ATTACKING AN EPIDEMIC

Einstein researchers are preventing diabetes, one community at a time.
To the Community’s Health! The BODY Garden

This bucolic scene is right around the corner from the College of Medicine, on Pierce Avenue. Nestled between a large industrial building and a multifamily home, the BODY garden—BODY stands for “Bronx, Obesity, Diabetes and You”—clearly shows that vegetables don’t grow in shrink-wrapped Styrofoam packages. Dedicated members of the Einstein BODY Club tend the garden and provide information to community members young and old about healthy eating and exercise. The goal: preventing type 2 diabetes, which is rampant not only in the Bronx but in the United States and many other countries. For more on Einstein’s anti-diabetes efforts, see page 24.

ON THE COVER: Bronx schoolkids put diabetes-fighting theory into practice in the BODY garden.
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The two feature stories in this issue of Einstein magazine, “Back to the Future” (describing induced pluripotent stem cells) and “Attacking an Epidemic,” beautifully illustrate the breadth of research conducted by Einstein’s faculty. From molecular studies of devastating diseases such as thalassemia, schizophrenia and autism to behavioral interventions for preventing type 2 diabetes, Einstein investigations are at the forefront of the nation’s biomedical research efforts.

For decades we’ve known the precise genetic glitches responsible for diseases such as thalassemia and sickle cell anemia, yet true cures have eluded us. The straightforward idea of correcting such diseases through gene therapy, first tried in the 1980s, has proved extraordinarily difficult to achieve. But powerful new research techniques such as iPS cell technology hold great promise for moving us closer to effective treatments.

By contrast, schizophrenia and autism appear to be caused by defects in multiple genes (only some of which have yet been identified) coupled with environmental factors that are still the subject of research—and controversy. But here, too, iPS cell technology may provide crucial insights into the key defects at the nerve-cell level.

For type 2 diabetes, a wealth of recent physiologic and genetic research has revealed why people lose the ability to regulate blood sugar and consequently experience serious complications such as kidney failure, blindness, amputations and heart disease. But despite new targets for diabetes therapy and the novel glucose-lowering medications now available, an “inconvenient truth” remains: ever-larger numbers of Americans are developing type 2 diabetes, at an enormous cost to our healthcare system. That is why Einstein’s pursuit of community and population-based approaches to diabetes prevention is so important. The work of our researchers offers hope for reversing the tide of the epidemic in the Bronx, in the greater New York area and indeed in countries such as India and China, which are beginning to experience their own diabetes epidemics.

ALLEN M. SPIEGEL, M.D.
The Marilyn and Stanley M. Katz Dean
Einstein Around the World

South Africa, Peru, India, Ghana and Guatemala are just some of the countries that 60 Einstein second-year students visited last summer through the Global Health Fellowship program. In September 2013, the travelers gathered to share their experiences—and their mission—with more than 50 first-year students at “Around the World,” the first Global Health Club event of the year. In October during Global Health Week, students learned about traveling abroad at:

• a panel presentation in which second-year students described projects supported by the Global Health Fellowship Program and shared advice with first-year students;
• a reception and photo exhibit held in the Forchheimer hallway, known as Einstein’s “Main Street”;
• Global Health Trivia Night, which drew an enthusiastic group of students;
• a presentation by Richard A. Murphy, M.D., assistant professor of medicine at Einstein and attending physician in medicine at Montefiore, the University Hospital and academic medical center for Einstein, who shared his experiences working abroad with Doctors without Borders; and
• a “Meet and Greet” with some 80 students and 40 faculty members.

Clockwise from upper left:
Nicole Ng dressing a wound in clinic.
Siete Cuartones, Cuzco, Peru. Photograph provided by Nicole Ng.
Habesha women carrying sugarcane and locally grown food to be sold at the market in Arba Minch, Ethiopia. Photograph by Lauren Tannenbaum.
Julian Rothschild measuring a patient’s blood glucose with Unite for Sight in Chennai, India. Photograph provided by Julian Rothschild.

Social Media: Online at Einstein

Einstein magazine is also online at magazine.einstein.yu.edu
Two assistant deans have joined Einstein’s office of student affairs: Allison B. Ludwig, M.D. ’04, an assistant professor of medicine (general internal medicine), and Joshua D. Nosanchuk, M.D., a professor of medicine (infectious diseases) and of microbiology & immunology at Einstein and attending physician in medicine at Montefiore. The office is headed by Stephen G. Baum, M.D., senior associate dean for student affairs.

They took over last fall from Nadine T. Katz, M.D. ’87, who was senior associate dean for student academic affairs for five years. She is now medical director of Weiler Hospital, on Montefiore’s Einstein campus.

Both assistant deans maintain busy schedules outside the student affairs office. Dr. Nosanchuk runs Einstein’s Microbiology and Infectious Diseases course and heads a laboratory studying fundamental mechanisms of infectious diseases. Dr. Ludwig, formerly the assistant director of the medicine training program, is an attending physician at Jacobi Medical Center.

“One of our key roles in the student affairs office is identifying students who may need a boost by offering them some extra guidance,” says Dr. Ludwig, who notes that the office of academic support counseling is within their purview. “We want students to come back in ten years and say ‘Thanks—that was good advice.’ Winning over those students, so they feel comfortable enough to seek our help, is a big challenge.”

Much effort goes into helping students make the crucial career decisions they face in medical school, particularly during their third and fourth years (when, for example, they must choose a subspeciality such as neurosurgery, orthopedics, radiology or urology). At a time when interpersonal contact is yielding to smartphones and computers, Einstein’s academic deans are big believers in the value of face-to-face meetings. So Drs. Ludwig, Nosanchuk and Baum schedule regular consultations with third- and fourth-year students to help them plan their careers. They also respond to the needs of other students, including those in Einstein’s Medical Scientist Training Program.

“We meet several times with each student during his or her time here at Einstein,” says Dr. Nosanchuk.

Mentoring is a key service offered by the student affairs office. “We’re constantly improving our mentoring,” says Dr. Baum. Last fall, for the first time, students could match up with potential mentors listed in a database of Einstein faculty and alumni.

“Students may have just one question, or they may be looking for a long-term mentoring relationship. This opens the way,” says Dr. Ludwig.

Happy Anniversaries!

Einstein is celebrating a number of notable anniversaries this year:

50th: The Department of Genetics. In 1964, Albert Einstein College of Medicine became the first medical school in the United States to establish a department of genetics.

50th: The Medical Scientist Training Program (MSTP). The MSTP, a combined M.D./Ph.D. program, was first offered at Einstein half a century ago.

40th: The Liver Research Center. Einstein’s Liver Research Center—now the Marion Bessin Liver Research Center—was the first institute in the nation devoted to the study of liver disease and injury.

30th: The Einstein Quarterly (now known as the Einstein Journal of Biology & Medicine). This student-edited journal serves as a forum for the medical and scientific community. Contributors include students, fellows, residents, faculty and alumni from both the medical school and the Ph.D. and MSTP graduate programs.

20th: The Women’s Health Initiative. Twenty years ago, Albert Einstein College of Medicine became the only New York City medical school selected by the NIH to participate in the Women’s Health Initiative, the largest research study of women’s health ever.
Einstein the Beautiful

The editors of bestmedicaldegrees.com have named Albert Einstein College of Medicine one of the 40 most beautiful medical schools in the United States.

Credit goes in no small part to the enormous effort over the last five years to give the College of Medicine a makeover. The campus now offers flower beds; meandering paths; an outdoor eating area; expansive green lawns dotted with maple, oak and sycamore trees; and of course the striking Michael F. Price Center for Genetic and Translational Medicine/Harold and Muriel Block Research Pavilion, which features a DNA-shaped stairway visible through the building’s five-story glass face.

Clockwise from top: Looking east from the center of campus; the Arthur B. and Diane Belfer Educational Center for Health Sciences; the double-helix stairway in the Price Center/Block Research Pavilion; the Price Center; the outdoor dining area, lower level.
The White Coat Ceremony

Every August, first-year Einstein medical students take part in the White Coat Ceremony: An Einstein alumnus “cloaks” each student in a physician’s white coat that the Einstein Alumni Association has donated. The white coat symbolizes the responsibilities that await the future physicians—and the humanistic values and scientific excellence they will need. The event is also known as the On Becoming a Physician ceremony.

At this year’s August 15 event, Allen M. Spiegel, M.D., Einstein’s Marilyn and Stanley M. Katz Dean, welcomed the assembled Class of 2017, faculty and guests. Stephen G. Baum, M.D., senior associate dean for students, introduced Executive Dean Edward R. Burns, M.D. ’76, the keynote speaker, who stressed the importance of treating each patient with compassion and respect.

The Stethoscope Ceremony

The Stethoscope Ceremony introduces each new class of Einstein students to a critical tool used in physical diagnosis.

The keynote speaker at this year’s ceremony on September 9 was Janina Galler, M.D. ’72, a member of the Alumni Association board of governors. Dr. Galler observed that the stethoscope literally connects the physician and the patient, serving as a tool not only for listening but for learning. The Class of 2017 also heard encouraging words from Felise B. Milan, M.D. ’88, director of the Introduction to Clinical Medicine (ICM) course; Martha S. Grayson, M.D. ’79, senior associate dean for medical education; Martin N. Cohen, M.D., professor of medicine (cardiology); and Mimi McEvoy, N.P., M.A., co-director of the second-year ICM course. Students left the ceremony with stethoscopes donated by Einstein alumni.

ON THE WEB
www.einstein.yu.edu/r/whitecoat2013/video
Scrubs Day
Each fall, every first-year Einstein medical student receives a set of scrubs to mark the start of the Gross Anatomy course. The scrubs are provided by the Alumni Association.

Scrubs Day on October 2 featured remarks by Harris Goldstein, M.D. ’80, the professor of pediatrics (allergy & immunology) who conceived this unique Einstein tradition several years ago; Jack Stern, M.D. ’74, Ph.D. ’73, immediate past president, Alumni Association board of governors; Todd R. Olson, Ph.D., course director, Clinical and Developmental Anatomy; and Raja Flores, M.D. ’92, representing the Alumni Association board.

This year’s scrubs were black—a hip New York fashion statement.

