obvious symptom of multiple sclerosis (MS), and falls are common. The life expectancy of MS patients has increased, but studies on mobility and falls among older MS patients are scarce. Research by Roe Holtzer, Ph.D., suggests that the integrity and proper functioning of the brain, especially the prefrontal cortex, are critical for cognitive control of mobility. He has received a five-year, \$3.5 million grant from the National Institute of Neurological Disorders and Stroke to identify brain systems governing mobility in older adults (120 MS patients and 120 controls) to determine whether brain function during active walking can predict falls. Neuroimaging techniques will measure prefrontal cortex activity and assess the brain's structural integrity. The findings may identify biomarkers that can be modified to prevent falls. Dr. Holtzer is a professor in the Saul R. Korey Department of Neurology at Einstein.



### Sleep and Cognitive Decline

Disturbed sleep is common among older adults and may lead to cognitive decline and Alzheimer's disease. Carol A. Derby, Ph.D., has received a four-year, \$4 million grant from the National Institute on Aging to partner with the ongoing Einstein Aging Study (EAS) to examine the association between sleep patterns and cognition in 500 older Bronx adults. The research will be a collaboration with Pennsylvania State University professor Orfeu Buxton, Ph.D. In Dr. Derby's project, EAS participants will wear special watches to collect daily information on sleep and will wear devices to measure their oxygen levels overnight. The data may reveal sleep's impact on cognition and suggest strategies for preventing cognitive decline. Dr. Derby is a research professor in the Saul R. Korey Department of Neurology and in the department of epidemiology & population health and is the Louis and Gertrude Feil Faculty Scholar in Neurology at Einstein. [E](#)






# The Search for Autism Therapies

From cannabis to whipworms, scientifically promising treatments are being tested at Einstein and Montefiore

BY GARY GOLDBERG



Carlos Rodriguez of the Bronx seemed like a healthy, happy baby. But as his first birthday approached, he began to scream and cry at the slightest provocation. His “twos” were particularly terrible. While his peers were learning to talk, Carlos communicated only by grunting and pointing. Even worse, he would throw tantrums, banging his head against anything and everything.

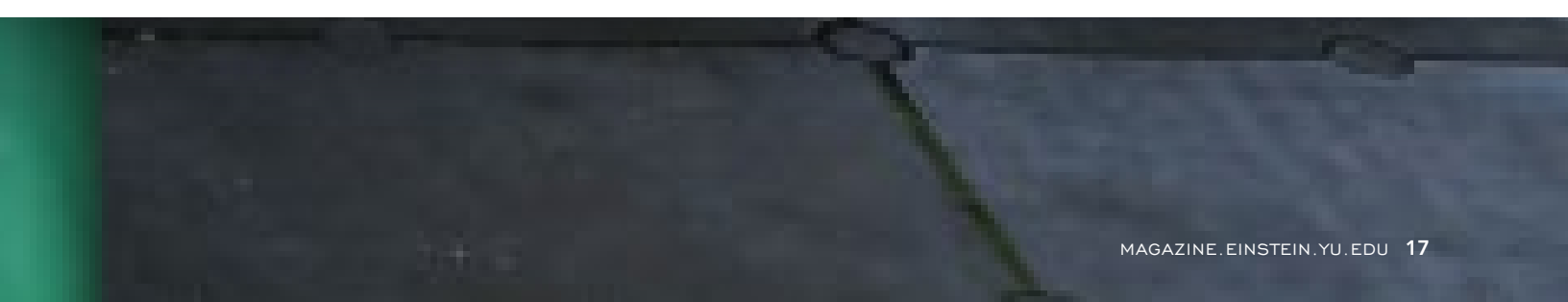
The family’s pediatrician suspected a serious developmental problem and referred Carlos to Children’s Hospital at Montefiore. There he was diagnosed with autism spectrum disorder (ASD) and received the latest behavioral, educational, and medical therapies. The interventions got him

talking, if sparingly, and enabled him to attend a mainstream school with special services.

Carlos has a loving home, a supportive school, and top-notch specialty care—yet these are not enough. Now 14, he avoids eye contact, can’t tolerate busy or noisy environments, doesn’t take part in sports, and abhors the slightest deviation from his daily routine. At home he prefers being alone in his room, watching YouTube videos and playing with Transformers, his favorite toys.

Six thousand children who live in the Bronx and another 12 million nationwide fall somewhere on the autism spectrum. Only a small percentage will successfully outgrow their diagnoses (see related article on page 26).

At left, Carlos and his mom, Maribel, enjoy a day at a playground in the Bronx.





## Filling the Treatment Void



“One of our goals is to subject potential therapies to the rigor of solid scientific research so we can inform parents and clinicians about the therapies’ usefulness.”

— DR. ERIC HOLLANDER



**T**he U.S. Food and Drug Administration (FDA) has approved only two drugs for ASD: the drugs risperidone and aripiprazole, both for treating ASD-related irritability. But no treatments exist for the core symptoms of ASD: deficits in social interaction and communication, repetitive behaviors, restricted interests, and difficulty with new situations. That absence of therapies has created desperation.

“We know that parents are trying all kinds of alternative therapies on their children who have ASD,” says Eric Hollander, M.D., professor of psychiatry and behavioral sciences at Einstein and director of the Autism and Obsessive

Compulsive Spectrum Program at Einstein and Montefiore. “One of our goals is to subject potential therapies to the rigor of solid scientific research so we can inform parents and clinicians about the therapies’ usefulness.”

For the past two decades, Dr. Hollander has been a national leader in the search for new ASD treatments. In research published in 2005, he and his colleagues were the first to assess fluoxetine (Prozac) for relief of ASD symptoms. Their placebo-controlled, double-blind trial, involving 45 children and adolescents with ASD, found that low-dose liquid Prozac was more effective than a placebo in reducing

repetitive behaviors in particular and ASD-symptom severity in general. In a 2012 study, they found similar results in adults. Prozac is now one of the most commonly used treatments for ASD.

“Prozac seemed worth investigating,” Dr. Hollander says. “The drug influences brain levels of serotonin, and serotonin dysregulation appears to be common in people with ASD. Plus, Prozac and other SSRIs [selective serotonin reuptake inhibitors] are front-line treatments for disorders that—like ASD—can involve repetitive behaviors. But not all patients with ASD respond to Prozac, and not everyone tolerates it, so we decided to test other treatments.”

## AUTISM EXPLAINED

People with autism spectrum disorder (ASD) have trouble communicating and forming social relationships, and they may also have restricted interests and repetitive behaviors. These symptoms impair their ability to function well in school, work, and other areas of life. The U.S. Centers for Disease Control and Prevention estimates that ASD affects 1 in 59 children in the United States, primarily boys, with the initial signs and symptoms usually appearing in the first two years of life.

ASD is called a “spectrum” disorder because of the wide variation in the type and severity of its symptoms. Roughly 40% of individuals with ASD have intellectual disability (defined as an IQ of less than 70), but many have normal to above-average intelligence, and some have exceptional abilities.

There’s no single cause of ASD. Research suggests that the disorder often develops from a combination of genetic and environmental influences that affect critical aspects of early brain development—particularly how neurons or entire brain regions communicate with one another. Becoming a parent at an older age increases the risk of having a child with ASD. Complications related to pregnancy, such as extreme prematurity, low birth weight, and closely spaced pregnancies, can also increase the risk. Vaccines do not affect the risk of developing ASD.

ASD is usually treated with early-intervention services, which include a mix of speech and occupational therapies and applied behavior analysis (the main evidence-based treatment for ASD).



**Irritability and impulsivity**



**Impaired social interaction & communication**



**Repetitive behavior**



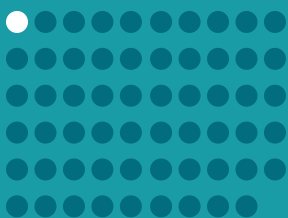
**Restricted range of interests**



**Difficulty deviating from normal routine**

# ASD

is a neurological condition that affects how people experience the world and interact with others



# 1 in 59

children in the U.S. is affected by ASD



Boys are 4x more likely than girls to have ASD

## THE SEARCH FOR AUTISM THERAPIES

# Righting an Imbalance



Other treatments evaluated by Dr. Hollander's group include the hormone oxytocin; the antiepilepsy drug valproate; a marijuana extract; and the eggs of a parasite that infects pigs—diverse therapies that each address a widely accepted cause of ASD: an excitatory/inhibitory (E/I) imbalance in brain neural circuits.

Considerable evidence, from animal and human studies, suggests that ASD is accompanied by overexcitation of the brain's neural circuits, due to either an increase in excitatory neuron signaling or a decrease in inhibitory signaling.

"This E/I imbalance alters the way the brain processes information and

regulates behavior," Dr. Hollander says. "The imbalance triggers seizures, and we believe it's also responsible for the core ASD symptoms that we can't treat effectively yet. So we look for interventions that show promise for correcting the E/I imbalance and, hopefully, easing the symptoms of people with ASD."

As his colleague Bonnie P. Taylor, Ph.D., assistant professor of psychiatry and behavioral sciences at Einstein, puts it: "We're open to testing therapies that look promising. New therapies for kids who have ASD are urgently needed. So if there's a rationale for a treatment and we're confident that it's safe, we'll figure out a way to develop a trial."

### EASING IRRITABILITY

Risperidone and aripiprazole have been approved by the FDA for treating irritability related to ASD. Both were originally approved as antipsychotic medications and can have serious side effects, including significant weight gain. Dr. Hollander realized that valproate, a drug approved for treating seizures in epilepsy, might be a better alternative.

For one thing, valproate may normalize the E/I balance, since it appears to work by raising levels of gamma aminobutyric acid, a neurotransmitter that inhibits neuron signaling in the brain. And in studies involving other conditions, the drug relieved symptoms also found in ASD—reducing aggression in people with borderline personality disorder, for example. Similar drugs have proved to be useful in treating disorders with repetitive and impulsive features, such as compulsive gambling and binge eating.

Dr. Hollander and his colleagues have conducted two randomized, placebo-controlled clinical trials assessing valproate's effectiveness in treating ASD patients, primarily children and adolescents. Both trials found that valproate was significantly more effective than a placebo in relieving repetitive behaviors and irritability and agitation in people with ASD. Valproate, however, is no panacea for those symptoms. It can have significant side effects of its own, including weight gain, liver inflammation, and tremor.

At right, a child who has autism works on an IQ test at the Einstein campus under the supervision of Dr. Bonnie P. Taylor.





THE SEARCH FOR AUTISM THERAPIES

## A Drug Tailor-Made for ASD



Oxytocin is a peptide hormone secreted by the pituitary gland. It floods the bloodstreams of mothers giving birth, facilitating uterine contractions and stimulating milk letdown for breastfeeding. Oxytocin also plays a crucial role in so-called affiliative behaviors: It helps initiate the emotional bond between mother and infant, for example, and enhances the social attachments connecting friends and lovers.

In the 1990s, several researchers proposed that abnormalities in the oxytocin system might play a role in ASD, which typically involves poor social skills. Dr. Hollander was the first to study that

possibility, in a double-blind, placebo-controlled trial whose results were published in 2003. His oxytocin-related research led directly to a phase 2 clinical trial now evaluating the first drug designed specifically to treat ASD.

“Studying oxytocin made sense to us,” Dr. Hollander says. “It had potential for improving the social deficits that are a core symptom of ASD. And it might help correct the E/I imbalance in ASD, since one of its modes of action involves strengthening signals sent by inhibitory neurons.”

Dr. Hollander’s clinical trials have found that oxytocin significantly reduced repetitive behaviors in people

**“Oxytocin had potential for improving the social deficits that are a core symptom of ASD.”**

— DR. ERIC HOLLANDER

with ASD and made them better aware of social cues in conversation. But administering oxytocin is difficult: The protein must usually be given intravenously or intranasally, since it's broken down in the gut when swallowed. To get around that problem, the Swiss pharmaceutical company Roche designed an oral ASD drug that boosts oxytocin's effectiveness by blocking a chemical competitor called vasopressin.

Oxytocin and vasopressin have a lot in common. The structurally similar peptide hormones are both released by the pituitary gland, and both strengthen social bonds by binding to the same receptors in the brain—but oxytocin is considered more helpful.

Balovaptan, the drug developed by Roche chemists, prevents vasopressin from binding to a type of vasopressin receptor called V1a. By blocking vasopressin, balovaptan allows oxytocin molecules to bind to those receptors unchallenged—and, it is hoped, will help people with ASD become more socially engaged.

Balovaptan has already been shown to improve social behavior and reduce cognitive impairment in an animal model of ASD and in adult ASD patients. In 2018, the FDA granted balovaptan “breakthrough therapy” status, a process in which the agency speeds its review of drugs that “demonstrate substantial improvement over available therapy” for treating serious conditions.

Dr. Hollander is now leading Einstein's participation in a nationwide clinical trial of balovaptan. This phase 2 (safety and efficacy) trial, called the aV1ation Study, will include 300 high-functioning children and teens with ASD at 30 sites around the country. Participants will take either of two doses of the drug or a placebo for 24 weeks.

## FEVERS, WHIPWORMS, AND THE ROOT CAUSES OF AUTISM

Over the past several decades, parents and physicians have observed that some children with ASD improve when they have a fever, only to regress afterward. Those anecdotes suggest that an intervention that duplicates a fever might also calm ASD symptoms—and perhaps provide insight into ASD's underlying causes as well. Hence an experimental therapeutic trial using the pig whipworm *Trichuris suis* made sense.

“Fevers are typically a response to inflammation and immune-system arousal,” says Eric Hollander, M.D., who leads the Einstein-Montefiore effort to find new ASD therapies. “Previous trials had suggested that *T. suis* infections in people can tamp down those processes, both of which are overactive in ASD. *T. suis* seems to reduce inflammation by normalizing the excitatory/inhibitory balance in nerve signaling, which we consider essential for effective ASD therapies.”

Dr. Hollander and his colleagues carried out a double-blind, 12-week crossover trial involving 10 young adults with ASD. Half the participants first swallowed 2,500 whipworm eggs every two weeks for 12 weeks and then took a matching placebo for the next 12 weeks. The other five participants were treated in reverse order—first the placebo and then the whipworm eggs. (When people swallow whipworm eggs, the worms that develop can't penetrate the human intestine and don't cause illness.) During the study, clinicians and parents assessed the participants for inflexibility, social withdrawal, and other behaviors associated with ASD.

Results were reported in 2018 in *The World Journal of Biological Psychiatry*. Overall, differences between the two groups were not statistically significant, but participants treated with whipworm eggs did show large reductions of repetitive behavior and irritability.





THE SEARCH FOR AUTISM THERAPIES

# A Marijuana Extract for Autism



**M**ore than 100 chemicals known as cannabinoids are found in cannabis plants, including marijuana and hemp. In 1964, researchers identified tetrahydrocannabinol (THC) as the cannabinoid responsible for marijuana's "high."

This finding revealed an important signaling system in the brain—one that regulates such physiological and cognitive processes as appetite, stress, mood, memory, social behavior, and pain sensation. THC activates this signaling system by binding directly to receptors in the brain. The human body was later found to produce its own cannabinoids, dubbed "endocannabinoids," which are involved in what is called the "endocannabinoid signaling system."

Recent studies involving animal models suggest that disrupted endocannabinoid signaling may play a role in ASD. For example, in a study published earlier this year, Stanford researchers found that the blood plasma of children with ASD contained significantly lower levels of the endocannabinoid anandamide compared with levels in neurotypical children. In keeping with its outside-the-box approach, Dr. Hollander's team is investigating whether cannabinoids might relieve children's ASD symptoms by normalizing endocannabinoid signaling.