The Declaration Celebration
At the Declaration Celebration, first-year graduate students who’ve completed their coursework and laboratory rotations “declare” the lab where they will conduct their research leading to the Ph.D. degree. The third annual Declaration Celebration on August 22 opened with a welcome by Victoria H. Freedman, Ph.D. ’77, associate dean for graduate programs in biomedical sciences. The keynote speaker, Arturo Casadevall, M.D., Ph.D., the Leo and Julia Forchheimer Chair in Microbiology and Immunology, advised the honorees to “be good to those around you” and “embrace all aspects of scientific integrity.”

The Board of Overseers, the Alumni Association and the graduate programs in the biomedical sciences sponsor the Declaration Celebration.
The Qualification Jubilation
Toward the end of their second year, Einstein graduate students show they’re ready to begin independent research by taking the notoriously rigorous qualifying exam known as “the qual.” The Qualification Jubilation honors students who have passed the test. The second annual Jubilation, co-sponsored by the graduate division and the Alumni Association, took place on October 22; the guest speaker was Julie Secombe, Ph.D., assistant professor of genetics.

The event has the enthusiastic support of Ruth L. Gottesman, Ed.D., chair of the Einstein Board of Overseers, and Overseer Nathan Kahn, head of the education and student affairs committee.

Gold Humanism Inductions
On October 8, 17 fourth-year medical students and one Einstein faculty member joined the Einstein chapter of the Gold Humanism Honor Society, which recognizes individuals nominated by their peers for unique devotion to patient care.

Faculty inductee Andrea W. Littleton, M.D., assistant professor of family and social medicine, was the keynote speaker.

Among the student inductees was Emily Guh, a founding member of Bronx, Obesity, Diabetes and You (see page 33), who considers her work with Bronx patients “the most important aspect of my Einstein training.” In addition, she enjoys working with Chinese-speaking patients and is honing her medical Mandarin skills. In 2013, Emily received the Dean’s Recognition Award, given to students who have demonstrated exceptional academic and clinical performance and the potential to contribute to medicine, science and patient care.

Emily plans to practice family medicine. Her long-term goal: helping implement a Patient-Centered Medical Home model of care featuring multidisciplinary teams and the efficient use of electronic medical records.
Social Media Safety

“Social media can be a double-edged sword,” says Elizabeth A. Kitsis, M.D., M.B.E., director of bioethics education at Einstein. “They can provide personalized medical education for patients, but great attention must be paid to maintaining the principles of professionalism, such as privacy and confidentiality of the physician-patient relationship.”

A two-year grant from the Institute on Medicine as a Profession and the Josiah Macy Jr. Foundation is helping Einstein teach faculty members and medical students how to use social media appropriately, effectively and professionally. Einstein is one of four medical schools in the United States chosen for this grant. Dr. Kitsis is principal investigator; her co-investigator is Dr. Martha S. Grayson, Einstein’s senior associate dean for medical education.

ON THE WEB
www.einstein.yu.edu/r/socialmedia2013

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Lab Chat

Yiyu Zou, Ph.D., studies the inhaled drug azacytidine for preventing lung cancer. It acts epigenetically—i.e., it strips off methyl groups that silence cells’ tumor-suppressor genes. An associate professor of medicine (oncology), Dr. Zou earned master's and Ph.D. degrees in his native China, and did postdoctoral work in cancer pharmacology and experimental therapeutics at the M. D. Anderson Cancer Center in Houston before coming to Einstein in 2002 with his research colleague, Roman Perez-Soler, M.D.

How did you get interested in lung cancer?
One reason was my father, a heavy smoker who lost 80 percent of his lung function before dying of lymphoma at age 65. I also saw that a lot of people in China were developing lung cancer, and I thought, “I have to gain the knowledge to fight this disease.”

Could you describe your research for us?
One of my projects looks at how environmental carcinogens cause lung cancer. I developed a mouse model in which we mimic human lung cancer by continually injecting tobacco carcinogens into the mouse lung for more than a year. We saw the classic precancerous stages and, after nine months, tiny cancer nodules. When we administered aerosolized azacytidine along with the carcinogens, only half the mice developed tumors. We are submitting an Investigational New Drug application to the Food and Drug Administration for testing this therapy on people.

What gave you the idea to try an aerosolized drug against lung cancer?
Tobacco carcinogens can damage epithelial cells that line the airway. Azacytidine can potentially reverse the epigenetic changes, which precede the genetic changes. And using azacytidine in aerosol form means it comes in contact with all those epithelial cells directly affected by tobacco smoke.

Why do you view your drug as preventing lung cancer rather than treating it?
This method won’t work against large tumors already in the lung. Instead, we’re aiming at an earlier stage, when thousands of epithelial cells of a smoker’s airways have those potentially reversible epigenetic abnormalities. Such a therapy could prevent smokers from developing primary tumors and prevent lung cancer patients from developing what we call second primary tumors.

You’re known for the unique way that you hold mice.
When you touch mice, you have to be nice. I hold mice in my whole hand, just like you’d hold a small pet, and I make them as comfortable as I can. If they want to bite me they can, but they rarely do. These mice contribute much to humanity, so we must help them live comfortably.

Did you meet your wife here at Einstein?
Yes, my wife was an Einstein M.D./Ph.D. student. What brought us together were our common interests: sports and classical music. We went kayaking, rollerblading and skiing and played tennis together. And after we got married we had subscriptions to concerts at Carnegie Hall for a couple of years.

What happened then?
Our son, An Ping, was born. He’s now almost three. His name means “safe and quiet.” But he’s certainly not quiet!
Einstein's seventh annual Ad Libitum Art Night and Auction in December featured works by Einstein painters, photographers, musicians and writers. The event was sponsored by Ad Libitum, Einstein’s literary magazine.

Ad Libitum’s co–editors in chief are second-year Ph.D. students Lauren Boudewyn and Julia Frei. “This year was unique because we were able to have both the Lymph Notes [Einstein’s only a cappella group] and some of the Bronx River Arts Center [BRAC] students join us for the event,” says Ms. Frei. “The Lymph Notes sang three songs for us, and the BRAC students were able to display some of their work and gave a brief talk about what BRAC offers them.”

The event was held in the Evelyn & Joseph I. Lubin Student Activities Center and raised about $600 for the BRAC scholarship fund.

Learning to Teach

A new NIH-funded postdoctoral training initiative, the Bronx-Einstein Training in Teaching and Research program, is helping Einstein develop outstanding scientist-educators. With support from the Institutional Research and Academic Career Development Awards, participants in this three-year postdoctoral scholars program receive two types of training—in independent research and innovative teaching techniques. Traditional training in research methods is based at Einstein, while mentored teaching training is taking place in the Bronx at two City University of New York institutions: Hostos Community College and Lehman College. Only 19 such programs were funded nationwide.

ON THE WEB
www.einstein.yu.edu/research/bettr-iracda/
Robert W. Marion, M.D. ’79
An Outstanding Einstein Physician
Charts a New Course

Bob Marion has dedicated his professional life to diagnosing and treating children with rare genetic disorders or serious developmental disabilities such as autism, spina bifida and Down syndrome.

Dr. Marion joined the Einstein faculty in 1984. In 2004, he drew the world’s attention as pediatrician to the Aguirre twins, Clarence and Carl, who were conjoined at birth and separated as toddlers in a series of landmark operations at The Children’s Hospital at Montefiore. He was named director of the Rose F. Kennedy University Center for Excellence in Developmental Disabilities (UCEDD) and of the Children’s Evaluation and Rehabilitation Center (CERC), the clinical arm of the UCEDD, in 2006. A year later, he was invested as Einstein’s second Ruth L. Gottesman Chair in Developmental Pediatrics.

An Intuitive Clinician
Over the years, Dr. Marion has taken on some of the toughest cases.

One notable example is Alena, born in Siberia and adopted just a few months before her fourth birthday by a New York couple. Alena exhibited a confusing array of symptoms, including a heart murmur, slight hearing loss, short stature, slightly stooped posture and mildly coarsened facial features. She was soon referred to Dr. Marion.

Minutes after meeting Alena in the waiting room at The Children’s Hospital at Montefiore, Dr. Marion suspected that the little girl had Maroteaux-Lamy syndrome (also known as mucopolysaccharidosis, type VI)—a life-threatening condition in which cells lack an enzyme that breaks down complex chemicals. Alena’s mother, Marcia, was devastated when testing confirmed the diagnosis. Fortunately, Dr. Marion had read about an experimental enzyme replacement therapy for Maroteaux-Lamy.

When the drug, Naglazyme, was
approved by the FDA, Alena was the first patient in the Northeast to receive it. Today, thanks to ongoing drug treatments, Alena is a bright, physically active teenager with a busy social life.

The Einstein Women’s Division honored Dr. Marion with its Spirit of Achievement Award in the spring of 2009. The award recognizes people who have made outstanding contributions in their fields. Alena presented it to him.

**Shaping CERC**

Soon after taking the helm at CERC, Dr. Marion set about bringing a clinical research component to the center. In 2009, CERC hired its first research director, cognitive neuroscientist John J. Foxe, Ph.D. ’99.

Dr. Marion is now collaborating with Einstein genetics professors Bernice E. Morrow, Ph.D., and John M. Greally, M.B., B.Ch., Ph.D., on determining the genomic profiles of autism and other developmental disorders. And he is investigating 22q11 deletion syndrome, a group of physical and neurological disorders caused by the loss of a small piece of chromosome 22. Children with 22q11 are frequently misdiagnosed as having autism.

“When I was in medical school in the late 1970s, genetics was nothing more than an insignificant subspecialty of pediatrics,” notes Dr. Marion. “Now, it’s not inaccurate to say that pediatrics—in fact all of medicine—is nothing more than an insignificant subspecialty of genetics.”

As a professor of pediatrics (genetics) and of obstetrics & gynecology and women’s health (reproductive genetics), Dr. Marion has taught and mentored countless Einstein medical students and postdocs. He has received the Samuel M. Rosen Award for Excellence in Medical Student Teaching, the Lewis M. Fraad Award for Residency Education and the Obrinsky Award for Excellence in Medical Student Education in the department of pediatrics. He was also inducted into the Leo M. Davidoff Society, which honors teachers who have made outstanding contributions to student education. He has written seven books, all of which illuminate the human side of medicine.