The Einstein team has focused on a nonpsychoactive cannabinoid called cannabidivarin (CBDV), whose molecular structure closely resembles that of cannabidiol (CBD)—the popular nonpsychoactive cannabinoid now being sold online and over the counter in tinctures, oils, and lotions for conditions ranging from anger to Alzheimer's. Unlike THC, CBD and CBDV don't seem to bind directly to

endocannabinoid receptors, but they nevertheless produce important effects.

In two of the few trials that have evaluated CBD in people, New York University (NYU) scientists found that the compound significantly reduced seizure frequency in patients with Lennox-Gastaut syndrome and Dravet syndrome, two rare forms of epilepsy with similarities to ASD. In 2018 the FDA approved Epidolex, the liquid CBD formulation used in the epilepsy trials, for treating those conditions. CBD's antiseizure properties suggest that CBD and CBDV may both help to correct the E/I imbalance observed in people with ASD.

Preliminary studies have found that CBDV is effective in treating pediatric epilepsy, and animal studies suggest it could be valuable for treating ASD.

"The research shows that CBDV has anti-inflammatory, immune-modulating, antianxiety, and anticonvulsant properties," Dr. Hollander says. "And in one recent study, CBDV improved social behavior in an animal model of Rett syndrome, an autism-related condition. So CBDV appears to be a promising ASD treatment that we need to explore further."

Last year, the Department of Defense (DoD) awarded researchers at Einstein, Montefiore, and the NYU School of Medicine a \$1.3 million grant to study the safety and efficacy of CBDV in children with ASD.

Dr. Hollander is leading the study along with NYU's Orrin Devinsky, M.D., who conducted the CBD epilepsy trials. The hope is that CBDV can help with "protest behavior"—the sudden temper tantrums that often plague people with ASD, particularly those with severe symptoms.

**"This research shows that CBDV has anti-inflammatory, immune-modulating, antianxiety, and anticonvulsant properties."**

— DR. ERIC HOLLANDER





## CAN KIDS AGE OUT OF ASD?

According to a new study from researchers at Einstein and Montefiore—the largest of its kind, with the most rigorous diagnostic follow-up—the answer is a qualified “yes.” A small minority of children with an initial diagnosis of ASD no longer qualify for it later on, yet most of them still have difficulties that require therapeutic and educational support. “It’s certainly encouraging to confirm that a subset of children with early ASD diagnosis can in essence recover from the disorder and go on to have typical social and cognitive functioning,” says lead author Lisa Shulman, M.D., pictured above, who is a professor of pediatrics at Einstein and interim director of the Rose F. Kennedy Children’s Evaluation and Rehabilitation Center at Montefiore. “But by and large, these children continue to struggle with daily life. Almost all of them still contend with language and learning disabilities and a variety of emotional and behavioral problems.”

In the study, Dr. Shulman and her colleagues reviewed the clinical records of 569 young children who were diagnosed with ASD. Most had received early-intervention services. When followed up an average of four years after their initial diagnoses, 38 children—7% of the group—no longer met the diagnostic criteria for ASD. Of those 38, two-thirds still exhibited language or learning disabilities; half had externalizing behavior problems, such as attention-deficit/hyperactivity disorder, and a quarter had internalizing behavior problems, such as anxiety disorder. Only three of the 38 children who recovered from ASD had no other problems, the authors reported earlier this year in the *Journal of Child Neurology*.

What is going on with these children who no longer have an ASD diagnosis? “Our sense is that some children with ASD respond to intervention and others have unique developmental trajectories that lead to improvement. Those children who evolve in a positive direction generally have the mildest symptoms to begin with,” Dr. Shulman says. “The message from our study,” she adds, “is that some of our kids do amazingly well, but most of them have persistent difficulties requiring ongoing monitoring and therapeutic support.”

“These tantrums make it hard for families to go to a restaurant, travel on public transportation, or do much of anything outside the home,” Dr. Hollander says. “It’s a huge burden, one that causes many couples to separate or divorce.” Military families who have children with ASD face the same issues, which is why the DoD is supporting the study. “Those families need access to a lot of services, which limits where they can live, which in turn affects military readiness,” Dr. Hollander adds.

The Einstein-Montefiore-NYU trial—the first to study CBDV—will enroll 100 children with above-average levels of irritability. Patients will take an oral CBDV solution or a placebo twice a day for 12 weeks, and results are expected in three years. The researchers will use the new Montefiore-Einstein Rigidity Scale—Revised (MERS-R) to assess the participants’ social and cognitive functioning before and after treatment.

“We previously had to rely on parents’ observations about the children’s behavior on scales that were either too specific or not specific enough,” Dr. Taylor says. “When we realized we weren’t capturing all of their behaviors, we decided we needed a better scale.”

MERS-R looks at three domains of behavior: behavioral rigidity (difficulty adjusting to or managing behavior in new, unfamiliar, or unexpected situations); cognitive rigidity (lack of flexible thinking); and protest (behavioral reaction in response to an interruption to the subject’s rigidity). “It takes just 20 minutes to administer the MERS-R, which assesses the level, the length, and the severity of each domain and puts a number on it,” Dr. Taylor says.

The findings from the CBDV study



**Military families who have children with ASD face the same issues, which is why the Department of Defense is supporting the study.**

could have applications beyond ASD. “The repetitive features of ASD are also common in a variety of other compulsive disorders,” Dr. Hollander says. “The goal of our work is to discover ways to target the causes of these conditions, ease the associated symptoms, and improve the quality of life for many, many people.”

Recruiting children for the balovaptan and CBDV trials shouldn’t be difficult. “Many parents are willing to try anything that might help their children,” says Casara Jean Ferretti, M.S., a doctoral student at the Ferkauf Graduate School of Psychology, who helped write the CBDV grant application.

It’s an attitude that certainly characterizes Carlos Rodriguez’s parents. Carlos didn’t benefit from a previous

Einstein-Montefiore trial, but that didn’t deter his parents from enrolling him in the balovaptan trial. They realize the urgency of finding therapies that will help Carlos and other kids with ASD.

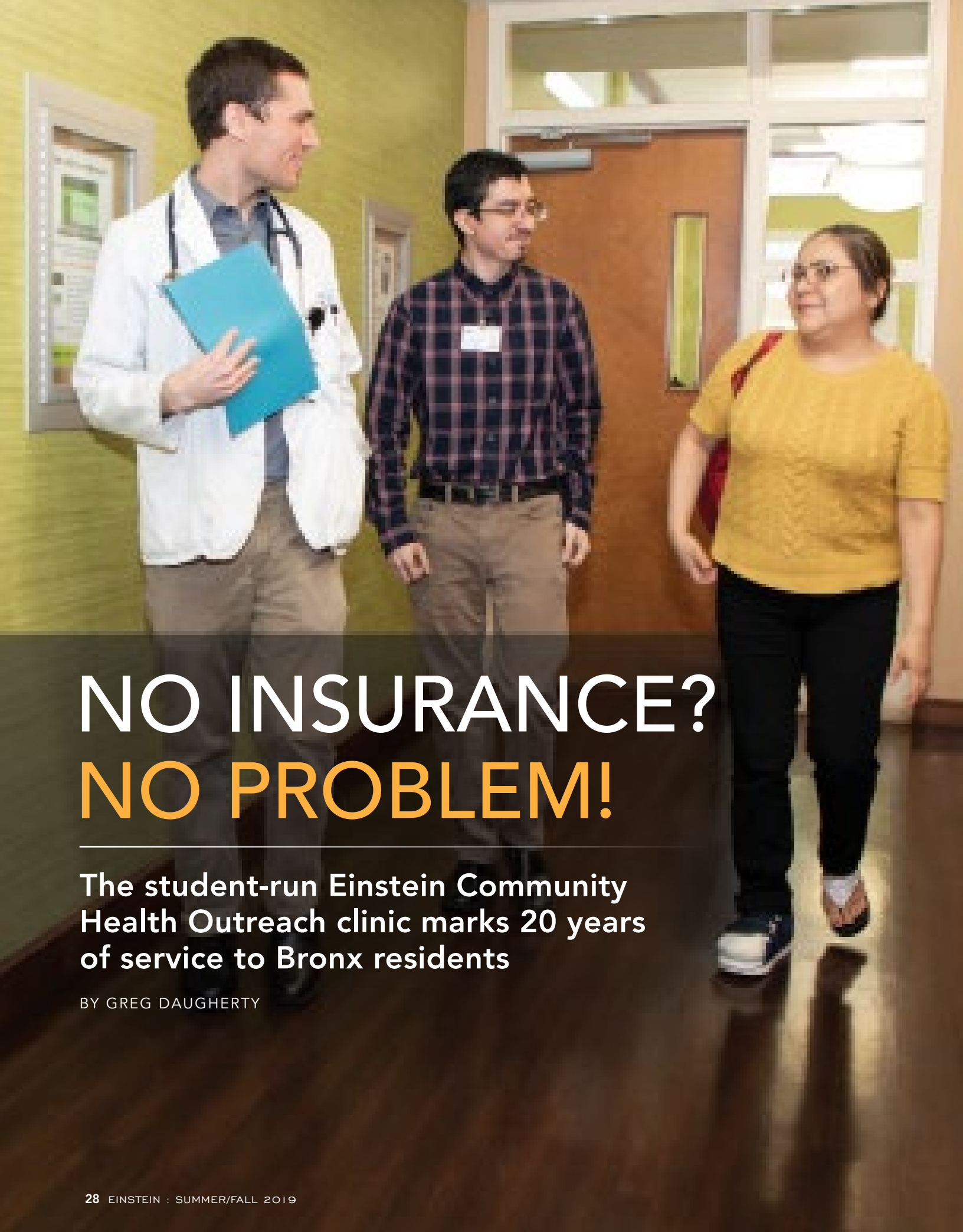
“I’ll be his advocate to the end of the day,” says his mom, Maribel. “I don’t want him to feel that he cannot have a life like everyone else. But I do worry about his future. When I try to talk to him about what he’s going to do when he gets older, he says, ‘I’m not leaving. I’m staying with you.’” **E**



#### **READ MORE**

Learn about other autism research at Einstein:

[magazine.einstein.yu.edu/autism19](https://magazine.einstein.yu.edu/autism19)

A photograph of three people walking in a hallway. On the left, a man in a white lab coat and stethoscope holds a blue folder. In the center, a man in a plaid shirt and glasses walks. On the right, a woman in a yellow shirt and glasses walks. They are all smiling and looking towards each other. The hallway has a wooden door and a window in the background.

# NO INSURANCE? NO PROBLEM!

The student-run Einstein Community Health Outreach clinic marks 20 years of service to Bronx residents

BY GREG DAUGHERTY

Step inside the building at the corner of Walton Avenue and East 177th Street in the Bronx on a Saturday morning and you might think you were at any other busy medical clinic in New York City. About two dozen men and women patiently wait in a reception area with bright-green walls to see one of two doctors as a few more people check in at the front desk.

“How can I help you today?” one of the receptionists asks a young woman, who says she is there for a medical clearance before starting a new job. She’s handed a clipboard as a nurse announces the next patient to be seen.

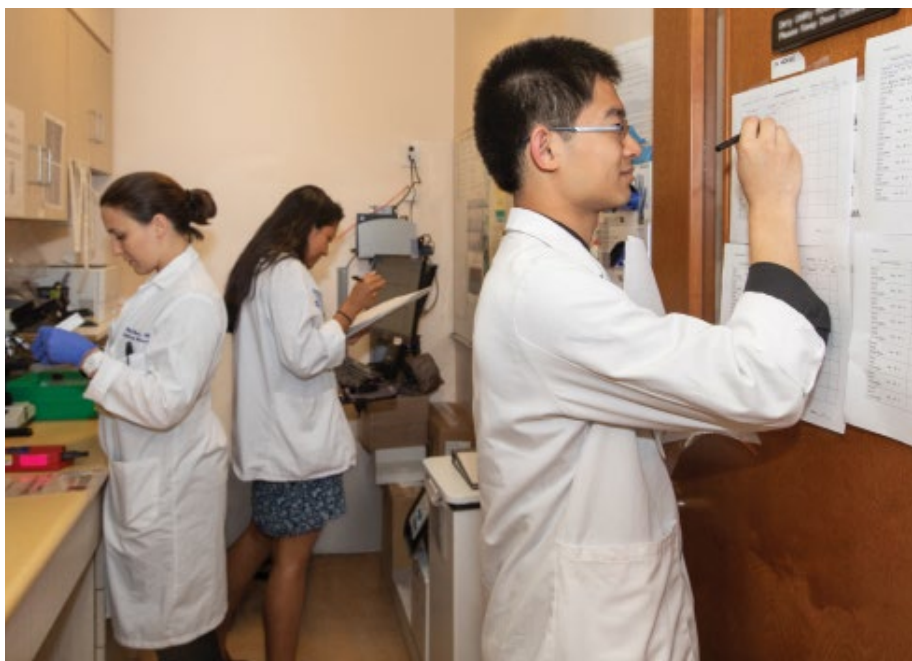
Some people have come for blood tests or vaccinations. Others need help with a respiratory condition or a skin problem. Still others are following up after surgery. Each of these services might cost \$400 or more out of pocket. But at this clinic, the receptionists are Einstein students and the doctors volunteer their time. And the patients are charged nothing for their visits.

## A NATIONAL MODEL

The free health clinic exists because two decades ago a group of Einstein students had an idea. They wanted to serve Bronx residents who had no health insurance—including both members of the working poor and those who were not eligible because of their immigration status.

Partnering with the nonprofit Institute for Family Health, the students launched the Einstein Community Health Outreach clinic, or ECHO for short. When ECHO opened at the

Fourth-year medical student Ryan Corbo, far left, and interpreter Christopher Fuentes, a pre-health student, walk with patient Reynalda Cohetero at the Einstein Community Health Outreach clinic.



Einstein Ph.D. student Noelle Cayla, left, and second-year medical student Stephen Liang, right, collect and record blood and urine samples at the ECHO clinic under the direction of Sadia Ahmed, center, a fourth-year medical student.

Walton Family Health Center on Sept. 25, 1999, it was the first student-run, physician-supervised free clinic in New York City. It soon became a model for similar clinics across the nation.

Today ECHO serves some 25 to 35 adults each Saturday. “We’re meeting the needs of community members who may be afraid or unable to access healthcare because of the cost,” says Amarilys Cortijo, M.D., ECHO’s medical director. To be seen, patients cannot have health insurance and must be over age 18. Each ECHO patient qualifies for two free well-care visits, or four visits if he or she has a chronic condition such as diabetes. After that, the patients are encouraged to use one of the full-time health centers operated by the Institute for Family Health or another clinic of their choice.

At the institute, they pay for care on a sliding-fee scale based on income.

Counselors will also help eligible patients apply for Medicaid and other insurance programs and provide them with a pharmacy card to ensure that they can get the medications that are prescribed to them. “The idea is to transition them into the healthcare system,” Dr. Cortijo says. “We see ourselves as the gateway.”

## TAKING CARE OF PATIENTS

Just as ECHO has established itself as a vital community resource, it has also become a key component of an Einstein medical education. More than two-thirds of the first-year students, 110 to 120 in all, volunteer at the clinic an average of one Saturday a month. Sharan Shah, a fourth-year medical student at Einstein who recently served as executive clinical chair at ECHO, estimates that 2,700 Einstein students have contributed their time and skills to the

## NO INSURANCE? NO PROBLEM!



**“They improve their interpersonal skills; they learn how to listen and how to speak to patients. Medical students rarely get this opportunity anywhere else.”**

— DR. AMARILYS CORTIJO

clinic since it began. Dr. Cortijo arrived at ECHO in early 2001 and has worked with most of those students, who call her the “heart and soul” of the clinic.

Staffing a medical facility largely with student volunteers presents some challenges. One is the need to train a fresh batch of recruits every year. “They’re very bright and have a lot of energy, but they’re often totally inexperienced,” Dr. Cortijo says.

On any given Saturday, there are likely to be about 40 Einstein students on hand, along with two attending physicians to supervise them. In the summer, undergraduate students from other area colleges who are interested in medical careers can volunteer as interpreters or receptionists through ECHO’s Pre-Health Summer Program.

“Our students learn how to take care of patients, under close supervision,” Dr. Cortijo says. “They improve their interpersonal skills; they learn how to

listen and how to speak to patients. Medical students rarely get this opportunity anywhere else.”

That opportunity has, in fact, become a selling point for many students choosing a medical school. One of them was Sarah Nosal, M.D., Class of 2004, who knew from an early age that she wanted to be a physician and work with an underserved population. The year she was applying to medical schools was the very year ECHO was established. “When I found out I got into Einstein, I dropped my other applications,” she recalls. “I said, ‘I have to go there.’”

Dr. Nosal went to Einstein and joined ECHO; she has maintained the connection ever since. She now plays an integral role in the running of the clinic, as well as serving as vice president for innovation and optimization at the Institute for Family Health.

Dr. Nosal seconds her colleague’s sentiment that students gain something



Second-year medical student Lawrence Li and fourth-year medical student Delia Shen, both ECHO coordinators, review imaging results with Dr. Sarah Nosal, center.

from ECHO they're unlikely to get elsewhere. "Doing some of the administrative tasks around the clinic, like working the front desk, helps them appreciate those roles and how important they are," she says. "There's just no place to teach that in the typical medical school curriculum."

## OUTSIDE THE CLINIC

Lisa Kremen, Class of 2021, recently finished a stint as ECHO's community education coordinator.

"ECHO has been eye-opening for me, and it reinforced my desire to work in an underserved community," says Ms. Kremen, who hopes to pursue a career in psychiatry. "You learn about people's frustrations. For example, you see how hard it is for them to talk about mental health issues like depression, especially among people from different cultures."

Mr. Shah, the fourth-year student, hopes to become an ear, nose, and throat specialist. Like many first-years, he started at ECHO's front desk and rose through the ranks to his position on the clinical board, which recruits, trains, and schedules volunteers. "I've spent hundreds of hours at ECHO," he says. "I've learned a tremendous amount, and it's one of the things I'm proudest of. We get to see the very direct impact we have on the lives of our patients."

Dr. Cortijo agrees. "Sometimes I get up on a Saturday after working all week, and I don't feel like going in," she says. "But then I get there and am so happy, so energized. It's a rejuvenating experience, a joyful experience. I think many of my colleagues feel the same way." **E**



### WATCH THE VIDEO

See Einstein students at work:  
[magazine.einstein.yu.edu/ECHO19](http://magazine.einstein.yu.edu/ECHO19)



Dr. Dan Kelly, during his final year in medical school, with three patients who had amputations and were living at the Wardu resettlement community in Kono District, Sierra Leone, Africa.

## A CLINIC IN AFRICA WITH ROOTS IN THE BRONX

Dan Kelly, M.D., Class of 2008, says a major reason he chose Einstein after graduating from Princeton University was the opportunity to work in the ECHO clinic. "I was so excited that I even started at ECHO several weeks before medical school began," he says.

Two years before he graduated, Dr. Kelly cofounded a medical clinic for the poor in Sierra Leone, Africa, with a local doctor there. The clinic, which has since been integrated into Partners in Health–Sierra Leone, currently sees 250 to 300 patients a day, Dr. Kelly says.

"Without ECHO I don't think I'd have been able to start a clinic from scratch," he says. "In medical school you're taught how to take care of patients, but you don't learn about the operational and administrative details that are needed to create the physician experience—how to set up the environment, how to organize patient records, all of those different pieces."

Today Dr. Kelly is an infectious-disease specialist and epidemiologist at the University of California, San Francisco. His work focuses on ways to improve Ebola prevention and care, primarily in Sierra Leone and Liberia but also the Democratic Republic of the Congo.

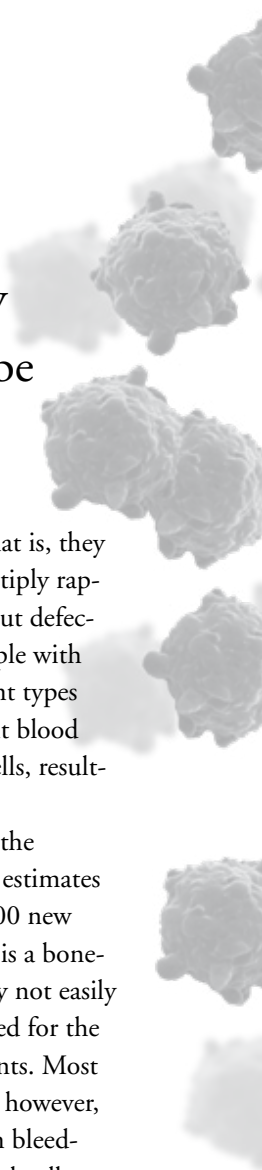
"ECHO was a great experience for me—and not just for the practical skills I picked up," he says. "I think it's important for medical students to get a broader view of their potential role in the world, what social justice is, why healthcare should be a human right."



# COLLABORATING TO CURE CANCERS

Einstein scientists raise hopes for treating  
bone-marrow and blood diseases

BY GARY GOLDENBERG



**T**he names “Verma and Steidl” don’t roll off the tongue the way “Brady and Belichick” and “Bert and Ernie” do. But it would be hard to imagine a more productive research duo.

That’s because over the past decade, longtime Einstein colleagues Amit Verma, M.B.B.S., and Ulrich Steidl, M.D., Ph.D., have coauthored several dozen peer-reviewed papers, adding immensely to the understanding of two closely intertwined diseases: myelodysplastic syndromes (MDS) and acute myeloid leukemia (AML). (For more about these conditions, see page 37.) Drs. Verma and Steidl were among the first researchers to demonstrate that MDS, a common precursor of AML, arises from wayward bone-marrow stem cells; the pair’s findings have raised hopes for treating or preventing both diseases.

#### COMPLEMENTARY SKILL SETS

The researchers began their journeys to Einstein from vastly different parts of the world. Dr. Verma studied medicine at the All-India Institute of Medical Sciences in New Delhi and then relocated to the United States for postgraduate training at the University of Illinois at Chicago Medical School, ultimately focusing his research and clinical practice on MDS. Around the same time, Dr. Steidl studied medicine at the University of Heidelberg in Germany and then cell and tumor biology at the German Cancer Research

Center in Heidelberg before pursuing postdoctoral studies at Harvard Medical School, with a focus on AML.

Dr. Verma arrived at Einstein in 2007, followed by Dr. Steidl the next year. “We met right after I joined the faculty and discovered very quickly that we had complementary skills,” says Dr. Steidl, who is now a professor of cell biology and of medicine, the Diane and Arthur B. Belfer Faculty Scholar in Cancer Research at Einstein, and the associate chair for translational research in oncology at Montefiore. “My work is more lab-based; his is more translational, with a clinical component. I was looking for a partner who could help bring my laboratory findings to the clinic.”

In Dr. Steidl, Dr. Verma found someone with expertise in cell sorting, cell identification, and animal models of myeloid diseases (i.e., those pertaining to bone marrow). “He provided a perfect counterpart to my lab’s expertise in deciphering cell-signaling and epigenetic pathways and studies of clinical samples,” says Dr. Verma, professor of medicine and of developmental and molecular biology at Einstein and director of hemato-oncology at Montefiore. The pair soon began to collaborate on MDS and AML research.

#### CANCERS THAT CAN OVERLAP

MDS, a cancer of the bone marrow, occurs when blood-forming cells called

“blasts” become dysplastic (that is, they develop abnormally) and multiply rapidly. Abnormal blasts churn out defective blood cells and leave people with too few normal ones. Different types of MDS can decrease different blood cells—most commonly red cells, resulting in anemia.

The incidence of MDS in the United States is unclear, with estimates ranging from 10,000 to 40,000 new cases annually. The only cure is a bone-marrow transplant—a therapy not easily tolerated and therefore reserved for the youngest, most resilient patients. Most people diagnosed with MDS, however, are elderly. Deaths result from bleeding, infection due to low blood-cell counts—and from MDS progressing to AML, which occurs in about one-third of MDS patients. (This is why MDS was once described as a “pre-malignant” condition but is now generally regarded as a form of cancer.)

AML is an aggressive and usually fatal blood cancer that begins in the bone marrow. It afflicts about 21,000 Americans each year and is diagnosed when massive numbers of defective blast cells are detected in the bone marrow and blood. As is true for MDS, AML usually can be cured only with a bone-marrow transplant and mainly affects older people. Just 28% of AML patients survive for five or more years after diagnosis.

At left, an abnormal blast cell (shown in purple) produces defective blood cells (shown in blue), leading to myelodysplastic syndromes.

## COLLABORATING TO CURE CANCERS



Research collaborators Dr. Amit Verma, left, and Dr. Ulrich Steidl at work in the lab.

### SEEKING THE CAUSE OF MDS

By 2008, when Drs. Verma and Steidl began collaborating, studies had shown that AML arises from defective hematopoietic (blood-forming) stem cells, the bone-marrow cells that develop into blasts and, ultimately, all the blood's cell types. By contrast, cases of MDS were thought to begin later in blood-cell development, when blood-progenitor cells became dysplastic and could no longer produce fully mature red cells, white cells, and platelets, instead producing an excess of malignant blast cells. These defective blasts were the target of MDS treatments.

"An MDS therapy was viewed as a

success if it significantly reduced the blast count," Dr. Verma says. "This approach was effective at improving symptoms in many patients, even putting some into remission. But invariably, the disease would come back." Targeting the blasts, says Dr. Steidl, "is like mowing dandelions in your lawn. That will get rid of them, but they'll always regrow unless you get to the root of the weed."

So what is the actual cause of MDS? Relying on animal evidence, Drs. Verma and Steidl, along with a few other scientists, suspected that MDS—like AML—originated from defective hematopoietic stem cells.

"It was hard to get our MDS research

**Targeting the blasts  
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lawn. They'll always  
regrow unless you  
get to the root of  
the weed."**

— DR. ULRICH STEIDL

funded,” Dr. Steidl adds. “Grant reviewers would comment: ‘The problem in MDS is clearly the blasts and dysplastic cells. Why waste your time studying these tiny, barely detectable populations of hematopoietic stem cells?’”

But the Einstein researchers persisted. In a seminal study published in 2012 in the journal *Blood*, they analyzed bone-marrow stem cells and their slightly more differentiated progeny (progenitor cells) from 17 patients with various types of MDS and 16 healthy controls. Genome-wide analysis revealed widespread genetic and epigenetic alterations in stem cells from MDS patients, but not in stem cells taken from healthy controls. Those same gene alterations were also found in patients’ blasts, which evolve from stem cells.

“Equally important,” Dr. Verma says, “we found that abnormal stem cells persist in the bone marrow even after standard chemotherapy for MDS. So although the patient may be in remission, those stem cells resist chemotherapy and the disease will inevitably return. Our findings made it clear that we needed to wipe out the abnormal stem cells to improve cure rates.”

## A NEW GENERATION OF THERAPIES

Since publishing their initial paper, Drs. Verma and Steidl have sought ways to disable abnormal stem cells in patients with MDS and AML. Thus far they’ve found a half-dozen vulnerabilities in such stem cells, and experimental drugs targeting them are now in clinical trials.

A key recent contribution involves ALRN-6924, the first of a novel class of drugs called stapled peptides (small chains of amino acids with helical structures that are stabilized

using hydrocarbon “staples”). Aileron Therapeutics developed ALRN-6924 to reactivate the *p53* tumor-suppressor gene, which prevents impaired or cancerous cells from multiplying.

The *p53* gene is inactivated in virtually all cancers and in the mutated stem cells that develop into AML, so reactivating *p53* might be expected to stop tumor cells in their tracks. But so far, no stapled-peptide drug has advanced to clinical trials—until now.

In a novel approach, Aileron scientists designed ALRN-6924 to reactivate *p53* indirectly by simultaneously inhibiting two proteins, MDMX and MDM2, that are overexpressed in cancer and act together to suppress key *p53* functions. The company then turned to Drs. Verma and Steidl to test the drug’s effectiveness in preclinical models of AML and to learn more about its mechanism of action.

The Einstein researchers found that ALRN-6924 had a profound impact on AML, tripling the median survival time in an animal model of human AML (mice transplanted with human leukemia cells) from 50 to about 150 days.

“This is a very striking response,” Dr. Steidl says. “Most experimental drugs for leukemia achieve an increase in survival of only a few days in these preclinical models. More important, ALRN-6924 effectively cured about 40% of the treated mice, meaning they were disease-free more than one year after treatment—essentially a lifetime for a mouse.”

The researchers confirmed that ALRN-6924 targets both MDMX and MDM2, blocking their interaction with *p53* in AML cells. That effect was seen in both immature and mature AML cells. Furthermore, those same molecular

**“Our findings made it clear that we needed to wipe out the abnormal stem cells to improve cure rates.”**

— DR. AMIT VERMA

## COLLABORATING TO CURE CANCERS

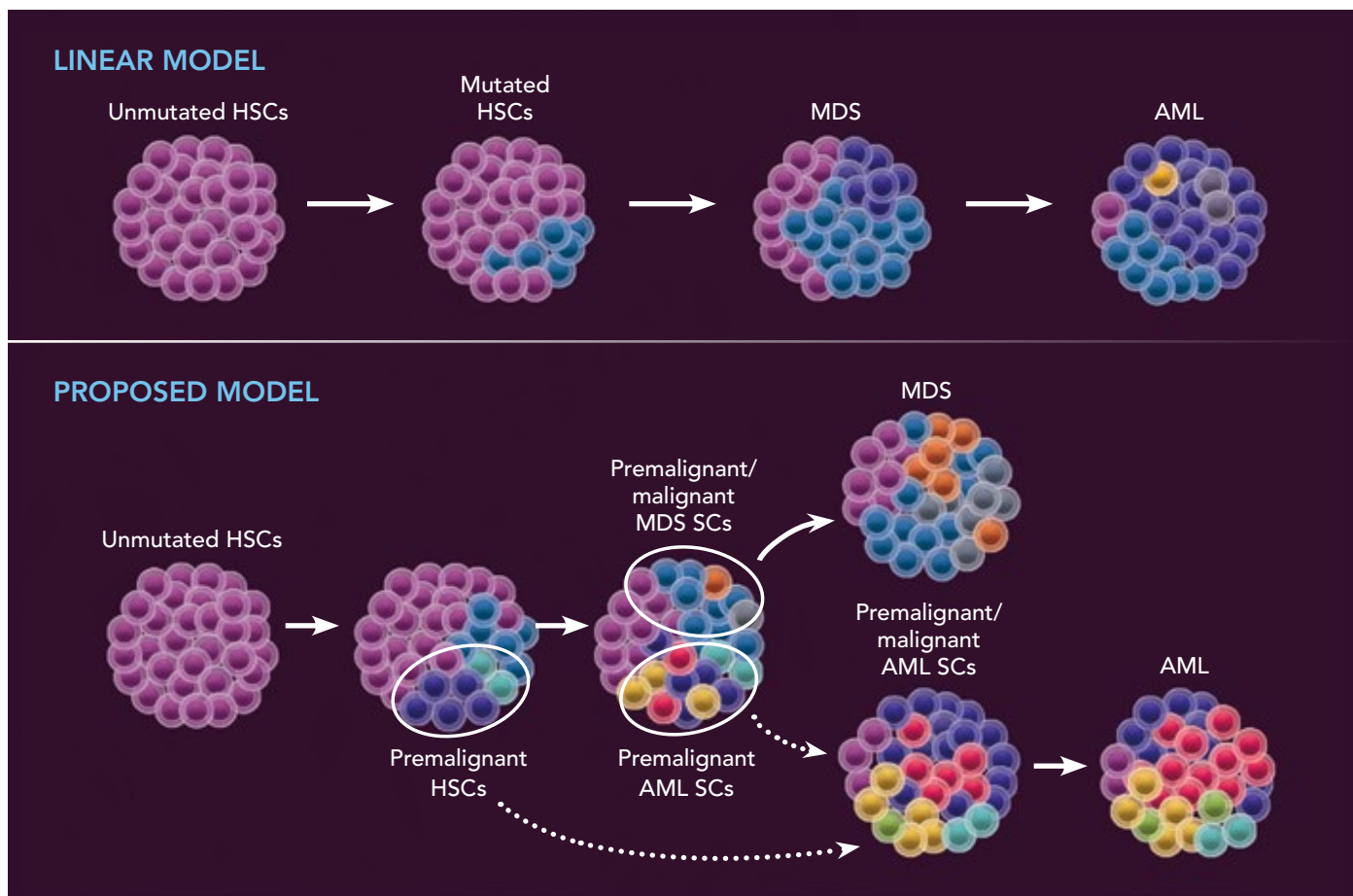


Illustration by Tatyana Starkova Harris. Adapted from Nature Medicine.