**A Change of Focus**

In December 2012, Dr. Marion suffered a heart attack. To reduce the stress in his life, he decided to step down as CERC’s director and concentrate on clinical work. Maris D. Rosenberg, M.D., associate professor of clinical pediatrics (child development) and CERC’s director of medical training for the past 27 years, currently serves as interim director.

Dr. Marion continues to see patients at CERC once a week, and several times a week at The Children’s Hospital at Montefiore, where he is chief of the division of genetics in the department of pediatrics. He has resumed his responsibilities as medical director of the Einstein-Montefiore Williams Syndrome Clinic, which he founded, and as director of the Einstein/Montefiore spina bifida clinic. He will also stay involved with the new cardiogenetics clinic at Montefiore and assist with three other Montefiore clinics over the next few years. And he’ll remain director of the UCEDD.

“I am proud to be Bob’s friend, am grateful for all that he’s taught me and look forward to continuing to learn from him for many years to come,” says Dr. Rosenberg.

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Genes and Nerves

Our ability to detect heat, touch, tickling and other sensations depends on our sensory nerves. Now, for the first time, Einstein researchers have identified a gene that orchestrates the crucially important branching of nerve fibers that occurs during development. This gene belongs to an entire class of genes that had no known function in any organism. The findings were published last October in the journal *Cell*.

The research focuses on dendrites, the stringlike extensions of sensory nerves that penetrate tissues of the skin, eyes and other sensory organs. “The formation of dendritic branches—‘arbors’ as we call them—is vital for allowing sensory nerves to collect information and sample the environment appropriately,” says Hannes E. Buelow, Ph.D., senior author of the *Cell* paper and an associate professor of genetics at Einstein. “These arbors vary greatly in shape and complexity, reflecting the different types of sensory input they receive. The loss of dendritic complexity has been linked to a range of neurological problems, including Alzheimer’s disease, schizophrenia and autism spectrum disorders.” Dr. Buelow is also an associate professor in the Dominick P. Purpura Department of Neuroscience.

The Einstein scientists were looking for genes that organize the structure of the developing nervous system. They focused on a pair of roundworm sensory neurons, known as PVD neurons, which together produce the largest web of dendrites of any neurons in the roundworm—a sensory web that covers almost the entire skin surface of the worm and detects pain and extreme temperatures.

Suspecting that a gene acts in the skin to “instruct” nearby dendrites to branch, the researchers set out to identify the one responsible. The dendritic branches of PVD neurons had previously been described as resembling menorahs, so the Einstein scientists named the newly identified gene *mnr-1*.

The *mnr-1* gene’s newly identified function in orchestrating dendrite branching is presumably not limited to roundworms. Versions of this gene are present in multicellular animals from the simplest to the most complex, including humans. Genes conserved in this way, through millions of years of evolution, tend to be genes that are absolutely necessary for maintaining life.

The paper’s lead author was Yehuda Salzberg, Ph.D., a postdoctoral fellow in Dr. Buelow’s lab.

*ON THE WEB*
www.einstein.yu.edu/r/buelow2014/video
Encouraging Breast-Feeding

In two separate clinical trials, Einstein researchers found that periodic meetings with a lactation consultant encourage women traditionally resistant to breast-feeding to try it, at least for a few months—long enough for mother and child to gain health benefits. The results were published in December in the *American Journal of Public Health*.

The American Academy of Pediatrics (AAP) recommends exclusive breast-feeding for the first six months after birth, followed by continued breast-feeding for one year or longer as other foods are introduced. However, according to the Centers for Disease Control and Prevention, fewer than 75 percent of infants nationwide are breast-fed at all, and fewer than half are still being breast-fed at six months.

Some of the lowest rates of breast-feeding are known to occur among black/non-Hispanic, younger, overweight and less-educated mothers—women who made up a large majority of those enrolled in the two trials. In one of the two trials described in this paper, women who were regularly encouraged and given instruction and support for breast-feeding were more than four times more likely to breast-feed their infants exclusively at one month and nearly three times more likely to do so at three months, compared with the control group.

“The effects of our use of lactation consultants in particular were more impressive than those reported by two recent reviews that evaluated the effects of the numerous previous trials aimed at improving breast-feeding rates,” says Karen A. Bonuck, Ph.D., professor of family and social medicine and of obstetrics & gynecology and women’s health at Einstein.

In its 2012 policy statement on breast-feeding, the AAP states that “any breast-feeding” is associated with a 23 percent reduction in the incidence of middle-ear infections; a 64 percent reduction in the incidence of gastrointestinal tract infections; a 45 percent reduction in the incidence of sudden infant death syndrome; and a 15 percent to 30 percent reduction in adolescent and adult obesity rates.

Niemann-Pick Research Recognized

Francis S. Collins, M.D., director of the National Institutes of Health (NIH), honored Einstein and several other institutions last June when he presented the NIH Director’s Award to the Niemann-Pick Disease Type C (NPC) Therapeutic Development Team. The award recognized the team’s outstanding accomplishment in identifying and developing a treatment for NPC.

This rare inherited disease affects young children and involves progressive mental and physical deterioration. In 2009, Einstein researcher Steven U. Walkley, D.V.M., Ph.D., and graduate student Cristin Davidson published a study in *PLoS One* showing that the drug cyclodextrin was effective in a mouse model of NPC. This research was crucial in persuading the U.S. Food and Drug Administration to approve cyclodextrin as an investigational new drug now being tested in a phase I clinical trial at the NIH. Dr. Walkley is a professor in the Dominick P. Purpura Department of Neuroscience and in the Saul R. Korey Department of Neurology; a professor of pathology; and director of the Rose F. Kennedy Intellectual and Developmental Disabilities Research Center.
Effects of Nutrient Deprivation

Einstein scientists have discovered that nutrient deprivation links two key cellular processes, autophagy and ciliogenesis. (Autophagy involves degrading and recycling worn-out proteins and other molecules; ciliogenesis is the formation of cilia, the antenna-like structures that protrude from the cell surface.) A paper in an October online issue of Nature from the laboratories of Ana Maria Cuervo, M.D., Ph.D., and Peter Satir, Ph.D., demonstrated a reciprocal relationship between autophagy and ciliogenesis.

After nutrients were withheld, cell lines with compromised ciliogenesis experienced reduced rates of protein degradation due to defective autophagy. The researchers found that a particular signaling pathway mediates the relationship between the two processes. These findings suggest that the pathology underlying certain ciliopathies—diseases caused by defects in the function or structure of cilia—may result from impaired activation of autophagy.

Dr. Cuervo is professor of developmental and molecular biology, of anatomy and structural biology and of medicine (gastroenterology & liver diseases) and is the Robert and Renée Belfer Chair for the Study of Neurodegenerative Diseases. Dr. Satir is distinguished university professor of anatomy and structural biology. The paper’s first author was Olatz Pampliega, Ph.D., a postdoctoral fellow in the Cuervo lab.

Finding a Stem Cell Address

Where do hematopoietic stem cells (HSCs) “live”?

Scientists knew that these crucially important cells—responsible for forming the many types of cells found in blood—are found in the bone marrow but didn’t know exactly where.

Now Paul S. Frenette, M.D., a professor of medicine (hematology) and of cell biology and chair and director of the Ruth L. and David S. Gottesman Institute for Stem Cell and Regenerative Medicine Research, and his colleagues report in an October online edition of Nature that non-dividing HSCs reside in the bone marrow’s small arterial blood vessels (arterioles). (By contrast, the researchers found that proliferating HSCs inhabit another type of blood vessel called sinusoids.)

The researchers found evidence that living inside arterioles keeps HSCs quiescent and protects them from injury. This means that arterioles might also serve as refuges for cancer stem cells.

Dr. Cuervo is professor of developmental and molecular biology, of anatomy and structural biology and of medicine (gastroenterology & liver diseases) and is the Robert and Renée Belfer Chair for the Study of Neurodegenerative Diseases. Dr. Satir is distinguished university professor of anatomy and structural biology. The paper’s first author was Olatz Pampliega, Ph.D., a postdoctoral fellow in the Cuervo lab.

This composite scanning electron micrograph shows human hematopoietic stem cells (blue) and small vessels (red) within a bone marrow cavity. Paul Frenette, M.D., found that stem cells reside within these vessels.
Insights into Metastasis

Invadopodia are cancer-cell protrusions that forge pathways allowing cancer cells to metastasize from one site to another. A study from the laboratory of John S. Condeelis, Ph.D., published in the November 4, 2013 issue of Current Biology, offers a three-step sequential model for how cancer cells assemble their invadopodia. The study also found that two proteins and a membrane lipid cooperate in forming and stabilizing invadopodia.

The findings suggest that metastasis might be prevented by targeting one or more of the molecules responsible for forming invadopodia. Dr. Condeelis is a professor and co-chair of anatomy and structural biology, co-director of the Gruss Lipper Biophotonics Center and of the EGL Charitable Foundation Integrated Imaging Program, scientific director of the Analytical Imaging Facility and director of the Tumor Microenvironment and Metastasis Program of the Albert Einstein Cancer Center. He also holds the Judith and Burton P. Resnick Chair in Translational Research.

Outgrowing an Autism Disability

Einstein scientists have shown that high-functioning children with autism spectrum disorder (ASD) appear to outgrow a critical social communication disability. Younger children with ASD have trouble integrating the auditory and visual cues associated with speech, but the researchers found that the problem clears up in adolescence. The study was published last August in the journal Cerebral Cortex.

“Two views of a tumor cell (green) extending an invadopodium (arrow) within a human breast tumor. At left, the tumor cell against a black background. At right, the tumor cell’s invadopodium seen penetrating a blood vessel wall—a crucial step enabling tumor cells to exit primary tumors and metastasize."

“This is an extremely hopeful finding,” says lead author John J. Foxe, Ph.D. ’99, a professor of pediatrics and in the Dominick P. Purpura Department of Neuroscience, as well as director of research of the Children’s Evaluation and Rehabilitation Center at Einstein. “It suggests that the neurophysiological circuits for speech in these children aren’t fundamentally broken and that we might be able to help them recover sooner.”

The ability to integrate “heard” and “seen” speech signals is crucial to effective communication. “Children who don’t appropriately develop this capacity have trouble navigating educational and social settings,” says Dr. Foxe.

In a previous study, Dr. Foxe and his colleagues showed that children with ASD integrate multisensory information such as sound and vision differently from typically developing children. Among typically developing children, multisensory integration (MSI) abilities were known to continue improving late into childhood. This study looked at whether one aspect of MSI—integrating audio and visual speech signals—continues to develop in high-functioning children with ASD as well.

In the study, 222 children ages 5 to 17, including both typically developing children and high-functioning children with ASD, were tested for their ability to understand speech with increasing levels of background noise. For the older children, there was no difference in performance between the typically developing children and those with ASD.

“In adolescence, something amazing happens and the kids with ASD begin to perform like the typically developing kids,” says Dr. Foxe. “At this point, we can’t explain why. It may be a function of a physiological change in their brain or of interventions they’ve received, or both. We need to explore that.”
Multivitamins vs. Breast Cancer

Findings from a study involving thousands of postmenopausal women suggest that women who develop invasive breast cancer may benefit from taking supplements containing both multivitamins and minerals. The study, led by Einstein researchers, was published in October in Breast Cancer Research and Treatment.

Multivitamin/mineral supplements are the most commonly consumed dietary supplements among American adults. They usually contain 20 to 30 vitamins and minerals, often at levels of 100 percent of U.S. Recommended Dietary Allowances or less, and the usual label recommendation is to take them daily.

The research was conducted as part of the Women’s Health Initiative (WHI) Clinical Trials and the Women’s Health Initiative Observational Study. Combined, the two studies include data from 161,608 postmenopausal women ages 50 to 79 when they first joined the study. These women were enrolled at 40 clinical centers throughout the United States from 1993 to 1998.

The current study focused on 7,728 participants who were diagnosed with invasive breast cancer and followed for an average of seven years after their diagnoses. Invasive breast cancer is defined as cancer that has spread outside the membrane of the milk glands or ducts and into the breast tissue. After enrolling in the WHI and during repeated follow-up visits, all participants provided extensive information about their health, including whether or not they had taken a multivitamin/mineral supplement at least once a week during the prior two weeks.

About 38 percent of the 7,728 women who developed invasive breast cancer during the WHI were using the supplements. The vast majority were taking the supplements before their breast-cancer diagnosis. A comparison of mortality rates revealed that women with invasive breast cancer who took multivitamin/mineral supplements were 30 percent less likely to die from their cancers than women with invasive breast cancer who hadn’t taken the supplements.

Old Fungi, Tough Fungi

The age of a pathogen affects its virulence, according to Bettina C. Fries, M.D., and her Ph.D. student Tejas Bouklas. They reported their novel finding last August in mBio.

The researchers were studying the fungus Cryptococcus neoformans, which causes chronic meningoencephalitis in HIV patients and can persist despite antifungal therapy. They found that older C. neoformans cells accumulated in infected rats and humans because these cells were more resistant than younger cells to antifungal drugs.

In conjunction with these findings, Aviv Bergman, Ph.D., and his lab members mathematically modeled the aging of C. neoformans inside a host and showed that the presence of older cells was due to selective pressures inside the host. These findings suggest that a pathogen’s age may influence its virulence and could lead to better therapies for chronic fungal infections. Dr. Fries is a professor of medicine (infectious diseases) and of microbiology & immunology at Einstein and director of medical services and associate director of the internal medicine program at Montefiore. Dr. Bergman is professor and chair of systems & computational biology and a professor of pathology, as well as a professor in the Dominick P. Purpura Department of Neuroscience; he holds the Harold and Muriel Block Chair in Systems & Computational Biology.
As a student at the University of Rochester School of Medicine, Judy Aschner had trouble choosing a specialty. She liked all her clinical rotations and the full spectrum of medical subspecialties as well. “Then I walked into the neonatal intensive care unit and realized I had found my place in medicine,” she says. “Neonatologists in a way are generalists for newborns. We take care of infants with heart disease, lung disease, infections, brain injury, congenital anomalies.…”

Dr. Aschner came to Einstein from Vanderbilt University School of Medicine, where she built a nationally recognized neonatology program. For the last year she has offered her talent and experience to the Bronx pediatric community—with a special place in her heart for the problems of preterm birth.

Improving Treatment and Care
In 1987, while she was pregnant with her third child, her membranes ruptured at 21 weeks—a serious threat to her unborn child’s life. Although bed rest helped her extend the pregnancy to 31 weeks, her son, Nadav, was born premature and very sick.

Fortunately, the use of surfactant replacement therapy—an investigational drug at the time—helped him breathe by lowering the surface tension in his lungs. Nadav is now 26 and recently graduated from law school.

Despite this happy outcome, Dr. Aschner and her husband, Michael Aschner, Ph.D., now a professor and Harold & Muriel Block Chair in Molecular Pharmacology at Einstein, learned firsthand how parents feel when facing crucially important decisions affecting their child’s care. Under her direction, the parents of all children treated at The Children’s Hospital at Montefiore are fully informed members of the decision-making team.

Cutting-Edge Research
Just as her son benefited from an innovative therapy, Dr. Aschner’s tiny patients are helped by her commitment to offering them the latest biomedical advances—including her own.

One of her main interests is pulmonary hypertension (high blood pressure in the lungs). “In utero, the blood pressure in the lungs is normally very high but must fall dramatically at birth so that the newborn can take in oxygen and survive outside the womb,” she explains. “That process doesn’t always go well, especially for infants who have infections or lung or heart disease.”

Inhaled nitric oxide therapy, which dilates blood vessels, has transformed the field of neonatology, saving the lives of many full-term babies who would otherwise have died from pulmonary hypertension. “But many premature infants,” she says, “develop a devastating form of pulmonary hypertension that doesn’t respond to nitric oxide gas, so other strategies are needed.”

In the lungs and elsewhere in the body, cells lining blood vessels make their own nitric oxide, from amino acids synthesized in their intestine or provided by their diet. Dr. Aschner believes that premature infants cannot make enough of these amino acids and may not receive sufficient amounts in their diet. She has studied two animal models of pulmonary hypertension to see if giving them these amino acids might help them synthesize nitric oxide.

“We’re really excited by our results,” she says. “We’ve published several papers showing that one amino acid can reverse pulmonary hypertension and the arrested lung development associated with preterm birth.”

Dr. Aschner is also principal investigator on a National Heart, Lung and Blood Institute–funded multicenter study to identify biomarkers that predict which extremely preterm infants will develop long-term respiratory illness. “This work should help us better target therapies so we give the right medicine to the right baby at the right time,” she says.
Fevers and Seizures
Shlomo Shinnar, M.D., Ph.D., a professor in the Saul R. Korey Department of Neurology, of pediatrics and of epidemiology & population health, has received a renewal grant totaling $6.1 million over four years from the National Institute of Neurological Disorders and Stroke to continue a study of prolonged febrile (fever) seizures and their consequences in children. This study, led by Dr. Shinnar, began 10 years ago with the aim of finding how epilepsy develops following a prolonged febrile seizure. Findings thus far suggest that brain imaging and activity recording may help identify children at risk for developing temporal lobe epilepsy and memory impairment. Dr. Shinnar also directs the Comprehensive Epilepsy Management Center at Montefiore and Einstein.

Dialing Away Diabetes
The National Institute of Diabetes and Digestive and Kidney Diseases has awarded Jeffrey S. Gonzalez, Ph.D., $2.8 million over five years to test a telephone-based program designed to help patients manage their diabetes. Studies have shown that successful self-management reduces diabetes-related complications and improves quality of life. But many patients have trouble sticking with their treatment plans and become distressed by the struggle to do so.

Dr. Gonzalez has partnered with the New York Department of Health and Mental Hygiene to supplement primary clinical care with a program in which patients receive regular phone calls encouraging their compliance. The program’s effectiveness will be evaluated by measuring patients’ glucose levels (indicating whether they’ve adhered to treatment), distress and blood pressure. Dr. Gonzales is an assistant professor of medicine (endocrinology) and of epidemiology & population health.

Holes in the Heart
The National Heart, Lung, and Blood Institute awarded Bin Zhou, M.D., a four-year, $1.6 million grant to study the mechanisms underlying...
coronary ostium formation and coronary artery patterning. Coronary ostia are openings in the aorta through which blood circulates via the coronary arteries, supplying the heart with oxygen and other nutrients. Dr. Zhou will examine the role of two proteins, Vegfr-2 and Nfatc-1, in regulating coronary artery development and the connection of coronary arteries to the aorta. The research could lead to better understanding of how congenital heart defects occur. Dr. Zhou is a professor of genetics, of pediatrics and of medicine (cardiology).

Surveying Cell Transcription
Robert H. Singer, Ph.D., was awarded a $1.3 million grant over four years by the NIH to study a key gene activity with state-of-the-art microscopy techniques pioneered in his laboratory. Using differently colored fluorescent probes that can bind to any gene of interest, Dr. Singer’s team will observe the rate and frequency of the steps involved in transcription—the process in which a gene’s DNA code is copied onto messenger RNA molecules, which migrate from the nucleus to the cytoplasm where the cell’s protein-making machinery is located. The techniques to be used in this work are sensitive enough to follow a single messenger RNA molecule, which will allow his team to examine differences in the transcription process in different types of cells. Dr. Singer is a professor and co-chair of anatomy and structural biology, a professor of cell biology and in the Dominick P. Purpura Department of Neuroscience and co-director of the Gruss Lipper Biophotonics Center and of the EGLCF Integrated Imaging Program. He holds the Harold and Muriel Block Chair in Anatomy and Structural Biology.

Improving Diabetes Treatment
The National Institute of Diabetes and Digestive and Kidney Diseases has awarded $1.2 million to Rubina A. Heptulla, M.B.B.S., to identify measures for improving the management of type 1 diabetes in patients using an “artificial pancreas.”