### Why do one-third of MDS patients eventually develop AML?

The standard linear model (at top) proposes that hematopoietic stem cells (HSCs) accumulate additional mutations that ultimately cause MDS to evolve into AML. But after conducting single-cell genomic sequencing of stem cells (SCs) from seven patients with MDS who later developed AML, Drs. Verma and Steidl created a model (above) positing that MDS and AML are actually separate diseases that evolve from different aberrant stem-cell subclones,

i.e., cell groups that descend from a single mutated cell very early in disease development. MDS (which, for unknown reasons, often precedes AML) evolves from premalignant/malignant MDS stem cell subclones; AML independently evolves from aberrant stem-cell subclones that differ from those that led to MDS and that may have been present for many years before MDS or AML develops. Dotted lines indicate uncertainty regarding exactly when one stem-cell type progressed to another in some patients.

changes were observed in blood cells of an AML patient who was given the drug on a compassionate-use basis.

“This test was not designed to assess the efficacy of the drug in humans—that has to be done in a proper clinical trial,” Dr. Steidl says. “Our goal was to determine whether it can hit the desired target in human cells in a clinical setting, which it did in this individual.”

The ALRN-6924 findings, reported in *Science Translational Medicine* in 2018,

have led to a phase 1/phase 2 clinical trial for patients with advanced AML or MDS, now underway at Montefiore and three other centers. Dr. Verma is leading Montefiore’s portion of the trial. He directs Montefiore’s MDS Center, which offers a variety of treatments and clinical trials for patients with the disease and is recognized as a national “center of excellence” by the MDS Foundation.

Earlier this year, Drs. Verma and Steidl tackled another vexing question:

What causes one-third of MDS cases to progress to the usually fatal AML?

In research published in *Nature Medicine* in 2019, they and their colleagues carried out single-cell genomic sequencing of stem cells and blast cells from seven patients with MDS that progressed to AML.

“The old linear model—MDS blast cells accumulate increasing numbers of mutations, which ultimately lead to AML—didn’t hold up,” Dr. Steidl says.

“Instead, we found that the progression from MDS to AML begins earlier, with a diverse spectrum of mutations in hematopoietic stem cells. A defective stem cell will evolve into MDS, but it is not those MDS cells that develop into AML. Rather, other aberrant stem cells—ones that arise from different defective stem-cell ‘subclones’—acquire additional mutations that ultimately lead to AML. So to prevent MDS from evolving into AML, we need to focus our efforts on detecting and targeting those early aberrant stem cells.” (See illustration on page 36.)

## ONCE AND FUTURE COLLEAGUES

For the first time in their careers, Drs. Verma and Steidl are optimistic that better therapies for MDS and AML—ones that target stem cells—are close at hand. “The survival rates for MDS and AML have not improved for the last half-century, and nobody understood why,” Dr. Steidl says. “Now we know it’s because we weren’t focusing on the right cells. It makes me very hopeful.”

They expect to continue their partnership. “We’re very good friends,” says Dr. Verma about his colleague. “Uli’s a great guy, very sharp, with the ability to solve complex problems logically. Beyond that, we have built the research infrastructure for our work. Science is so much more complex these days. It’s tough for one lab to have mastery of every possible technique.”

Adds Dr. Steidl: “I don’t think we’ve ever had an argument about our research. We try to take our egos out of the equations as much as we can. I feel very fortunate to have such a great collaborator. It was luck that we connected and clicked.” [E](#)

## THE ABCS OF MDS AND AML

**T**he myelodysplastic syndromes (MDS) are a diverse group of disorders in which mutated hematopoietic stem cells result in the formation of vast quantities of defective red blood cells, white blood cells, and platelets. In most cases, the cause of these mutations is not known. People at elevated risk for developing MDS are smokers or have been exposed to cancer therapies (such as chemotherapy and radiation), toxic chemicals, or heavy metals—all of which can damage DNA.

Patients with MDS are typically treated with specialized chemotherapies to reduce the number of blood-forming cells called “blasts,” plus symptom management and supportive care, such as blood transfusions. Treatment puts some patients into remission, sometimes for years, but the disease almost always returns. Survival varies widely depending on the disease type; it ranges from nine months for those with very high-risk MDS to 8.8 years for those with very low-risk disease.

Although one-third of MDS patients eventually develop acute myeloid leukemia (AML), the majority of AML cases arise without being preceded by MDS. AML shares many symptoms with MDS, including fatigue, shortness of breath, pale skin, susceptibility to infections, and frequent nosebleeds.

Treatment for AML depends on the stage and subtype of the disease, but usually includes chemotherapy, symptom management, and palliative care. Survival is heavily age dependent: For people diagnosed before age 20, the five-year survival rate is 67%; for those 20 and older, it’s only 24%.

### AML AT A GLANCE

**21,450**  
estimated new  
cases in 2019

**1.2%**  
of all new  
cancer cases

**10,920**  
estimated  
deaths in 2019

**1.8%**  
of all cancer  
deaths

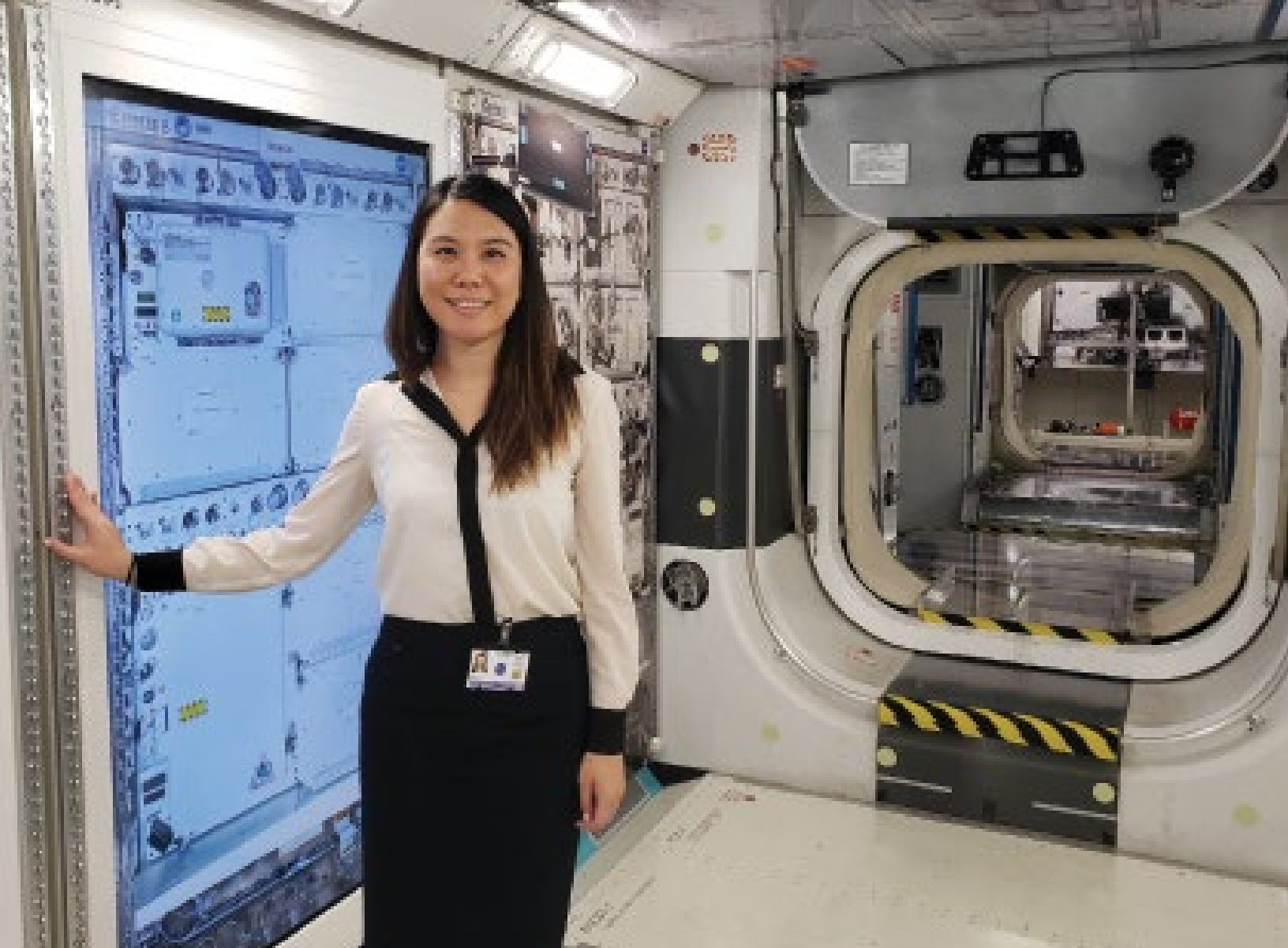
Percent Surviving 5 Years

**28.3%**

Median Age at Diagnosis

**68 years**

SOURCE: NATIONAL CANCER INSTITUTE



# AN OUT-OF-THIS-WORLD CLERKSHIP

NASA program gives an Einstein student  
a glimpse of space medicine

BY MANDY WALKER

**D**eciding on a patient's treatment can be challenging. Imagine how much more complicated that would be if your patient were in a spacecraft more than 200 miles above the Earth.

That's just part of the job description of a NASA flight surgeon. These specialists care for NASA astronauts before, during, and after their time in space. They oversee the astronauts' fitness training and manage their various physiological responses to their flights.

Jennifer Ma, M.D., who graduated from Einstein in May, was part of a select group that experienced the life of a flight surgeon during her month in NASA's Aerospace Medicine Clerkship program at the Johnson Space Center in Houston, Texas, last fall.

Dr. Ma had worked in the radiation biology lab of Simon Powell, M.D., Ph.D., at Memorial Sloan Kettering Cancer Center in New York City for

two years while at Einstein. She became interested in the clerkship when she learned that one of NASA's research priorities is the study of radiation risk for astronauts. "I realized the program might give me a new perspective on radiation," she says.

Dr. Ma was one of only 18 people accepted into the four-week program. Like the other participants, she was assigned a group research project. But she was one of just a few clerks given two mentors: Johnny Conkin, Ph.D., an environmental physiologist, and Joseph Dervay, M.D., a flight surgeon and the leader of the medical operations group.

### FIRST AID FOR SPACE TRAVEL

Her group's challenge: To create an augmented first-aid kit for an upcoming flight-simulation experiment in which eight people—two medical staff members and six volunteers—will live inside a three-story, 20-foot-tall chamber at the

**"I realized the program might give me a new perspective on radiation."**

— DR. JENNIFER MA

Johnson Space Center for 11 days. The first-aid kit must address any conditions that the crew members might face during their space mission, which is set for the first quarter of 2020.

"We wanted to include medications for many common ailments, such as infections or allergic reactions, in order to ensure that the experiment wouldn't end prematurely because of a minor medical issue that worsened during the study," Dr. Ma says. Other necessities included medications for insomnia and an upset stomach as well as supplies such as gauze, tourniquets, and bandages to treat minor trauma.

"They won't be doing anything considered dangerous, but there is a narrow metal staircase that someone could trip on, and low ceilings where they might hit their head," Dr. Ma says. The two medical staff members on board will be able to administer any needed treatments.

The chamber will undergo pressure changes at six-hour intervals throughout the experiment to simulate an astronaut's potential schedule of extravehicular activities while in space, so Dr. Ma

Opposite page: Dr. Jennifer Ma stands outside a flight simulation chamber at the Johnson Space Center in Houston, Texas. At left, she sits at the mission control center with NASA flight surgeon William Tarver, M.D., where she was able to listen to live communications with astronauts on the International Space Station.



## AN OUT-OF-THIS-WORLD CLERKSHIP



**“They obtain blood samples from astronauts before, during, and after space flights, and they analyze those samples, looking for changes.”**

— DR. JENNIFER MA

also had to factor that in when considering which medications to bring on board.

“We were concerned that anything in blister packs might burst after frequent pressure changes, so we put those medications in bottles,” she says. “And we had to check with a pharmacist about whether the liquid medications would still be stable after repeated pressure changes.”

### SPACE EDUCATION

Not all of her time at the Johnson Space Center was spent working on her project. “Most days we heard lectures or toured different parts of the facility, which was a ton of fun,” she says. Lecture topics included space physiology, environmental health, exercise physiology, space nutrition, an in-depth look at the International Space Station, and Mars mission scenarios.

“We also learned about spaceflight-associated neuro-ocular syndrome, or

Above left, Dr. Jennifer Ma sits at the controls of the NASA Orion spacecraft training mockup with a fellow clerkship team member. Above right, she runs on a NASA treadmill wearing a special weighted vest that serves as a countermeasure for muscle and bone loss while in orbit.

SANS,” Dr. Ma explains. While fluids in the body are pulled downward by gravity here on Earth, they can shift in a person’s skull during space travel and affect an astronaut’s vision. SANS is thought to be caused by this increased pressure in the head and especially in the eye area during and after long flights in space.

Radiation exposure is also a major concern. “Astronauts are exposed to a chronic low level of radiation while in space, which NASA can attempt to offset with shielding,” Dr. Ma says. But there are also unpredictable solar storms, which can expose astronauts to high radiation levels. “Traveling to Mars takes

a long time, so you have a higher risk of radiation exposure overall,” she says.

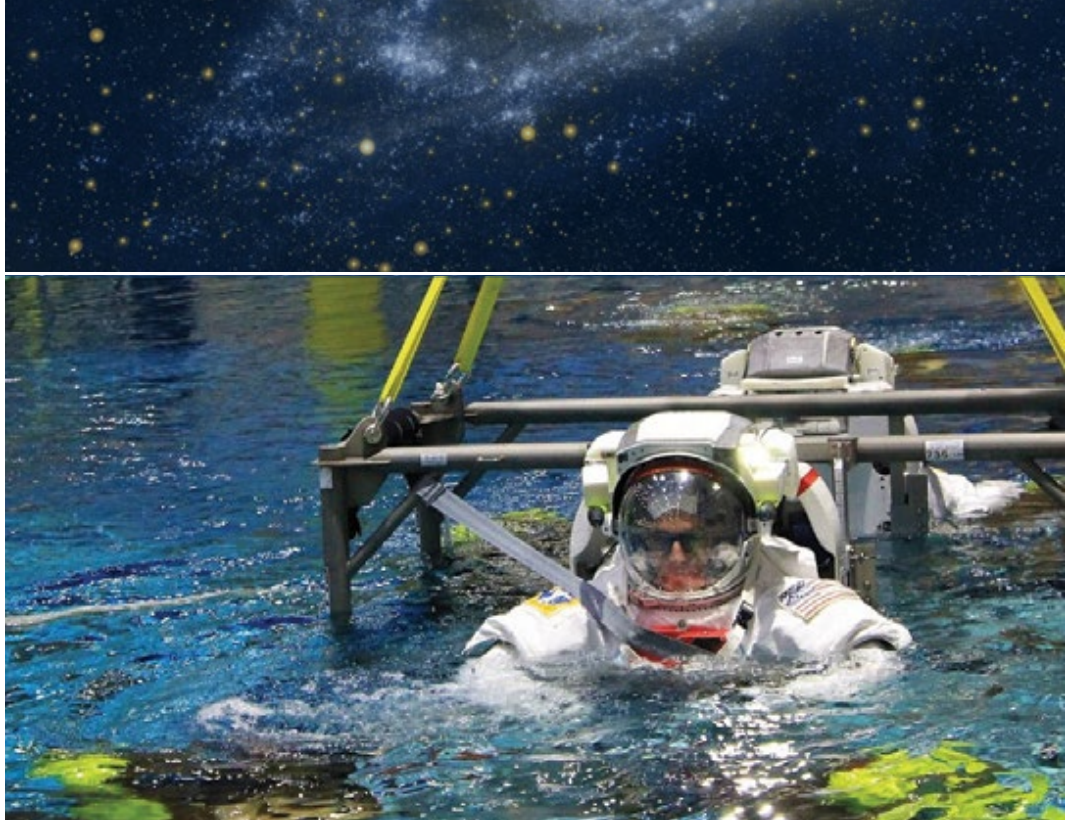
Because of her keen interest in the topic, Dr. Ma asked for a closer look at the radiation biology lab at the Johnson Space Center. She not only was granted a tour, but also got to talk to the head of the lab, Honglu Wu, Ph.D., about the lab team’s current research and the clinical data it collects. “They obtain blood samples from astronauts before, during, and after space flights, and they analyze those samples, looking for changes.”

## NEXT STEPS

At the end of the four weeks, each clerkship group created a scientific poster that summarized its results. “I presented them to everyone at the space center who was interested, and we got to meet everyone’s mentors plus many of the other NASA staff in a wide spectrum of departments,” Dr. Ma says.

She had the chance to reunite with many of her NASA clerkship colleagues last May when her abstract had been accepted for poster presentation at the 2019 annual meeting of the Aerospace Medical Association in Las Vegas. There she was awarded the Stanley R. Mohler, M.D., Aerospace Medicine Endowed Scholarship, worth \$750 and intended to fund research activities.

Dr. Ma matched at her top residency choice, Memorial Sloan Kettering, for radiation oncology. She is completing her transitional year now at Presence Saint Francis in the Chicago area. Dr. Ma calls the NASA clerkship one of the highlights of her time in medical school. “I never thought I’d have the opportunity to do half of the things I did,” she says. “I’ve made great friends and hope to continue collaborating on research projects.” **E**



## HANGING OUT WITH ASTRONAUTS

A NASA clerkship has its perks: The 18 students in the fall session were invited onboard a life-size version of the International Space Station on site at the Johnson Space Center called the Space Vehicle Mockup Facility (SVMF). They were also invited to visit the Sonny Carter Training Facility, which houses the Neutral Buoyancy Laboratory, where they watched astronauts (above) conduct underwater maneuvers.

During their visit to the SVMF, “we got lucky and bumped into an Italian astronaut and engineer, Luca Parmitano. He lived on the space station and was giving a tour to two of his friends,” says Jennifer Ma, M.D., ‘19. “He invited us to join his tour, too, so instead of having a guide who said, ‘This is this module and what it does,’ he shared more personal details, like ‘This is where I would hang out,’ and ‘I don’t like this area because sometimes it gets smelly.’”

Dr. Ma’s tour group was again in luck during its visit to the Neutral Buoyancy Laboratory, which prepares astronauts for space walks. “It’s basically a giant indoor pool that’s large enough to house a version of the International Space Station surrounded by 6.2 million gallons of water,” Dr. Ma says. They arrived just as an astronaut training session was starting, so they witnessed two astronauts don their space suits, get hooked up to oxygen, and be lowered into the pool. Then they watched the astronauts on video screens carrying out simulations of extravehicular activities, which are excursions performed outside a spacecraft.



### WATCH THE VIDEO

See an astronaut train for a space walk in NASA’s Neutral Buoyancy Laboratory: [magazine.einstein.yu.edu/NASA19](https://magazine.einstein.yu.edu/NASA19)

# PASSIONATE PURSUITS



A cyclist with a prosthetic leg checks out a race in Harlem's Marcus Garvey Park. Einstein Ph.D. student Wouter Hoogenboom snapped this photo last year, which won third place in an international photography competition focused on road cycling.

## Snapshots From the Bike Lane

BY WAYNE COFFEY

**T**he Dutch city of Leiden is known for its tulips, for its canals, and for being Rembrandt's birthplace. It's where Wouter (VOW-ter) Hoogenboom grew up, riding his bicycle everywhere, as is the local custom. He and his friends would create their own flower-laden Tour de France courses, pretending viaducts were French Alps and traffic signs were finish lines, each of them dreaming of cycling glory. "In the Netherlands, everybody has a bike," he says. "You go to school with a bike. You go grocery shopping with a bike. It's a way of life."

Here in the United States, Mr. Hoogenboom, age 38, is a competitive cyclist who powers through four-hour training rides. He is also an award-winning photographer, a medical researcher specializing in sports-related concussions, a husband and the father of two boys, and—since 2013—a Ph.D. candidate at Einstein, working in the lab of Michael Lipton, M.D., Ph.D., professor of radiology and of psychiatry and behavioral sciences at Einstein and medical director of MRI Services at Montefiore.

"Wouter has a thoughtful, quiet, powerful way about him, and is very assiduous in figuring out what needs



Clockwise from top: Cyclists whirl around a bend in the 14-mile Bear Mountain Classic at Harriman State Park in New York; Wouter Hoogenboom speeds ahead during a race; and a cyclist hoists his bike over a barrier at a cyclocross competition.

to be done and how to get it done,” Dr. Lipton says.

## COMMITTED TO CYCLING

After getting his undergraduate degree in psychology in Holland, Mr. Hoogenboom pursued his master’s in neuropsychology, finishing up with an internship at Harvard Medical School. He brought his bike with him to the United States and began to race competitively, up to 200 miles a week. The racing continued when he relocated to Einstein to study under Dr. Lipton.

On his long training rides, he typically bikes across the George

Washington Bridge into New Jersey and heads north along the west bank of the Hudson River, covering up to 70 miles round trip. The rides are grueling physical tests, and Mr. Hoogenboom savors them.

“The best parts about cycling are being outdoors, exploring new roads, and escaping busy city life,” Mr. Hoogenboom says. “There is a great feeling of camaraderie when you are on a long ride with others. It’s also a great feeling when you’ve completed the ride. Frankly, it’s a true addiction—a healthy one.”

Mr. Hoogenboom’s bike rides, alas,

**“There is a great feeling of camaraderie when you are on a long ride with others. ... It’s a true addiction—a healthy one.”**

— WOUTER HOOGENBOOM

have also been accompanied by injuries. A nasty fall triggered persistent back pain, forcing him to take a break from competitive cycling. Eager to stay connected to his team during his recuperation, Mr. Hoogenboom began to take photos. He wound up winning several awards in a competition that honors the best cycling photography around the world. These pages include some of his more-recent photos.

## TEAM PLAYER

Celine Hoogenboom’s favorite image of her husband, though, has nothing to do with a camera lens. Several years ago, Mr. Hoogenboom and a teammate were riding through Manhattan at 5 a.m., bound for the next segment of a tight race at Brooklyn’s Prospect Park. But on the ride to Brooklyn, the teammate’s bike broke. Without hesitation, Mr. Hoogenboom said, “Take my bike. You are the leader. Finish strong.”

His grateful teammate rode off. Mr. Hoogenboom, who had been in second place in the uphill sprints category, took the subway to Prospect Park with the broken bike. His teammate rode superbly and won.

“Part of cycling is sacrificing yourself for the good of the team,” Mrs. Hoogenboom says. “That’s just how Wouter works.” **E**

# EINSTEIN EDITIONS

## A Better Way to Approach Dementia

Tia Powell, M.D.

*Director of the Montefiore Einstein Center for Bioethics, the Dr. Shoshanah Trachtenberg Frackman Faculty Scholar in Biomedical Ethics, and professor of epidemiology & population health and of psychiatry and behavioral sciences at Einstein.*



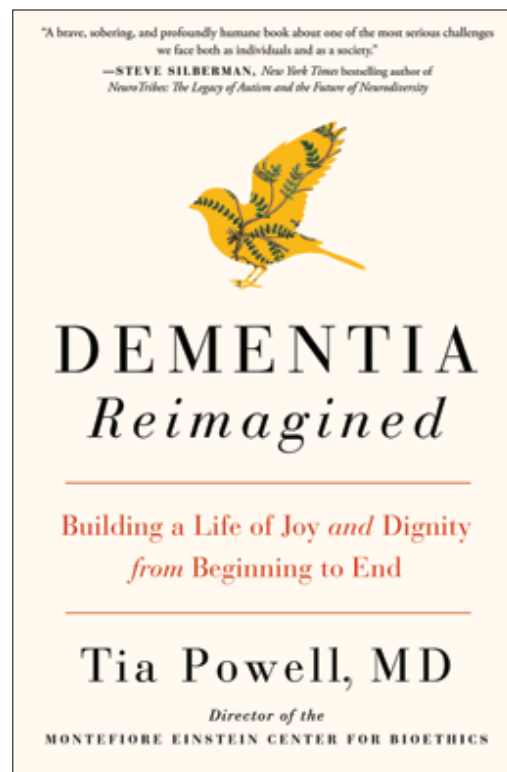
**D**ementia has, over the ages, been hard to pin down. From the Latin *demens*, “out of one’s mind,” the word *dementia* was historically used loosely, lumped in with a broad range of mental illnesses. Losing the ability to feed and dress oneself was often chalked up to madness, possibly caused by demonic possession

and often treated with punishment.

Author Tia Powell, M.D., writes in *Dementia Reimagined* that when she was a medical student in the 1980s, dementia was finally recognized as a neurocognitive disorder, but still wasn’t a priority in the healthcare community. Dementia mainly happened to very old people, and no treatments existed. Why devote resources to a relatively rare condition that affected those who had just a few years left to live?

While a cure still eludes us, that dismissive attitude toward dementia has changed in recent decades, Dr. Powell notes. Americans are now living longer—and when they reach age 85, their chance of having dementia approaches 40%, according to a 2019 report from the Alzheimer’s Association. The condition now affects more than 5 million Americans, and that number will rise as baby boomers grow older.

Dr. Powell notes in her book that dementia is hard for both the person with the illness and his or her caregivers, as patients lose their ability to walk, talk, and even swallow. Dementia is expensive, too, and consumes an impressive share



Courtesy of Penguin Random House

of the Medicare budget. Nonetheless, the main message of the book is that dementia can and should be less frightening to people than it is today. With better understanding, planning, care, and policies, we can ease the aspects of dementia that are scary for everyone involved, she explains.

Dr. Powell was motivated in part to write *Dementia Reimagined* because of the experiences of her grandmother and mother, and she explores the disease in depth. Chapters are devoted to the politics and economics of dementia and to scientific research on the disorder. For families who are touched by this fatal disease, the book offers guidance on caregiving, whether the patient remains at home or goes to an assisted-living facility. Dr. Powell emphasizes the necessity of planning and of making the patient’s wishes known, to limit the financial and emotional burdens in the final few years of the disease.

*Dementia Reimagined* concludes by helping readers plan for a good death, with the author outlining just what she’d like for hers. She notes that shifting the balance from curative care to palliative care can make all the difference. “Keep me comfortable,” she asks. “And don’t stand between me and the exit.”

PUBLISHED BY: **Avery, an imprint of Penguin Random House, 2019**

# The African American Experience

Arnold Birenbaum, Ph.D.

*Professor emeritus in the department of pediatrics at Einstein, co-author of Norms and Human Behavior, and co-editor of Social Problems: Private Troubles and Public Issues and People in Places: The Sociology of the Familiar.*



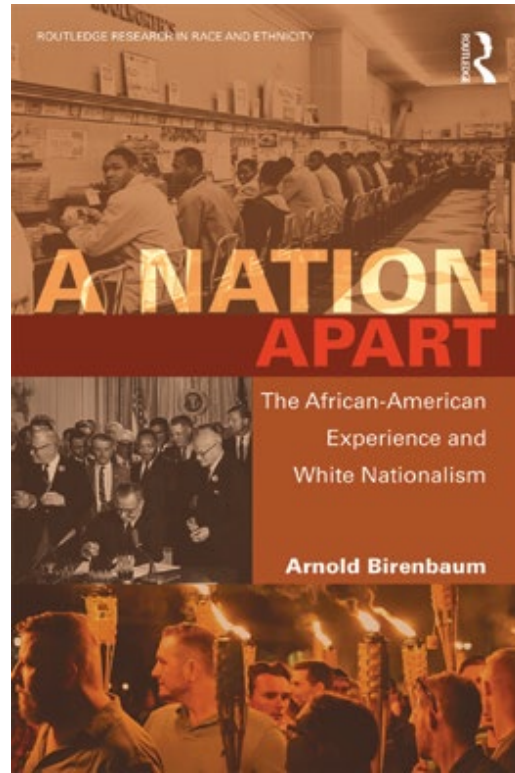
Race relations in America have never been an easy topic to discuss. By carefully examining historical evidence going back to the 18th century, author Arnold Birenbaum, Ph.D., sheds light on the lives of African Americans in the 21st century and their continuing struggle for social justice.

Dr. Birenbaum uses that historical evidence to help answer key questions now confronting the country: Why are African Americans disproportionately impoverished in the United States? Are government policies to blame? And what about healthcare, housing, and the justice system? Why are resources distributed so unequally in those areas? And can all of this be reversed?

Different aspects of the African American experience have converged to create today's racial divides, Dr. Birenbaum notes. A chief culprit is geographically segregated communities, which he likens to the relationship that exists between a colony and its mother country, where the institutions of society are rigged against the colonists—except the “colonists” live right in the American homeland.

*A Nation Apart* also discusses the systematic undoing of civil rights and federal support for African Americans after the Civil War, tracing these injustices from Reconstruction to Jim Crow laws to separate-but-equal policies.

Northern states after the war also encouraged racial division. Immigrants just off the boat were told to avoid intimate contact with people of color, implying that interracial relationships were dangerous. European immigrants were taught



Courtesy of Routledge Books

to treat African Americans in a way that established distance and reaffirmed Europeans' feelings of privilege.

Moving into the 20th century, the book delves into the rise of white nationalism as the United States evolved from a largely agrarian society to an industrial one—and addresses the accompanying civil rights movement, which threatened the white power structure.

Dr. Birenbaum offers solutions to what's standing in the way of social justice for African Americans, including closing the gap in health services, increasing income and reducing wealth inequality, challenging educational disparities, making housing more affordable and stable, enhancing the urban environment, reforming criminal justice, protecting voter rights by ending voter suppression, and reconsidering the case for reparations for the descendants of slaves.