Patients with type 1 diabetes need to monitor their blood glucose levels multiple times a day by pricking their fingers each time and injecting themselves with insulin. The artificial-pancreas technology seeks to address this problem by combining a tiny sensor that measures blood glucose and an insulin pump inserted under the skin that delivers insulin. But use of an artificial pancreas is complicated by hyperglycemia, a spike in the patients’ blood sugar levels that typically occurs immediately after they have eaten a meal.

Research supported by the grant will compare the effects of two drugs, exenatide and sitagliptin, in combating the hyperglycemia associated with treating diabetes with an artificial pancreas. Dr. Heptulla is a professor of pediatrics (endocrinology) and of medicine, and chief of the division of pediatric endocrinology and diabetes at Einstein and Montefiore.

Finding Out What Works
The New York State Department of Health has awarded a $1.17 million grant to support the Center for Comparative Effectiveness Research, a collaboration between Einstein and Montefiore. The funds will help scientists from diverse research areas compare the effectiveness of different prevention, screening and treatment options for economically underserved populations.

The center was established earlier this year by Julia H. Arnsten, M.D., M.P.H., chief of the division of general internal medicine at Montefiore and Einstein and professor of medicine, of epidemiology & population health and of psychiatry and behavioral sciences at Einstein. “This innovative model,” says Dr. Arnsten, “allows us to develop novel diagnostic and treatment options and, in parallel, quickly bring new advances directly to patient care.”
Maxims Minimus: Reflections in Microstyle

By T. Byram Karasu, M.D.
Professor and Chair of Psychiatry and Behavioral Sciences
Dorothy and Marty Silverman Chair in Psychiatry
Albert Einstein College of Medicine
Psychiatrist-in-Chief
Montefiore Medical Center

In this book of maxims, Dr. Karasu—a New York psychiatrist who clearly has heard it all when it comes to human interactions—distills basic truths involving relationships, love, marriage, work, culture, politics, psychotherapy, religion, soul, stress, aging and the self.

Twitter-age pithiness, he writes, “suits me well, since I find that anything that cannot be said in 140 characters—or 140 seconds—is not particularly worth saying.” Among his minimalist maxims:

“To use sincerity as a technique is the ultimate insincerity.”
“Giving advice is poorly disguised self-promotion.”
“Love makes itself felt through excesses.”
“Co-independence is the secret of a healthy relationship between spouses.”
“Teaching, force or love will not tame youth. Time does.”
“The incorrectness of their creative minds is what makes artists so appealing.”
“Do not reply unless you want to engage further.”
“The liar believes no one.”
“In psychological growth, there is no end product.”
“If we all share the same ‘divine womb,’ stop kicking.”
“Only wise sayings delivered in kindness are useful.”
“With a friend, just be a friend—not a business partner, a banker, a client, an accountant, a minister, a lover or a therapist.”
“Sitting on the fence too long strains one’s buttocks.”
“You are imprisoned in your body, but you can improve on the accommodations.”

There are also interesting pairings: “Irreconcilable differences exist between men and women; they are erotic material” is followed by “It is the reconcilable differences that cause most divorces.”

The author likes to provide a general context for his maxims. Each chapter begins with a brief introduction and a telling chapter title: “Friendships and Relationships: Embracing Imperfect Offerings”; “Politics: Selfish Saints”; “Self: From Nowhere to Here”; and “Aging/Death: From Here to Nowhere.”

Dr. Karasu has also written or edited 20 other books, including Rags of My Soul, a book of poetry reviewed in this space in the Summer/Fall 2009 issue.

Published by:
A psychiatrist turning evil is a particularly painful betrayal: a doctor of the mind toying with our sanity. Fortunately, it doesn’t happen often in real life. But in movies, plots featuring mad psychiatrists have long been a staple.

In her new book, Dr. Packer traces the history of the genre and finds that it originated not in Hollywood but on the European silent screen, with the 1920 German film The Cabinet of Dr. Caligari. We learn that Hannibal the Cannibal (Lector), first featured in 1991’s The Silence of the Lambs, holds the American film record for repeat appearances by a sinister psychiatrist.

Dr. Packer notes that the “mean-minded doctors” in such movies “exploit innate fears about mind control that continue to plague the public.” The exploitation takes many forms, including drug injections, unethical experiments, involuntary incarceration and lobotomies. The author teases out the germ of truth in cinema’s diabolical doctors and—spoiler alert—cautions that real life can be almost as strange as, or even stranger than, what we see on the silver screen or on DVD.

Published by:
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This book’s take-home message is that educated moms make the smartest choices about their pregnancies and their babies’ health. Dr. Dolan and her co-author provide all the information women need to make those choices, from how to get healthy before you get pregnant, through “go-time” (as in “go to the hospital to have the baby”), to breastfeeding and recuperating from a cesarean section.

Half of all pregnancies are unplanned. And so, Dr. Dolan tells her readers, “there’s a good chance that when you picked up this book you were already several weeks or months into your pregnancy.” That’s fine too, she says, because good choices at any point in pregnancy can mean a healthier baby.

Besides all the nutrition and exercise basics, Dr. Dolan offers a hefty chapter on making the world around you safer—avoiding pollutants such as cigarette smoke, lead, carbon monoxide, mercury, radiation, pesticides and plastics.

Dr. Dolan is an Einstein professor as well as an obstetrician-gynecologist and clinical geneticist with a practice serving women and families in the Bronx. She is also a medical advisor to the March of Dimes, the national organization dedicated to preventing birth defects.

The book is available in English and Spanish. It is printed only in paperback and is compact enough to carry in a purse or backpack.

Published by:
Attacking an Epidemic

“An ounce of prevention is worth a pound of cure” referred to the benefits of preventing fires, not disease. But Ben Franklin’s aphorism also applies to people at risk for type 2 diabetes.

Type 2 Diabetes

Some 26 million Americans already have type 2 diabetes, incurring healthcare bills totaling $250 billion a year.

Millions more are at risk for developing the disease. If current trends continue, one in three Americans will have diabetes by 2050.

By Gary Goldenberg
The major cause of the type 2 diabetes epidemic is obesity. Excess body fat not only swells the waistline but also alters the blood, filling it with inflammation-causing chemicals that make various tissues more resistant to insulin, the hormone that directs cells to absorb glucose from the bloodstream to use as an energy source.

“The body compensates for insulin resistance by telling beta cells in the pancreas to make more insulin,” says Jeffrey E. Pessin, Ph.D., professor of medicine (endocrinology) and of molecular pharmacology, the Judy R. and Alfred A. Rosenberg Professorial Chair in Diabetes Research and director of the Diabetes Research Center at Einstein. “But this works only for so long. Over time, beta cells have an increasingly hard time secreting insulin, and they eventually begin to fail.”

Insulin’s absence allows sugar levels in the blood to rise, setting the stage for serious health complications such as heart disease, hypertension, kidney failure, foot amputations and blindness.

Could type 2 diabetes and its complications be prevented? To find out, Einstein and 26 other sites nationwide collaborated on a landmark clinical trial—the Diabetes Prevention Program (DPP)—that began in 1995. The DPP studied whether a lifestyle intervention (modest weight loss and exercise) or treatment with metformin (an oral diabetes drug that suppresses glucose production in the liver) could prevent or delay the onset of type 2 diabetes in people at high risk for the disease.

The results of the DPP, published in the New England Journal of Medicine in 2002, showed clearly that these measures could help prevent type 2 diabetes and that lifestyle changes were especially effective.

For overweight adults with prediabetes (blood glucose levels higher than normal but not high enough to warrant a diabetes diagnosis), their incidence of diabetes was reduced by 58 percent with lifestyle changes and by 31 percent with metformin, compared with those who received a placebo. People 60 and over especially benefited from lifestyle intervention, which reduced their diabetes risk by a remarkable 71 percent. And lifestyle changes worked equally well in men and women and across all major ethnic groups.

Allen M. Spiegel, M.D., then director of the National Institute of Diabetes and Digestive and Kidney Diseases (the trial’s primary sponsor) and now the Marilyn and Stanley M. Katz Dean at Einstein, called the DPP findings “a major step toward the goal of containing and ultimately reversing the epidemic of type 2 diabetes in this country” and noted that “every year a person can live free of diabetes means an added year of life free of the pain, disability and medical costs incurred by this disease.”

The DPP showed that overweight or obese people can avoid or delay developing type 2 diabetes simply by losing weight—ideally through regular physical activity and a low-fat, low-calorie diet.
diet. Millions of people urgently need to adopt those measures, as the following statistics show:

- More than one-third of American adults (35 percent) were classified as obese in 2011–2012 (as noted in an October 2013 report from the National Center for Health Statistics). This translates to more than 78 million people at high risk for developing type 2 diabetes.
- In New York City, 58 percent of adults and nearly 40 percent of children are overweight or obese. As a result, one in three adult New Yorkers now has type 2 diabetes or prediabetes.
- The obesity epidemic is especially acute in the Bronx, with one of the highest obesity incidences of any county in the United States. Nearly 70 percent of Bronx adults—about 630,000 people—are overweight or obese.
- $4 billion is spent annually in New York City on healthcare costs related to obesity.

**DO DPP BENEFITS LAST?**

The DPP followed patients at risk for diabetes for an average of only three years and so couldn’t answer some key questions, such as: Can people ward off diabetes indefinitely if they stick with their medications and a healthy lifestyle? Will at-risk people who change their behaviors but still develop diabetes experience less frequent or less severe complications? Such questions are being addressed in the Diabetes Prevention Program Outcomes Study, or DPPOS, which is following the original DPP participants for an additional 15 years.

“The average age of our study participants is now in the mid-60s, so this phase should show whether people can maintain an active lifestyle with advancing age,” says Jill P. Crandall, M.D., professor of clinical medicine (endocrinology), a DPP investigator and now one of the DPPOS’s principal investigators. “Perhaps most important, we’ll find out whether the DPP interventions help reduce diabetic complications.”

The findings from the current phase of DPPOS are expected in 2015. “We assume and hope that the program will produce long-term benefits, but we don’t know for sure,” says Dr. Crandall, who is also an attending physician in endocrinology at Montefiore Medical Center.