Filled with annotated research and well-crafted arguments, Dr. Birenbaum's study of America's racial injustices promises to inform and inspire. But, as he notes, there's a great deal of work that remains to be done. **E**

PUBLISHED BY: [Routledge, an imprint of the Taylor & Francis Group](#), 2019

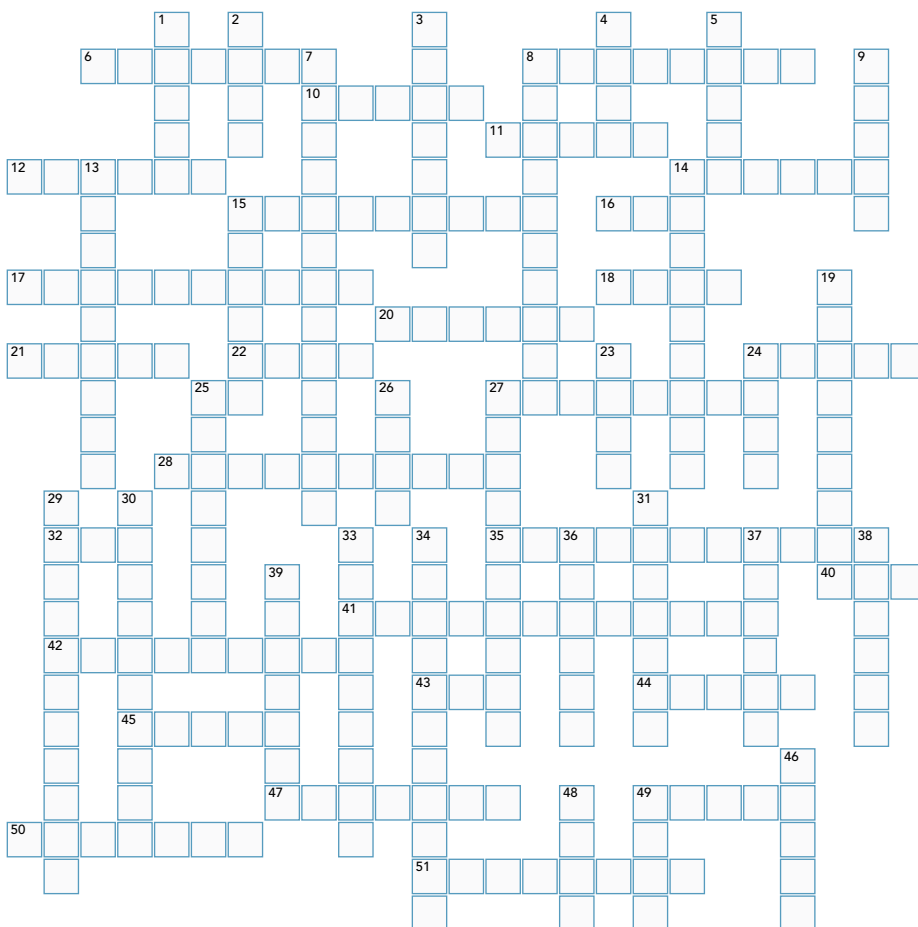
# ALBERT'S PUZZLER

BY DEIRDRE BRANLEY

## Adventures in the Bronx

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# MOTIVATIONS

The Front Line of Philanthropy at Einstein and Montefiore



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## MOTIVATIONS

A Message From the Chair of the Development Committee  
Montefiore Medicine Board of Trustees

# MELISSA CERIALE



Two years ago, the Montefiore School Health Program (MSHP) team identified a problem. Their founding vision of integrating comprehensive health services into every public school setting in the Bronx was well underway—but they were outgrowing their infrastructure. MSHP found a partner in the Jeffrey H. and Shari L. Aronson Family Foundation.

The Aronson Family Foundation provided funding for initiatives such as hiring qualified staff, expanding our school-based health clinic network, propelling enrollment rates, and guiding long-term sustainability. Today, Rosy Chhabra, Psy.D., is leading MSHP to become a model for school health nationwide (page 52).

Identifying and solving problems is a trend across Montefiore and Einstein. Harvey Karp, M.D. '75, came up with an ingenious solution to reduce the rate of sudden infant death syndrome, fueled by the compassionate learning he experienced while at Einstein (page 49). My fellow trustee David B. Keidan partnered with Emad Eskandar, M.D., to support innovations in neurological surgery across Montefiore and Einstein (page 60). When you walk across our campuses, read our publications, and speak with our students, faculty, and clinicians, you will see such problems—and solutions!—at every corner.

As chair of the development committee within the Montefiore Medicine Board of Trustees, I hope to inspire problem-solving through philanthropy. From giving Einstein students opportunity through scholarships to fueling life-changing research to combating social issues in our community and around the world, every contribution—of dollars, of mentorship, of research, of clinical commitment—supports a solution. Montefiore and Einstein model what it means to be thoughtful stewards of such investment.

While we've accomplished a lot, there's still so much we can do. I support Montefiore and Einstein through my time and philanthropy. What's your solution?

With gratitude,

Melissa Ceriale

# DR. HARVEY KARP CLASS OF '75

BY TERESA CARR

Trusted pediatrician  
and author  
helps parents  
calm fussy babies

Inventors often point to a moment of inspiration when the solution to a problem suddenly appears. Einstein alumnus Harvey Karp, M.D., experienced that flash of insight after giving a talk on sudden infant death syndrome, or SIDS, in 2011.

SIDS is the leading cause of death for infants 1 month to 1 year old, and a parent's worst fear: Seemingly healthy babies unexpectedly stop breathing in their sleep. It's also known as "crib death" because many victims are found lifeless in their cribs.

After the lecture, Dr. Karp remembers, he expressed his frustration to a friend. "Why hasn't someone come up with a way to help prevent this?" he asked. His friend replied: "Well, why don't YOU?"

It was a fair question. Dr. Karp is one of America's most trusted pediatricians and child-development experts—a reputation he earned by researching infant behavior and developing science-based techniques to soothe fussy infants and help them sleep. Millions of bleary-eyed parents around the world have sought advice from his best-selling books and videos: *The Happiest Baby on the Block*, *The Happiest Toddler on the Block*, and *The Happiest Baby Guide to Great Sleep*.

Infants are most vulnerable to SIDS in the first few months of life, which Dr. Karp terms "the fourth trimester." "Humans are really born three months too early; they are incredibly immature compared to other animal species," he



Harvey Karp, M.D. '75

says. "Unlike a colt or a calf, we don't hit the ground running. In the early months, babies need us to mimic the womb's sensations through cuddling, rocking, and shushing for hours a day."

Their underdevelopment also means that infants may fail to awaken or to move their heads when not receiving enough oxygen. Studies have shown that putting infants to sleep on their backs on a firm, flat surface away from loose bedding—hence the "back to sleep" public health campaign—has significantly reduced the rate of SIDS in the United States and other countries. In addition, Dr. Karp knew from his own research that imitating the womb often calms babies—even mid-cry.

## BABY ROCKER RECALL

For the past decade, manufacturers have claimed that the rocker-like infant-sleep products they've marketed to parents will soothe their fussy babies. But those rockers (also called "nappers") keep

Courtesy of Happiest Baby, Inc.

## MOTIVATIONS | CONTINUED CONNECTION

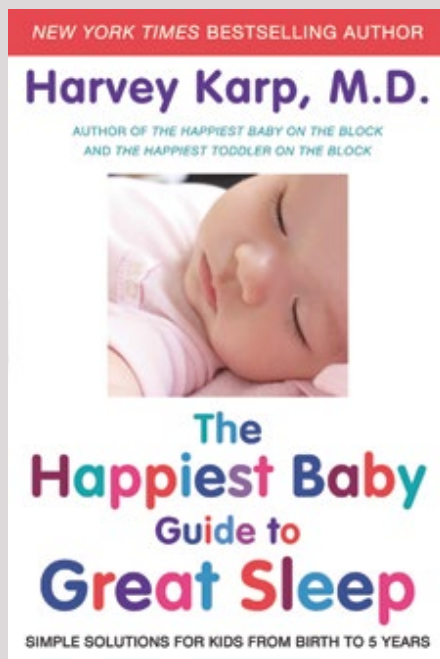
the baby semiupright—increasing the likelihood of airway compression and suffocation and prompting the American Academy of Pediatrics (AAP) to warn that the rockers put babies' lives at risk.

In April 2019, under pressure from the AAP, Fisher-Price recalled 4.7 million Rock 'n Play infant sleepers following reports that 32 infants had died in Rock 'n Plays since 2011. Some of the infants rolled over while unrestrained, and some were unable to breathe because of their position. Other companies have since recalled their inclined sleepers—now linked to more than 50 deaths, according to the Consumer Product Safety Commission (CPSC)—but some manufacturers are still selling the products.

"Many babies have died because their sleep-deprived parents trusted those products," Dr. Karp says. "Parents trying to comply with the back-to-sleep advice have yielded to the dangers of rockers because their babies don't sleep well on their backs." The AAP has called on the CPSC to take action against the remaining products on store shelves to prevent further tragedies.

Dr. Karp says he thought that an automatically rocking crib with a flat surface could create a safe environment for sleep. He and his wife, Nina Montecé Karp, cofounder of their company, Happiest Baby, decided to invent one. That led to a collaboration with industrial designer Yves Béhar and Deb Roy, Ph.D., director of the Laboratory for Social Machines at the Massachusetts Institute of Technology. In 2016, after "many, many prototypes," Dr. Karp says, the SNOO smart bassinet was born.

The robotic crib has since found its way to homes across the United States, Canada, and Australia. To date, babies have safely slept in the SNOO for more



Courtesy of HarperCollins Publishers

**"To this day, pediatric books say that colic is a mysterious condition. But I believe the chief cause is clear: too little rhythmic stimulation."**

— DR. HARVEY KARP

than 40 million hours, Dr. Karp says.

"There are people in this world who are always looking for better ways to do things," says Gordon F. Tomaselli, M.D., the Marilyn and Stanley M. Katz Dean at Einstein. "That's Harvey Karp. He has taken his expertise in pediatrics and applied innovation to it."

### THE HUMAN FACE OF MEDICINE

Dr. Karp set his sights on becoming a doctor at a young age. "I was always socially conscious and wanting to understand how things work," he

says. Medicine seemed like a natural fit—and Einstein, with its high level of academics and what Dr. Karp calls "attention to the social environment," was the perfect place for him to study.

While at Einstein he learned not only about the science of medicine, but also about what it takes to assume the mantle of physician and healer. "I was taught that providing healthcare was a privilege," he says. "People who are ill are in a vulnerable position, and it's our responsibility to treat them with respect. As students we were given opportunities to get into the community and meet with patients, to see the human face of medicine," he adds.

Because they saw so many Spanish-speaking patients, Dr. Karp joined with other students to hire a tutor and learn the language. "We had class every week and ate lunch together to improve our Spanish-speaking skills," he says. "That way we could talk directly to our patients without having an interpreter in the middle."

Perhaps the most formative aspect of his medical training, he says, was "realizing the joy of discovery." He still vividly recalls learning neuroanatomy as a first-year student from Dominick Purpura, M.D., who would later go on to serve as dean of Einstein for 22 years (page 6). Throughout the semester, Dr. Karp says, "Dr. Purpura periodically displayed a picture of a smiling boy and asked: 'What's wrong with Grant?'" At the end of the semester, Dr. Purpura shared Grant's diagnosis: He had severe hydrocephalus. Fluid filled the space where his brain should be; his brain tissue was limited to a narrow band around the inside of his skull.

"And yet, Grant appeared smiling before us, looking entirely normal,"

Dr. Karp says. “It is a medical mystery. How could this boy lack so much of the brain yet act almost normally? Dr. Purpura’s message was clear: We know so much yet have so much to learn.”

### THE COLIC CONUNDRUM

By his second year of medical school, Dr. Karp had decided to go into pediatrics. He would later do groundbreaking research on what his youngest patients were trying to communicate with their cries. “I’ve always been attracted to unsolved problems,” he says. “To this day, pediatric books say that colic is a mysterious condition. But I believe the chief cause is clear: too little rhythmic stimulation.”

Daphne Hsu, M.D., chief of the division of pediatric cardiology at Montefiore and professor of pediatrics at Einstein, agrees with Dr. Karp that colic can be treated. “Sometimes babies cry excessively because they are unable to soothe themselves as they adjust to life outside the womb,” she says. “In utero they are used to falling asleep with movement and noise around them. They respond to maneuvers that mimic that environment to help them go to sleep peacefully.”

Dr. Karp’s study of colic revealed that infants are born with a “calming reflex,” an irresistible response to stimuli that mimics the womb: swaddling that creates a snug feeling, shushing that sounds like blood flow, and gentle jiggling like what the baby experienced when Mom moved through her day. Dr. Karp’s books and videos offer techniques that parents can use to recreate that comfortable environment.

“Harvey’s innovation is that it’s baby-focused,” Dr. Hsu says. “The idea is to make the baby more comfortable and, if



Courtesy of Happiest Baby, Inc.

Dr. Harvey Karp places an infant in the SNOO, a flat-surfaced robotic bassinet he invented that gently rocks a baby to sleep.

you can do that, parents become more comfortable, too.”

### LIFE’S WORK HONORED

Ultimately, Dr. Karp says he thinks that the SNOO robotic bassinet will do more than just give harried parents a break. He says that studies now underway and others set to start soon will explore potential SNOO benefits, including preventing SIDS and postpartum depression and improving care for premature infants.

But even without that evidence, improving sleep has clear benefits—and not just for babies. “When babies sleep better, parents sleep better,” Dr. Tomaselli says. “That’s so important for

mental and physical health.”

Impressed by Dr. Karp’s lifetime of work, Einstein’s Board of Governors honored him as a finalist for Einstein’s Distinguished Alumnus award this year. “It’s a prestigious award, given our history of graduates who have gone on to have a profound impact in the medical sciences,” Dr. Tomaselli says. “Dr. Karp continues in that tradition by applying advancements in science to improving people’s lives.” **E**



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# HEALTHIER KIDS, HEALTHIER COMMUNITIES

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From vaccines to dental visits, the  
Montefiore School Health Program helps  
1 in 4 public-school students in the Bronx

BY TERESA CARR



Rosy Chhabra, Psy.D., center, stands with students at one of the 94 schools that receives comprehensive care through the Montefiore School Health Program. The centers provide healthcare access to more than 42,000 students in pre-K through 12th grade, reaching 25% of all public-school students in the Bronx.

## MOTIVATIONS | SPOTLIGHT

Fathima Lye remembers her high school health center as “very welcoming. You could stop by without an appointment even if you just wanted to have a chat with one of the nurses. It provided a safe space.”

Ms. Lye says she and her classmates could count on access to healthcare—whether they were feeling ill or anxious, had questions about sexual health, or even had a toothache.

“Having access to the health clinic at school made me take charge of my own needs,” she says. “And the care that you get is the same as what you would receive at a local health provider, except that it’s more convenient.”

Ms. Lye’s alma mater is one of 94 schools that receives comprehensive care through the 31 Montefiore School Health Program (MSHP) health centers.

Those school-based centers reach more than 42,000 children in pre-kindergarten through 12th grade—25% of all public-school students in the Bronx.

“Healthcare providers at each site deliver services such as primary-care visits, mental health counseling, dental care, chronic disease management, emergency care, and health education, a model that has been tremendously successful,” says program director Rosy Chhabra, Psy.D. Kids with access to school-based healthcare are 40% less likely to go home sick, for example, which means stronger school performance for the kids and less missed work for their parents.

And learning health literacy along with academics can have a lifelong impact. “I saw a model that showed the shocking amount of sugar in juice

**“Having access to the health clinic at school made me take charge of my own needs. And the care is the same as what you would receive at a local health provider, except that it’s more convenient.”**

— FATHIMA LYE



Learning about healthier food options is part of the Montefiore School Health Program curriculum. At left, Bronx grade-school students create a nutritious yogurt snack with their teacher.



**"Healthcare providers at each site deliver services such as primary-care visits, mental health counseling, dental care, chronic disease management, emergency care, and health education, a model that has been tremendously successful."**

— DR. ROSY CHHABRA

At left, Karesa McPhoy, N.P., creates a comfortable space to teach her patient about health. Below, a Bronx high school student receives a dental exam at her school.



## MOTIVATIONS | SPOTLIGHT

and soda,” Ms. Lye says. “Those visuals made me much more aware of what I was drinking.”

Adds Dr. Chhabra, “This is the perfect time to reach children, while they are dealing with the physical, mental, and emotional issues surrounding growing up. If you involve them in learning to care for their health when they’re young, those lessons stay with them for the rest of their lives.”

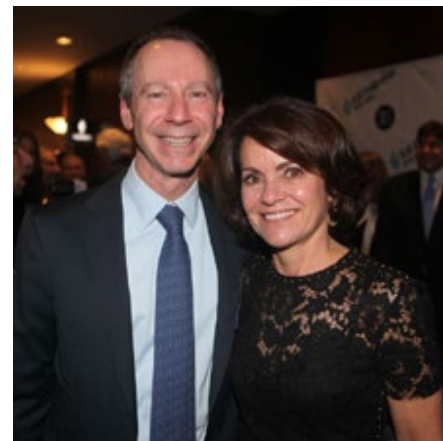
Former director David K. Appel, M.D., who founded the program 35 years ago and continues to consult, says the MSHP has developed “in ways beyond what we ever imagined. We started with the expectation that all children should have access to health services they need and took it from there.”

“MSHP really resonated with us,” says Shari Aronson, who, along with

her husband and three adult children, supports the program through the Jeffrey H. and Shari L. Aronson Family Foundation. Mrs. Aronson says that her family also found it appealing that their contribution would help jump-start new clinics, which would quickly become self-sustaining.

Philanthropy helps put the organizational framework in place to develop programs, make capital improvements, and hire staff. Once clinics are up and running, costs are covered by Medicaid or other insurance; city, state, and federal funds; and grants.

There’s no cost to students; the clinics do not collect co-pays, and they provide all services free of charge to those without health insurance. “I feel like we are laying the foundation for the program to expand,” Mrs. Aronson says.



UJA-Federation of New York, courtesy of the Jeffrey H. and Shari L. Aronson Family Foundation

Jeffrey and Shari Aronson, pictured above, are helping jump-start new school health clinics in the Bronx through their family’s foundation. At right, an MSHP nurse teaches two students techniques for self-management of asthma.

### Impact of School-Based Health Centers

A child’s health can significantly predict how well he or she performs in school academically. As the largest and most comprehensive school-based health network in the country, the Montefiore School Health Program (MSHP) serves as a model for public school systems nationwide. MSHP’s comprehensive services have made a considerable impact in the Bronx since its founding 35 years ago.



#### School-based health centers have resulted in:



Less emergency room use among students



Increases in grade-point averages for students who use mental health services



Greater use of mental health services among teens



Fewer hospitalizations and school days missed for children with asthma

Source: *Journal of Adolescent Health* and *JAMA Pediatrics' Archives of Pediatrics and Adolescent Medicine*



**"If you involve them in learning to care for their health when they're young, those lessons stay with them for the rest of their lives."**

— DR. ROSY CHHABRA

## MOTIVATIONS | SPOTLIGHT

### MORE-EFFECTIVE HEALTHCARE

Dr. Chhabra has researched disease prevention and school health nationally and internationally, but she says that, to her, the Bronx is special. “It’s a high-needs community, one of the poorest in the country,” she says, with disproportionately high rates of asthma, diabetes, obesity, mental illness, and other health conditions. “At the same time,” she adds, “I’ve found that the Bronx is a community of amazing strength and resources. In my experience, the reason that programs are successful is that the community takes ownership.”

This approach has resulted in more-effective—and more-efficient—healthcare for children. Emergency room visits and hospitalizations for children with asthma dropped by half after students started receiving treatment through the MSHP. Hospital costs for children with

diabetes were cut by nearly one-third.

Dr. Chhabra is especially proud of the MSHP’s mental health outreach for issues such as anxiety and depression. “Students are better prepared to ask for help when they need it—and to actually receive care before problems become more severe,” she says. Nearly all students referred for mental-health help follow up with counselors in their schools. Before that was available, only about one in 10 of those referred actually sought help in the community.

Two years ago, under Dr. Appel’s leadership, the MSHP began to lay the groundwork for an optometry program in MSHP schools. He and Dr. Chhabra expect all of the clinics to conduct eye exams in three to five years. Children who need eyeglasses will get a free pair, courtesy of eyeglass maker Warby Parker.

**“I’ve found that the Bronx is a community of amazing strength and resources. In my experience, the reason that programs are successful is that the community takes ownership.”**

— DR. ROSY CHHABRA

Below, Dr. Rosy Chhabra counsels a high school student in the Bronx.



## A MODEL FOR THE NATION

While the MSHP's record in the Bronx is impressive, Dr. Chhabra plans to standardize programs so that they can easily be adopted by other cities. "We have the opportunity to be a model for the nation," she says. Achieving those ambitious goals requires investment from both public and private partners. "School health can be transformative," Dr. Chhabra says. "It becomes the heart of health for the community. If we can secure the funding to make that happen, the payoff is huge."

Mrs. Aronson, who has spent time at MSHP centers in the Bronx, says that she could easily see the model replicated in other cities. "I have worked in other high-need cities, and I can say with certainty that a model like this could change the trajectory of children's health outcomes and contribute to family stability at remarkable scale," she says.

"We have something that can really move the needle—and, with the right partners and supporters in place, transform entire communities," she adds. But for her, the real measure of success is students such as Ms. Lye, who, Mrs. Aronson says, "go on to college and career and pay it forward."

Ms. Lye, who is now in college, says that her experience with the program cemented her plans to pursue a career in nursing. "It opened my eyes. When you give students the resources to take care of their health, they're better equipped to create healthy communities." **E**



## Advocacy Work at City, State, and Federal Levels

Key to the success of Montefiore's School Health Program (MSHP) has been the advocacy and public policy work at the city, state, and federal levels. MSHP is a lead member of the New York School-Based Health Alliance (SBHA), which has been instrumental in advancing these efforts. The New York SBHA is part of the national SBHA, founded in 1995, which serves as a voice for school-based healthcare programs across the country.

By providing resources, training, and advocacy for health and education partnerships, with a particular focus on the school-based health clinic model, the New York SBHA is a strong voice in supporting common standards, encouraging experiential learning, and inspiring young people to take responsibility for their own health. MSHP partnered with the Primary Care Development Corporation to develop the first national standards for school-based health centers, adopted nationwide in November 2017.



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MOTIVATIONS | YOUR IMPACT

# MEETING OVER THE MIND

Two men from different worlds find common  
ground in neurological surgery at Einstein  
and Montefiore

BY GARY GOLDENBERG

Even an expert statistician would have trouble calculating the odds that David B. Keidan and Emad Eskandar, M.D., would ever cross paths. The former is a septuagenarian Jew from India who runs an investment management firm in Manhattan. The latter is a 50-something Coptic Christian from Egypt who practices neurosurgery in the Bronx. And yet these two men, from different countries, cultures, generations, and professions, share an interest in raising neurological surgery at Einstein and Montefiore to new heights.

## INVESTOR AND PHILANTHROPIST

Mr. Keidan was born into the small community of Baghdadi Jews of Bombay (now Mumbai) who migrated from Iraq to India in the late 1700s. Mr. Keidan left home for the United States in 1962 to study at Harvard College and then at Harvard Business School. Degrees in hand, he landed a job at Wertheim & Co., a Manhattan investment bank. A little over a decade later, he launched his own company, now called Buckingham Capital Management, which he runs to this day.

As Mr. Keidan prospered, he made a point of supporting Jewish organizations, mostly those affiliated with Harvard—taking up the mantle of his ancestors, the affluent and philanthropic Sassoon family of India, often called the “Rothschilds of the East.” In the early 2000s, Mr. Keidan began searching for a worthy cause closer to home. John Gutfreund, a longtime member of the Montefiore Board of Trustees, suggested he look at Montefiore. “The more I looked into it, the more I liked it—a hospital started by Jewish philanthropists, for Jewish doctors that



Georgia and David B. Keidan, above left, attend an event benefiting the Montefiore Einstein Center for Cancer Care at Blue Hill at Stone Barns in Pocantico Hills, New York.

other hospitals would not hire, to serve patients other institutions could not, or would not, help,” Mr. Keidan says. “Its mission was, and is, a perfect example of ‘tikkun olam,’ or ‘repair of the world.’”

His first visit to Montefiore was to the Center for Abused Women and Children. “That went right to my heart,” says Mr. Keidan, who joined the Board of Trustees in 2004. Later, he decided to support the pediatric critical-care unit, now named after him and his wife, Georgia.

In recent days, Mr. Keidan has turned his philanthropic attention to neurological diseases such as Parkinson’s, Alzheimer’s, stroke, and depression. “These are growing problems for our aging population, with a devastating impact on families as well as patients,” he says. “We have a first-rate, interdisciplinary team at Montefiore to address these issues, and I want to do what I can

**“The Bronx is a melting pot par excellence—much like Montefiore and Einstein. Different perspectives, cultures, and ideas allow for synergies that can and do repair the world.”**

— DAVID B. KEIDAN

## MOTIVATIONS | YOUR IMPACT

to help this institution develop cutting-edge treatments.”

Mr. Keidan’s latest gift to Montefiore is an endowment to establish the David B. Keidan Chair in Neurological Surgery, which Dr. Eskandar now holds. At Einstein, Dr. Eskandar is also the Jeffrey P. Bergstein Chair in Neurological Surgery in the Leo M. Davidoff Department of Neurological Surgery.

“I’m proud of what this institution has done,” Mr. Keidan says. “Not only has our great leadership team created a unique model for community care, which has attracted the attention of Albany and Washington, D.C., but it also had the foresight to invest very early in electronic health records, which has put us at the forefront of leveraging health data for better care and better management.

“I admire the goals and the effectiveness of our community programs, which have done things like reduce unwanted pregnancies in schools, improve access to fresh, healthy foods, and reach into homes to take care of patients who are too sick to come to us,” he says. “This is unconventional medicine, outside the usual hospital mandate. But then, we are not a ‘usual’ hospital. The Bronx is a melting pot par excellence—much like Montefiore and Einstein. Different perspectives, cultures, and ideas allow for synergies that can and do repair the world.”

### A CLASSIC IMMIGRANT TALE

The first physician to hold the David B. Keidan Chair in Neurological Surgery is, like Mr. Keidan himself, an immigrant who has risen to the highest ranks of his chosen profession. Emad Eskandar was just 9 years old when his family left

Egypt for Nebraska, seeking religious freedom and economic opportunity.

A lover of all things scientific, Dr. Eskandar found that a career in neurosurgery was ideally suited to his talents. After completing his training, he joined the faculty at Harvard Medical School and over the next 18 years developed a reputation as one of the world’s top neurosurgeons, specializing in the treatment of epilepsy, trigeminal neuralgia, Parkinson’s disease, and brain tumors, employing and refining such advanced techniques as deep-brain stimulation, keyhole surgery, and stereotactic electroencephalography. He also ran a basic-science laboratory, studying the basal ganglia, a cluster of brain neurons that plays a role in learning, motivation, depression, and drug addiction.

In 2018, Dr. Eskandar joined Einstein and Montefiore. “I enjoyed my time at Harvard, but I felt there was a tremendous opportunity here in the Bronx to develop new clinical programs, promote new research, and reach out to a much broader group of patients,” he says. “Neurological surgery is quite strong at Einstein and Montefiore,” Dr. Eskandar adds. “However, there’s a huge mismatch between the scope of the department and the size of the population we serve, especially with the expansion of Montefiore’s health system.”

Under Dr. Eskandar’s leadership, Montefiore has opened a comprehensive stroke center (the only one between the Bronx and Albany, New York) and a comprehensive spine center (a joint effort with the departments of orthopedics and rehabilitation medicine). There are also plans for a center for surgical optimization within the spine center, a neurovascular center, and a skull-based-tumor center.



**“I enjoyed my time at Harvard, but I felt there was a tremendous opportunity here in the Bronx to develop new clinical programs, promote new research, and reach out to a much broader group of patients.”**

— DR. EMAD ESKANDAR

In addition, Dr. Eskandar intends to invest heavily in research. “I’m a scientist at heart, injecting research into everything I do,” he says.

“This is where the resources of the Keidan chair are invaluable,” he adds. “Many people don’t realize that the National Institutes of Health, the largest funder of biomedical research, tends to support fairly well established ideas—but not the edge-of-the-envelope studies that can transform healthcare. With the Keidan family’s generous support, we’ll be able to study new paradigms, such as neuromodulation [the application of electrical currents to modify parts of the brain], for the treatment of addiction, Alzheimer’s, and other devastating diseases.”

Unconventional thinking is nothing new for Dr. Eskandar. In 2014, he earned a master’s degree in business administration from the Massachusetts Institute of Technology, seeking to apply the principles of business management to healthcare.

“There’s a whole body of knowledge about optimizing systems in different industries. We can learn lessons from this work and use it to better manage everything from emergency rooms to operating rooms to imaging suites,” he says. “Healthcare is notoriously complicated and inefficient. We need new fixes.” **E**



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**“With the Keidan family’s generous support, we’ll be able to study new paradigms, such as neuromodulation, for the treatment of addiction, Alzheimer’s, and other devastating diseases.”**

— DR. EMAD ESKANDAR

Drs. Emad Eskandar, left, and Patrick LaSala, vice chair of neurosurgery, prepare the first implant of a responsive neurostimulator to treat epilepsy at Montefiore.



# CLASS NOTES

## 1950s

**Louis M. Aledort, M.D. '59**, has received the 2019 Alumnus Humanitarian Award from the School of Medicine and Dentistry, University of Rochester. The award recognizes his lifetime commitment to finding a cure for clotting disorders, especially hemophilia. Dr. Aledort continues to work full time and to teach, travel, and lecture internationally. His granddaughter is a current medical student at George Washington University. Dr. Aledort and his partner, Natasha, have been together for six years.

**Mark David Reiss, M.D. '59**, maintains and coordinates the directory for the Class of 1959—Einstein's first graduating class. There are currently 31 living class members from the original graduating class of 50 (see "A Look Back," page 69). Dr. Reiss retired from his radiology practice at age 56 to pursue musical goals; he is a classical pianist. His wife, Joan Reinhardt Reiss, is a former world-class distance runner. She and Dr. Reiss celebrated their 60th wedding anniversary this past June. They married three days before graduation from Einstein. Their son, Craig, is a violinist with both the San Francisco Opera and

San Francisco Ballet orchestras. Their daughter, Justine, is an actor and voice-over teacher. Dr. and Mrs. Reiss have four grandchildren, ages 15 to 19.

## 1960s

**Noah Lightman, M.D., F.A.C.R. '69**, is a proud member of the Alpha Omega Alpha Honor Medical Society. Throughout his career, Dr. Lightman held various roles around the country, including positions in Einstein's department of medicine, the U.S. Public Health Service Hospital, and the Johns Hopkins Hospital department of



Michael B. Harris, M.D. '69

### HELPING CHILDHOOD CANCER SURVIVORS


After graduating from Einstein, Michael B. Harris, M.D. '69, traveled to the Children's Hospital of Philadelphia to complete his pediatric residency and hematology-oncology fellowship. Since finishing his training in 1974, he

has served as the chief of the division of pediatric hematology-oncology at both the Children's Hospital of Pittsburgh and Mount Sinai Hospital, as well as in other positions.