**WALKING THE WALK**

The DPP finally gave clinicians a highly effective remedy for preventing diabetes or slowing its onset. The next and
arguably more formidable challenge is motivating patients to take the “medicine” prescribed by the DPP—no easy task. Studies assessing patient compliance have found that as few as 60 percent of type 2 diabetes patients adhere to the medication regimen prescribed for them.

Patients are even less likely to follow healthy eating and exercise recommendations than to do something relatively simple such as taking a pill, notes Elizabeth A. Walker, Ph.D., R.N., professor of medicine (endocrinology) and of epidemiology & population health and co-leader of the DPP’s medication adherence group.

“Eating in particular is highly complex,” Dr. Walker notes. “It’s fraught with emotions. It’s about comfort food, family, memories of Mom’s home cooking. Plus, you have to decide what to eat several times a day. The challenge of eating well is never ending.”

Dr. Crandall says that the realities of everyday life can also interfere with healthful habits. “For example,” she asks, “how do you inspire adults to exercise when they are working two jobs and must take two buses to get to the local YMCA? How do you encourage children to eat fresh fruits and vegetables when fast foods are available on every corner?”

The task of translating the DPP findings into workable remedies falls to behavioral scientists such as Dr. Walker. Below are descriptions of her work and that of other like-minded faculty at Einstein and its primary teaching hospital, Montefiore Medical Center.

As your weight (expressed here as body mass index, or BMI) rises, so does your risk of developing type 2 diabetes. This illustration, based on the landmark Nurses’ Health Study, shows that even a woman of average weight (BMI = 24) has about a five-fold higher risk of developing diabetes than a woman with a BMI of 22 or less. Other studies show a similar risk for men and for adolescents of both sexes. (Visit http://www.cdc.gov/healthyweight/assessing/bmi/ to learn your BMI.)
WHAT DO MEN WANT?
A few years after the DPP issued its findings, the Centers for Disease Control and Prevention teamed with the YMCA to bring the DPP’s lifestyle intervention to communities nationwide. Now known as the National Diabetes Prevention Program (NDPP), this yearlong effort consists of 16 weekly group sessions on diet and exercise, followed by periodic “booster” classes. The NDPP is now offered in some 250 locations in 26 states.

The NDPP reportedly is working well, yet it can’t begin to reach all those who need it. This is especially true in the Bronx, with its single YMCA site for a population of 1.4 million and a high incidence of obesity.

The clear need for more resources prompted Dr. Walker to apply for and win a grant from the Leon Lowenstein Foundation, Inc., of New York to study whether modifying the Bronx NDPP could pave the way for more such programs in the borough.

One of the most compelling findings to arise from her study was that men make up just one in ten Bronx NDPP enrollees. “This is a significant problem,” says Dr. Walker. “Men have a somewhat higher risk of developing type 2 diabetes than women, and black and Latino men have a higher risk than Caucasian men.”

It’s too early for a definitive explanation for the gender disparity found in the Bronx NDPP classes, but Dr. Walker suspects a major reason is that the men simply aren’t as interested as women in “lifestyle” programs. “If that’s true,” she says, “we think that we can get more men in the door by emphasizing physical activity and making the group activities a bit more competitive.”

Dr. Walker and her colleagues (who include officials at the Bronx NDPP and healthcare providers and administrators at Montefiore) are also looking at ways to improve overall enrollment, increase retention rates, lower economic barriers to participation and find additional sites for hosting the program. Montefiore has now begun offering the NDPP program at some of its own clinics, including classes taught in Spanish. And the medical center has updated its electronic medical record system, allowing clinicians to refer patients to a diabetes prevention program more easily.

“At Montefiore we’ve made diabetes prevention a top priority,” says Peter A. Selwyn, M.D., M.P.H., professor and chair of family and social medicine at Einstein and Montefiore, professor of epidemiology & population health, of medicine and of psychiatry and behavioral sciences at Einstein and director of the Office of Community Health and Wellness at Montefiore. “We’re working to find new ways of promoting healthy behaviors and healthy environments. In public health, we often talk about making the healthy choice the easy choice. That tactic is critical in preventing diabetes.”

AN EASTERN INTERVENTION
A borough away from the Bronx but a world apart, other Einstein researchers are studying diabetes prevention among Chinese immigrants in Lower Manhattan—another community that could benefit from a customized approach to diabetes prevention.

“The NDPP is a good idea—it brings people to a place to both learn and exercise—but it’s not ideal for this particular community,” explains Judith Wylie-Rosett, Ed.D., professor of epidemiology & population health (health promotion and nutrition research) and of medicine (endocrinology) and the Atran Foundation Chair in Social Medicine.

“Chinese immigrants prefer getting their healthcare advice from Chinese physicians. So if you want to reach this population, you have to go through the local practices rather than the YMCA.”

Dr. Wylie-Rosett gained her insights from working with several organizations
serving New York City’s Chinese-American community. That collaboration has yielded recommendations for tailoring the NDPP intervention to this group. “We’ve learned, for example, that many Chinese aren’t comfortable talking about personal issues in a group setting, so we’ve added telephone counseling for certain topics,” she says.

Other adaptations include adding karaoke—a favorite Asian pastime—to the stress-management session; distributing healthy Chinese recipes; and tailoring discussions on how body fat relates to diabetes (reflecting that Asians tend to develop the disease at a lower body mass index [or BMI, an indicator of body fat] than other groups do).

Dr. Wylie-Rosett and her colleagues are currently finishing a pilot study to test whether the revamped program is acceptable and effective.

EMPOWERING BANGLADESHI WOMEN

Just a mile from the Einstein campus, the Bronx Bangladeshi community is the fastest-growing immigrant group in New York City. Until recently, its health needs were largely unknown. A 2012 survey by Alison Karasz, Ph.D., associate professor of family and social medicine, found that an astonishing 74 percent of local Bangladeshi women were either overweight or obese and that more than 15 percent had type 2 diabetes—the highest rates in the city.

Offering these women a program such as the NDPP lifestyle intervention might have seemed a logical response. But Dr. Karasz, a clinical psychologist who has been practicing in the Bronx South Asian community for years, had a different idea.

“Intensive lifestyle programs such as the NDPP are highly effective in the general population,” she says. “But they’re based on Western theories of ‘empowering the individual’ that tend to ignore the extent to which learning and behavior change are embedded in social networks and communities.” When recruiting women from such a traditional hierarchical society into treatment, she adds, “it’s important to make sure that their families are on board with the program.”

Such considerations prompted Dr. Karasz and her colleagues to develop two lifestyle interventions aimed at improving women’s nutrition and exercise habits: SAATHI (South Asians Acting Together for Health Improvement) and APPLE (Activating People to Pursue Lifestyle Change through Empowerment). Both programs build social networks that offer support for women as they change their behaviors in ways acceptable to family members. For example, each participant is partnered with a bondhu (“friend” in Bengali) who helps her set goals and maintain her lifestyle changes.

The approximately 50 women recruited so far into SAATHI and APPLE lost an average of 5.8 percent
of their weight after completing the programs. And, says Dr. Karasz, about 75 percent of enrollees complete the programs—a much better retention rate than other lifestyle programs designed for immigrants have achieved. She believes these programs could serve as a model for diabetes prevention and treatment programs in other traditional immigrant communities.

FOCUS ON CHILDREN

Readers of a certain age may remember when type 2 diabetes was called “adult-onset” diabetes, since it didn’t usually appear until middle age. But diabetes has been trending younger and younger in recent years—a direct consequence of the rise in childhood obesity. Einstein and Montefiore have launched several initiatives to help children avoid the disease. One example is B’N Fit (the Bronx Nutrition and Fitness Initiative for Teens), founded and directed by Jessica Rieder, M.D., M.S., associate clinical professor of pediatrics (adolescent medicine) at Einstein and an attending physician in adolescent medicine at The Children’s Hospital at Montefiore.

B’N Fit is a nine-month weight-management program that helps obese inner-city adolescents adopt healthy lifelong nutritional and physical activity skills; develop coping skills and personal responsibility; and use family, social and community resources to achieve personal goals. Begun in 2005, B’N Fit is a collaborative effort of The Children’s Hospital at Montefiore and the Moshulu Montefiore Community Center.

Dr. Rieder and her colleagues recently evaluated 349 adolescents (two-thirds of them severely obese) who enrolled in B’N Fit. The 91 participants who completed the program showed significant improvement in their BMIs, consumed significantly more servings of fruit and vegetables daily and participated significantly more often in vigorous physical activities—all in spite of school obligations, family emergencies and transportation issues. But nine months after the teens completed the program, their BMIs had increased significantly.

“Our findings indicate that a nine-month program isn’t long enough to have a sustained impact on obese inner-city teens,” says Dr. Rieder. “These kids need long-term support for sticking with the healthy lifestyles that are so crucial for losing weight and keeping it off.”

Dr. Wylie-Rosett is developing a program similar to B’N Fit for preteens at risk for diabetes, but adding parents to the mix. “Our goal is to make a healthy lifestyle a family agenda,” she says. The

At right, teens in the B’N Fit program prepare healthy foods and receive advice about maintaining a healthy lifestyle.

THE PARTICIPANTS SHOWED SIGNIFICANT IMPROVEMENT IN THEIR BODY MASS INDEX (BMI) AND ATE SIGNIFICANTLY MORE FRUITS AND VEGETABLES DAILY

30 EINSTEIN : WINTER/SPRING 2014
PREVENTING TYPE 1 DIABETES

People at risk for type 2 diabetes can prevent or slow the onset of the disease through diet, exercise or drugs. But the search continues for a way to stave off type 1 diabetes, which affects about 5 percent of all people who have the disease.

Scientists led by Teresa P. DiLorenzo, Ph.D., professor of microbiology & immunology and of medicine (endocrinology) and the Diane Belfer, Cypress & Endelson Families Faculty Scholar in Diabetes Research at Einstein, believe the answer may lie with immune-system cells called dendritic cells. They patrol the body looking for foreign invaders such as bacteria, viruses or toxins.

After capturing the invaders, dendritic cells break them into fragments and present them to T cells—thereby priming T cells to attack anything in the body that displays those fragments. Type 1 diabetes occurs when T cells mistakenly view the pancreas’s beta cells (the body’s source of insulin) as potential threats and then launch an autoimmune attack that destroys them.