In 1987, Dr. Harris became the founding director of the division of pediatric hematology-oncology at the Children's Cancer Institute (formerly the Hackensack University Medical Center). After nearly three decades of service to the institute, he stepped down to

become the director of Cure and Beyond, a program for childhood cancer survivors at the Joseph M. Sanzari Children's Hospital, Hackensack Meridian Health, and to serve as a professor of pediatrics at both the Hackensack Meridian School of Medicine at Seton Hall University and Rutgers New Jersey Medical School.

Throughout his career, Dr. Harris says, he has had the privilege of treating many courageous children; they have, he adds, "taught me the importance of living each day to the fullest." He says his proudest accomplishment is his family. Dr. Harris and his wife, Freida, married the year he graduated from Einstein and now, 50 years later, they have "four wonderful children and 11 grandchildren"—all of whom remind him daily that he is "just an ordinary guy who graduated from Einstein, got married, had great children and grandchildren and, luckily, found a job [he] love[s]."



**"We're using our economic power  
to fund and inspire support  
for research that improves  
human health."**

— Trudy F. Schlachter, Co-President,  
Albert Einstein College of Medicine, Women's Division

**"Women are making a  
tremendous difference by funding  
biomedical research through  
private philanthropy."**

— Terri L. Goldberg, Co-President,  
Albert Einstein College of Medicine, Women's Division

# WOMEN FUNDING SCIENCE

Leading the way at Albert Einstein College of Medicine  
(clockwise from left): Trudy Schlachter; Ana Maria Cuervo, M.D.,  
Ph.D., Robert and Renée Belfer Chair for the Study of  
Neurodegenerative Diseases; Terri Goldberg; and Chinazo O.  
Cunningham, M.D., M.S., Professor, Department of Medicine

The Women's Division of Albert Einstein College of Medicine in New York City has raised millions of dollars to support world-class science at Einstein. More than 1,000 women strong, we are dedicated to elevating research at every level—from the bench to the bedside—through philanthropy. Our extraordinary volunteers are funding science and truly saving lives.

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office of development at 718.430.2411.



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## MOTIVATIONS | CLASS NOTES

radiology. He has been married “for 51 wonderful years” to Ellen Frank Lightman. He reports that their children and grandchildren bring them great joy.

**Peter D. Lowitt, M.D. '69**, currently works part time, concentrating on opioid-dependence treatment using buprenorphine and naloxone (Suboxone).

**Laurence J. Marton, M.D. '69**, serves on four nonprofit and eight for-profit boards, mostly focused on cancer. Additionally, he is chair of a scientific advisory board, is an adviser to both Ciitizen and the Precision Medicine World Conference, and serves on the editorial board of *The Journal of Precision Medicine*. Previously, he held the deanship of the University of Wisconsin Medical School and chaired the department of laboratory medicine at the University of California, San Francisco, where he was a professor in the departments of laboratory medicine and neurological surgery.

**Ian M. Shivack, M.D. '69**, moved to Tucson, Arizona, in 1996 with his wife, Ina, after a career in psychiatry and neurology. Today, he says, he is enjoying the delights of retirement. Dr. Shivack became involved in resident training at the University of Arizona Health Sciences Center, teaching a course in psychopharmacology and providing resident supervision at the University Medical Center and its Veterans' Affairs Hospital affiliate. He and his wife report that they love living in Tucson and feel as if their life is an extended vacation. Dr. Shivack is able to devote more time to his lifelong

hobby of garden railroading, and Ina has become a familiar face in Tucson's community theater scene. Their two elder daughters, Judy and Nadia, followed their father's lead and moved to Tucson, while the youngest, Michele, lives in Portland, Oregon, where she is a physical therapist.

**Ira Sussman, M.D. '69**, and his wife, **Nancy Sussman, M.D. '69**, became a hematologist and radiologist, respectively. Today, Dr. Nancy Sussman is fulfilling her lifelong desire to create wheel-thrown pottery. Dr. Ira Sussman has spent most of his circuitous academic career at Einstein and Montefiore, first doing research on von Willebrand disease and eventually becoming the vice chair of pathology. They have three children, none of whom is in medicine, and five grandchildren. The Sussmans are enjoying retirement—babysitting, theater, opera, ballet, concerts, dining, and book clubs. Dr. Ira Sussman has maintained his lifelong love of football and the New York Giants.

## 1970s

**Richard I. Hansen, M.D. '74**, retired as an ophthalmologist/retina surgeon in December 2014 after 34 years in private practice in Newton, New Jersey. He has taught full time at the Medical School of the University of Florida and held a volunteer teaching position at Jacobi Medical Center in the Bronx. He and his wife, Lee, he reports, have two wonderful grandchildren.

**Richard Hoetzel, M.D. '74**, lives on Manhattan's Upper West Side and maintains a private psychiatry practice for the treatment of adults and children.

## STAY IN TOUCH

Keep your classmates up to date by submitting your news to *Einstein* magazine. We look forward to including you in our next issue. Email us at [alumni@einstein.yu.edu](mailto:alumni@einstein.yu.edu).

He says that he loved attending the 25th and 40th reunions at Einstein and enjoys seeing old friends and colleagues.

**Randall S. Smith, M.D. '75**, currently serves as the medical director of the laboratory at St. Dominic Memorial Hospital in Jackson, Mississippi. His wife, Brenda, works with the clinical skills program at the School of Medicine, University of Mississippi Medical Center, and consults at local hospitals in the area. Their children and grandchildren live near Jackson, Mississippi, and in Ohio and Texas.

**Michael A. Grodin, M.D. '76**, recently published an article in the journal *Surgery* to unpack the ethics of using medical reference books that include illustrations of Nazi victims, namely *Pernkopf's Atlas: Topographical Anatomy of Man*. Dr. Grodin collaborated with Rabbi Joseph A. Polak, a Boston University Hillel House rabbi emeritus, on the project. Dr. Grodin says that his experience working with Holocaust survivors at Einstein sparked his interest in resiliency and survivorship. He has been on the faculty at Boston University School of Medicine for 40 years and currently serves as professor of health law, ethics, and human rights at the Boston University School of Public Health and professor in the Elie Wiesel

Center for Jewish Studies at Boston University, where he directs a project on medicine and the Holocaust.

## 1980s

**Maureen M. Goodenow, Ph.D.**

'83, received the 2019 Esperanza Award from the Latino Commission on AIDS in June. Dr. Goodenow has been researching HIV/AIDS for 30 years and currently serves as associate director for AIDS research and director of the Office of AIDS Research at the National Institutes of Health. She also has been awarded the Jefferson Science Fellowship from the National Academies of Science, Engineering, and Medicine, and is the Stephany W. Holloway Endowed University Chair for HIV Research at the University of Florida College of Medicine.

**Mark Klapholz, M.D. '86**, has served as both chair of medicine at the Rutgers New Jersey Medical School and, since 2012, chief of medical services at University Hospital, Newark.

**Don J. DeCrosta, M.D. '88**, began his new position as the head of anesthesiology at Southside Hospital in Bay Shore, New York, part of Northwell Health, in January. Prior to this role, Dr. DeCrosta served as the chair of quality assurance and director of thoracic anesthesia at NYU Winthrop Hospital in Long Island, New York, for many years. He lives in Bay Shore with his wife, four daughters, three grandchildren, and three dogs.

Courtesy of University of Virginia



Francine Garrett-Bakelman, M.D./Ph.D. '05

## EXAMINING THE HEALTH EFFECTS OF SPACE TRAVEL

The two identical-twin NASA astronauts made for the perfect case-control study: Mark Kelly stayed on Earth while Scott spent a year on the International Space Station. **Francine Garrett-Bakelman, M.D./Ph.D. '05**, was a first coauthor on a *Science* paper published in April that compared how they fared.

Before, during, and after Scott's flight, Dr. Garrett-Bakelman, assistant professor of medicine and of biochemistry and molecular genetics at the University of Virginia School of Medicine, and her team evaluated both brothers, assessing the molecular and physiological traits that space travel may affect.

One focus was on possible changes in the length of telomeres, the protective caps at the ends of chromosomes that get smaller with each cell division and with age. During Scott's space flight, his telomeres became significantly longer than Mark's but shortened rapidly to near preflight length upon his return to earth. Adverse effects from space travel included DNA damage and reduced cognitive function.

"Still, most things we looked at did not change during space travel," Dr. Garrett-Bakelman says. "Or if they did change, they later returned to their preflight state, suggesting that human health can mostly be sustained over a longer spaceflight, which is reassuring."

Dr. Garrett-Bakelman, a physician-scientist who runs a cancer research lab concentrating on acute myeloid leukemia, says she hopes the NASA study forms the basis "for many more to come."



Courtesy of NASA

Mark Kelly, left, a NASA astronaut, served as the control for Dr. Garrett-Bakelman's study while his twin brother, Scott, spent a year in space.

## 1990s

**Marcy Goldstein, M.D. '90**, has for the past seven years been chosen as the “Best Dermatologist” in Bergen County, New Jersey, in a reader poll for the *Jewish Standard*. She and her husband of 36 years have four children, three grandchildren, and one grandchild on the way.

**Craig Zalvan, M.D., F.A.C.S. '95**, was lead author in a study published in October 2017 in *JAMA Otolaryngology—Head & Neck Surgery* comparing a plant-based Mediterranean-style diet with alkaline water against proton-pump inhibitor medication to treat laryngopharyngeal reflux. Study participants had as good, if not better, results with the diet. Dr. Zalvan was again lead author in a study published in January 2019 in *Laryngoscope* showing that the use of nasal irrigation, topical nasal antihistamines/steroids, and a plant-based Mediterranean-style diet with alkaline water was effective in stopping chronic neurogenic coughing without the use of systemic medication. Dr. Zalvan, from ENT and Allergy Associates, serves as the medical director for the Institute for Voice and Swallowing Disorders at Phelps Hospital in Sleepy Hollow, New York, and professor of otolaryngology at New York Medical College, Valhalla.

## 2000s

**Philip Green, M.D. '06**, recently opened an interventional cardiology practice in Elmwood Park, New Jersey, expanding Columbia University Irving Medical Center's presence. His focus is on complex coronary and peripheral arterial disease. Dr. Green lives in Teaneck, New Jersey, with his wife and children.

## 2010s

**Elizabeth Tubridy-Peters, M.D. '18**, married Jonathan “Jono” White Peters Jr. this past summer. Dr. Tubridy-Peters and her husband met while she was studying at Georgetown University. After she completed her third year

at Einstein, the two were engaged, and they married two years later in Riverside, Connecticut. Dr. Tubridy-Peters is a second-year obstetrics and gynecology resident at NYU Langone Health in New York City. [E](#)

## IN MEMORIAM

**Chester Martin Berschling, M.D. '59**, age 85, psychiatrist, member of Einstein's first graduating class, Dec. 29, 2018, Chevy Chase, Maryland.

**Joan Iris Casey, M.D.**, age 91, professor emerita, department of medicine (infectious diseases), May 6, 2019, Halifax, Nova Scotia, Canada.

**Brian L. Cowen, M.B.B.S.**, age 73, professor, department of obstetrics & gynecology and women's health (reproductive endocrinology and infertility), Sept. 12, 2018, White Plains, New York.

**Quentin B. “Chip” Deming, M.D.**, age 99, professor emeritus, department of medicine (general internal medicine), Jan. 21, 2019, Hanover, New Hampshire.

**Doris Jane Wolf Escher, M.D.**, age 101, founder and first director of Montefiore's Cardiac Catheterization Laboratory and professor, department of medicine (cardiology), April 3, 2019, Larchmont, New York.

**Herbert Lukashok, M.S.**, age 97, clinical associate professor emeritus, department of epidemiology & population health, May 22, 2019, New York City.

**Karen Roman**, age 67, longtime administrator, department of genetics, April 16, 2019, Yorktown Heights, New York.

**Alfred Spiro, M.D.**, age 88, professor emeritus, the Saul R. Korey Department of Neurology (pediatric), and director of Einstein's Muscular Dystrophy Association Muscle Disease Clinic for more than 30 years, April 17, 2019, Scarsdale, New York.

**Felix Wimpfheimer, M.D.**, age 98, visiting associate professor, department of medicine (endocrinology), June 14, 2019, Riverdale, New York.

**Jutta Zankl**, age 70, longtime administrator, department of epidemiology & population health, Oct. 19, 2018, Pine Bush, New York.

## A LOOK BACK



### Graduation, Then and Now

Sixty years ago, on June 10, 1959, the 50 medical students in Einstein's first graduating class received their diplomas under a tent in a parking lot of what is now the Harold and Muriel Block Building (formerly the Abraham Mazer Building). This year's considerably larger graduation ceremony, pictured above, was held on May 23 at Lincoln Center's David Geffen Hall in New York City. Einstein conferred 156 M.D. and 31 Ph.D. degrees; 16 graduates of the Medical Scientist Training Program received both degrees. [E](#)

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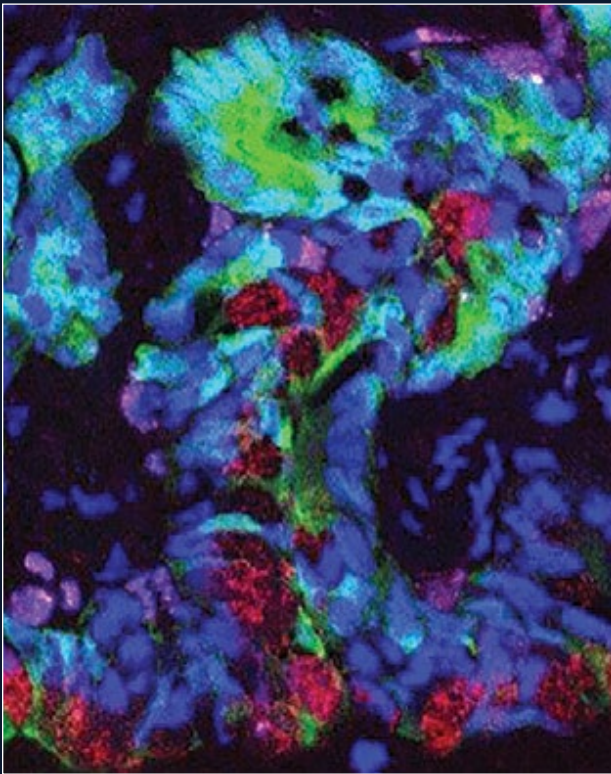
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Science at the Heart of Medicine



## EINSTEIN IMAGE

Lynch syndrome is an inherited condition that greatly increases risk for intestinal cancer. In this image, the drug rapamycin has eliminated differentiated tumor cells from the small intestine of a Lynch syndrome mouse model, but two types of cancer stem cells have resisted rapamycin: Lgr5+ (green) and Bmi1+ (purple) stem cells. (Also visible are Lgr5+ stem cell-associated Paneth cells, in red.) Tumors return when rapamycin therapy is stopped—and Lgr5+ cells, in particular, are suspected of regenerating tumors. Winfried Edelmann, Ph.D., and colleagues are studying a drug that makes Lgr5+ cells sensitive to rapamycin by inhibiting the membrane protein MDR1 (multi-drug resistance 1), which pumps out rapamycin and other anticancer drugs. Dr. Edelmann is a professor of cell biology and of genetics and the Joseph and Gertrud Buchler Chair in Transgenic Medicine at Einstein.

Image courtesy of Kyeryoung Lee, Ph.D., a research associate in Dr. Edelmann's lab