“Suppressing all of the body’s T cells could prevent or even reverse type 1 diabetes,” says Dr. DiLorenzo. “However, this would lead to serious side effects, such as an increased susceptibility to infections and cancer. Our approach seeks to suppress only those T cells responsible for destroying the beta cells.”

Here’s where dendritic cells come in. New research has revealed that dendritic cells can influence T cells in two diametrically opposite ways: provoking T cell attacks in some circumstances and suppressing attacks in others. Dr. DiLorenzo is trying to bolster the suppressive side of dendritic cells—essentially enlisting them to “teach” T cells not to attack beta cells of the pancreas.

TYPE 1 DIABETES OCCURS WHEN T CELLS MISTAKENLY VIEW THE PANCREAS’S BETA CELLS—THE BODY’S SOURCE OF INSULIN—AS POTENTIAL THREATS AND THEN LAUNCH AN AUTOIMMUNE ATTACK

The autoimmune attack on beta cells targets specific antigens, including a peptide (small protein) within proinsulin, the precursor to insulin. In studies of diabetic mice, Dr. DiLorenzo and her colleagues deliver this antigen to a dendritic cell-surface receptor called DEC-205. After the dendritic cells ingest the antigen, they present it to T cells.

When the antigen was later introduced into the mice, no immune response occurred—evidence that T cells of the mouse immune system now tolerate this peptide. If the same strategy works in humans, says Dr. DiLorenzo, it might be possible to protect people at high risk for type 1 diabetes from developing the disease.

PATHWAY TO PREVENTION

Einstein researchers are also participating in a study called Pathway to Prevention, which recruits people at increased risk for type 1 diabetes to learn more about how it develops. Study subjects are selected by screening the blood relatives of those with type 1 diabetes and testing them for antibodies associated with the disease.

People with those so-called autoantibodies have a 10- to 15-fold greater risk of developing type 1 diabetes compared with people with no family history, says Rubina A. Heptulla, M.B.B.S., professor of pediatrics (endocrinology) and of medicine at Einstein and chief of pediatric endocrinology and diabetes at The Children’s Hospital at Montefiore, one of the screening sites.

Pathway to Prevention is part of TrialNet, an international network of researchers and institutions dedicated to the study, prevention and early treatment of type 1 diabetes.

ON THE WEB
www.einstein.yu.edu/rr/dilorenzo2014
program features recreational and educational activities for kids plus workshops for parents that include advice on healthy eating and effective parenting strategies.

Ideally, the program will change the family dynamic when it comes to eating—making the dinner table the focal point of meals, for example. “In many households, the TV is on all the time, and everyone eats in front it,” says Dr. Wylie-Rosett. “There’s no regular meal time. We think it’s important for family members to eat together, to talk to each other and to pay attention to what they’re eating.”

Dr. Wylie-Rosett is planning to test the intervention on several hundred Bronx families.

RESVERATROL TO THE RESCUE?

If lifestyles changes aren’t enough to prevent diabetes, perhaps a glass of red wine can do the trick.

As many oenophiles know, red grapes contain a chemical called resveratrol that can normalize glucose metabolism, prevent cancer and heart disease and prolong life spans—at least in animals. In a 2010 pilot study of 10 older patients with pre-diabetes, Dr. Crandall and her Einstein colleagues found that resveratrol supplements improved the subjects’ insulin sensitivity and postmeal glucose tolerance—the first study to link resveratrol to a benefit in humans.

Dr. Crandall was later awarded a $600,000 grant from the American Diabetes Association to expand her inquiry into resveratrol. She will study 30 people ages 50 to 80 who have impaired glucose tolerance to see how resveratrol supplements affect post-meal metabolism of blood glucose. Preliminary studies will explore how resveratrol works by examining cellular function (in muscle samples obtained from study participants) and by testing resveratrol’s effect on blood vessel function.

Resveratrol supplements must be used because diet alone can’t supply what is believed to be a therapeutic concentration of the compound: Researchers estimate that you’d need to drink hundreds bottles of wine per day to obtain the resveratrol levels found therapeutic in mice.

“Our earlier work has given us reason to be hopeful,” says Dr. Crandall. “Given the easy availability, low cost and apparent safety of resveratrol supplements, a positive finding could have an enormous impact on human health.”

The BODY Garden

Four years ago, it was a vacant lot. Today the Bronx, Obesity, Diabetes and You (BODY for short) garden features six raised vegetable beds, fruit bushes, a lettuce table, a gravel path, flower beds, picnic tables, compost bins and herb plantings. Students in Einstein’s BODY club are using this space just south of Montefiore’s Weiler Hospital to introduce Bronx residents to the joys of planting, harvesting and (most important) eating healthy food and making exercise a daily routine—two big ways to prevent or control type 2 diabetes.

Last May, BODY garden volunteers hosted their first school group: 150 fourth graders from P.S. 89.

“When I started BODY, I thought I’d have to pull teeth to get busy Einstein students involved, but the reality was the opposite—my peers led and participated in many BODY activities over the last three years,” says Ross Kristal, Class of 2015, who has type 1 diabetes. “They brought a steady stream of creative ideas to the table, and the Einstein faculty and administration helped us implement them.”

Ross is now digging into population health research focusing on diabetes and obesity and has passed his BODY trowel to graduate students Tony Bowen and Julie Nadel.

ON THE WEB
http://bodycommunitygarden.blogspot.com/
More than 40 years ago, research conducted at Einstein helped connect a type of hemoglobin called HbA1c to diabetes—a discovery that has transformed the way diabetes is diagnosed, treated and prevented.

The story begins in 1968 when Samuel Rahbar, M.D., Ph.D., a Jewish-Iranian scientist, was examining blood samples in his lab at the University of Tehran. Nearly 20 years earlier, Linus Pauling had found that an aberrant type of hemoglobin was responsible for sickle cell anemia. Dr. Rahbar was looking for other hemoglobin variants that might be linked to human disease. After screening thousands of blood samples, he saw something interesting in the blood of a 67-year-old woman.

“I said to myself, ‘What is this? This isn’t fitting with any of the known hemoglobins,’” Dr. Rahbar recalled years later in an interview. The woman’s medical records indicated that she had diabetes—prompting Dr. Rahbar to examine the blood of 47 more people with diabetes, all of whom had the same unusual type of hemoglobin. He published his findings later that year in a paper, “An Abnormal Hemoglobin in Red Cells of Diabetics.”

Dr. Rahbar was eager to confirm his findings in a different laboratory, so later that year, he came to Einstein as a visiting scientist working under Helen M. Ranney, M.D., a professor of medicine and pioneer in studying hemoglobin and sickle cell anemia.

Drs. Rahbar and Ranney analyzed blood samples from people in the...
for type 1 diabetes head to head. It used the HbA1c test to assess each treatment’s effectiveness in controlling blood sugar levels over the long term.

In 1993, the DCCT reported that intensive blood sugar control, as measured by HbA1c level, dramatically reduced the long-term complications of type 1 diabetes. (Einstein’s role in the DCCT is described in “A Look Back,” page 56.)

The HbA1c test soon became a game changer. Glucose tests such as finger-prick testing report blood glucose levels at a particular moment, which helps patients adjust daily insulin doses. But such tests offer no information about the long-term blood glucose levels that so crucially influence whether complications will develop in someone with diabetes.

By contrast, the HbA1c test measures a patient’s average blood glucose level over the previous two or three months (the lifespan of a red blood cell). Clinicians now routinely test their diabetes patients’ HbA1c levels several times a year. They adjust patients’ therapies accordingly, to optimize blood glucose control and minimize the risk of life-threatening complications.

The HbA1c test has now been validated for diagnosing types 1 and 2 diabetes and for monitoring prediabetic patients to prevent full-blown diabetes from developing. (The American Diabetes Association now regards a diabetes diagnosis as being warranted when someone’s HbA1c level is greater than or equal to 6.5 percent.) In addition, measuring HbA1c has become the FDA’s gold standard for evaluating the effectiveness of new diabetes treatments. It’s no surprise that HbA1c was recently called “one of the most important biological molecules in modern medicine.”

Dr. Rahbar returned to Iran after his stint at Einstein. During the Iranian revolution he was accused of being cozy with the Shah’s family, lost his professorship at the University of Tehran and fled to the United States in 1979 with his wife and three daughters. He reunited with Dr. Ranney, who by then was at the University of California–San Diego, and studied diabetes for the next 33 years at the City of Hope National Medical Center in Duarte, CA.

In June 2012 the American Diabetes Association bestowed a special, one-time National Scientific Achievement Award—the Samuel Rahbar Outstanding Discovery Award—on Dr. Rahbar himself, to honor him for his discovery of HbA1c as a marker for diabetes. He died the following November at age 83.
BACK TO THE Future

A step backward in cell development takes Einstein researchers two steps forward

BY GARY GOLDENBERG
Scientists have known for decades that we possess stem cells that replenish our bodies’ tissues. Blood-forming (hematopoietic) stem cells, for example, can spawn red cells, white cells and all the other types of blood cells. Most intriguing of all are human embryonic stem cells, capable of developing into any of the body’s more than 100 different types of tissue—a characteristic known as pluripotency.

Researchers suspected that if human embryonic stem cells could be isolated, they could be used to renew or repair all sorts of human tissues. But even the simple act of obtaining human stem cells for scientific study proved difficult.

A breakthrough came in 1998, when James Thomson of the University of Wisconsin discovered how to isolate stem cells from early human embryos and culture them in laboratory dishes. Ideally, these human embryonic stem cells could then be made to develop into any tissue type desired. But obtaining human embryonic stem cells meant sacrificing the embryo, triggering opposition to their use. In 2001, President George W. Bush limited federal funding for such research to 60 human embryonic stem cell lines then in existence.

The field was reinvigorated by Shinya Yamanaka, M.D., a Japanese researcher. In 2006, Dr. Yamanaka found that inserting four particular genes into adult mouse skin cells caused those cells to go backward developmentally and turn into cells closely resembling embryonic stem cells. He then showed that these engineered cells, dubbed “induced pluripotent stem cells (iPSCs),” could—like embryonic stem cells—be coaxed to differentiate into many cell types. A year later, he duplicated the experiment using adult human skin cells. His discovery that mature, fully differentiated cells could be reprogrammed to become pluripotent would earn him a share of the 2012 Nobel Prize in Physiology or Medicine.

“Thanks to Dr. Yamanaka’s breakthrough, researchers finally have a source of embryonic-like human stem cells that is free of ethical constraints,” says Paul S. Frenette, M.D., professor of medicine (hematology) and of cell biology, and chair and director of the Ruth L. and David S. Gottesman Institute for Stem Cell and Regenerative Medicine Research at Einstein. “While it’s too early to assess the full impact of this
technology, iPSCs have great potential in everything from disease modeling to drug testing to regenerative medicine.”

Einstein investigators are currently using iPSCs to study autism, schizophrenia, cataracts, liver disease and blood disease. To encourage further iPSC research, the Gottesman Institute has established a Pluripotent Stem Cell Unit, which creates iPSCs for the Einstein research community and provides training in maintaining and differentiating iPSCs.

The work of two of Einstein’s iPSC researchers is featured below.

**Let There Be Blood Cells**

Since World War II, just about every aspect of healthcare, from surgery to radiology to record keeping, has undergone sweeping change. Blood banking is a notable exception. Blood today is collected, typed, screened and stored much as it was in the late 1940s, when a nationwide system of blood banks was first organized.

While this system works relatively well, it has significant flaws, says Eric E. Bouhassira, Ph.D., professor of cell biology and of medicine (hematology), the Ingeborg and Ira Leon Rennert Professor of Stem Cell Biology and Regenerative Medicine and director of the Pluripotent Stem Cell Unit.

With its brief shelf life, blood can’t be stockpiled, resulting in local shortages. And while all units of donated blood are screened for a variety of pathogens, nothing can be done to prevent the transmission of new ones, which is what happened with HIV in the 1980s. In addition, some people with sickle cell anemia and other conditions requiring chronic transfusions develop sensitivities to antigens in blood, making it difficult to find suitable blood matches.

Dr. Bouhassira is trying to use iPSCs to produce red blood cells (RBCs) on an industrial scale—a seemingly far-fetched idea that may not be so far off. In a 2011 study published in *PloS One*, he showed that various types of adult human cells could be reprogrammed into iPSCs, which could then be made to produce large quantities of fetal-like red blood cells. Unfortunately, fetal RBCs have a form of hemoglobin (the
Genetically modified stem cells offer perhaps the best hope for curing thalassemia.

Genetically modified stem cells offer perhaps the best hope for curing thalassemia. In one approach, doctors harvest a patient's hematopoietic stem cells, use viral vectors to insert normal copies of the affected gene into them and then return the cells to the patient. But using viral vectors risks inducing cancer-causing mutations in the stem cells.

Dr. Bouhassira is developing a potentially safer stem cell cure based on iPSCs, which can be genetically modified without viruses. The idea here is to convert the patient's skin cells into iPSCs and then modify the iPSCs with oxygen-carrying protein in RBCs) that differs from the kind in mature RBCs, and they would not sustain an adult’s oxygen needs.

“Our next challenge,” says Dr. Bouhassira, “is to induce iPSCs to differentiate far enough along the blood-forming pathway that we can create RBCs that possess adult hemoglobin.”

In addition to their freedom from ethical problems, iPSCs offer another key advantage over human embryonic stem cells: replacement tissues derived from iPSCs are unlikely to provoke an immune response resulting in tissue rejection. New nerve cells for a patient with Parkinson’s disease, for example, should be a good match for that patient, since they come from iPSCs derived from the patient’s own skin cells rather than from an embryo with a different genetic makeup. Dr. Bouhassira is taking advantage of this trait in work aimed at transforming iPSCs into cures for genetic blood disorders such as thalassemia.

People with thalassemia make an abnormal form of hemoglobin that causes mild to severe anemia, depending on the underlying genetic flaw. Thalassemia is typically treated with repeated blood transfusions. But over time, such transfusions can cause elevated blood levels of iron, which must be removed with costly chelation therapy.

Selected cases of thalassemia can be cured with bone marrow transplantation, in which the patient receives high doses of drugs or radiation to destroy the diseased hematopoietic (blood-forming) stem cells, followed by a
a gene-insertion technique using zinc finger nucleases—synthetic proteins that carry little or no risk of causing cancer. Scientists would then induce the corrected iPSCs to develop into RBCs, which would be transfused back into the patient.

In a study published last year in Blood, Dr. Bouhassira showed that this technique could potentially correct the genetic flaws responsible for alpha thalassemia major, the most severe form of the disease. But as with the effort to form RBCs for transplantation, the genetically corrected iPSCs must progress beyond the fetal RBC stage and develop into adult RBCs before this therapy can be brought to clinical trials.

**Make-Your-Own Neurons**

The ideal way to study disease at the molecular level is to analyze cells from the affected tissues of patients—not a problem for, say, dermatologists or hematologists, who can readily obtain skin or blood cells. But neuroscientists lack such access. The brain, encased in its bony vault, is well protected from insult, injury and prying hands. So those who study brain diseases have had to make do with tissue samples obtained at autopsy.

“This has been extremely limiting,” says Herbert Lachman, M.D., professor of psychiatry and behavioral sciences and of medicine (hematology). “Diseases such as schizophrenia may begin as early as embryogenesis. But with autopsy specimens, you’re typically looking at cells from adults, many decades after the disease first developed. In addition, the cells may be from someone who abused drugs or alcohol or had taken psychotropic medications, which can make it difficult to distinguish the primary disease from secondary influences.”

Dr. Lachman has embraced iPSC technology because he realizes it could provide him with live nerve cells (neurons) from living patients.

“It was a steep learning curve—iPSC technology is extremely complex, and I made a lot of rookie mistakes,” he admits. But his efforts are paying off. Three years down the line, he has mastered the fine art of transforming skin cells into iPSCs and then tweaking iPSCs into neurons, creating a bounty of research opportunities.

In a study funded by the National Institute of Mental Health, Dr. Lachman is comparing iPSC-derived neurons from patients with schizophrenia to neurons from healthy controls. He’s particularly interested in whether neurons from the two groups differ in their microRNAs—snippets of RNA that regulate gene expression.

MicroRNAs are known to play a key role in brain development and in forming synapses (connections between neurons), says Dr. Lachman, who is also an associate professor in the Dominick P. Purpura Department of Neuroscience and the department of genetics. And evidence from a genetic disease called velo-cardio-facial syndrome (VCFS) points to a role for microRNAs in schizophrenia.

VCFS is caused by a 22q11
Despite the great potential for creating disease models using iPSCs, Dr. Lachman cautions that it will take some time before therapies based on this technology reach patients. “Research into gene therapy began several decades ago, and we’re just starting to see results,” he says. “The same will probably hold true for iPSCs.”

In other iPSC research, Dr. Lachman is employing iPSCs to grow “mini-brains” in laboratory culture. No Frankenstein worries here: These creations are not brains in the traditional sense but rather small, in vitro three-dimensional aggregates of radial glial cells (neuron precursors) and maturing neurons. The mini-brains are intended to mimic neuronal structures that form in the developing forebrain.

“We can see abnormalities in neuronal structures in the developing forebrain,” Dr. Lachman says. “Since they are a brain-forming aggregate, we can look at these structures to understand how they might be influenced by 22q11 deletions.” He notes that mini-brains could also be used to evaluate new medications for schizophrenia and other diseases.

A third iPSC cell project involves work that Dr. Lachman is doing with Brett S. Abrahams, Ph.D., assistant professor of genetics, to study neuron abnormalities in autism spectrum disorders (ASD).

As in his schizophrenia research, he is using iPSC technology to derive neurons from healthy children and compare them with neurons from children with ASD. The researchers are looking for variations in a portion of chromosome 15 known as 15q11.2. Deletions and duplications within this small area can increase the risk for autism and other behavioral disorders. Some individuals with these variations have no neurodevelopmental issues, while others are severely affected.

By looking at the molecular differences between neurons of affected individuals and healthy controls, Drs. Lachman and Abrahams hope to find precisely how variations at 15q11.2 increase the risk for autism and, ultimately, to develop ways of counteracting the effects of those gene defects.

**iPSC Caveats**

Despite the great potential for creating disease models using iPSCs, Dr. Lachman cautions that it will take some time before therapies based on this technology reach patients. “Research into gene therapy began several decades ago, and we’re just starting to see results,” he says. “The same will probably hold true for iPSCs.”
Remembering Overseers Rita and Philip Rosen

The Einstein community has lost two of its most devoted supporters. Rita and Philip Rosen were Benefactors of the College of Medicine and distinguished members of Einstein’s Board of Overseers. They were involved with the College of Medicine for more than 50 years. Mr. Rosen died on January 19, 2014, at the age of 92; Mrs. Rosen passed away less than two months later, on March 8, at age 88.

Philip Rosen joined the Board of Overseers in 1977, served as vice chair from 1994 to 2007 and was honored with the title of Life Overseer. He was also a founding member and past chair of the Einstein Men’s Division and served for many years on its executive board. The division provides philanthropic leadership to help advance Einstein’s mission, and Mr. Rosen considered it a training ground for the Board of Overseers. Many current Board members are “graduates” of the Men’s Division.

“We are deeply saddened by the passing of our dear friend and esteemed Life Overseer,” says Ruth L. Gottesman, Ed.D., chair of the Board of Overseers. “We have cherished and will sorely miss his friendship, wisdom, passion and creativity.”

Rita Rosen was a longtime member and ardent supporter of Einstein’s Women’s Division and was a dynamic and inspirational leader. Over the years, she served as the division’s president and as an executive vice president, and on the executive committee of its New York chapter board. In 2004, the Women’s Division honored her with its highest accolade, the Lizette H. Sarnoff Award for Volunteer Service.

A trained actress and award-winning film producer, Mrs. Rosen contributed her time and creativity to making nearly 20 films for Einstein to tell the College of Medicine’s story, highlight the importance of medical research and inspire others to become involved. Her documentary about Einstein’s Children’s Evaluation and Rehabilitation Center received a prestigious Clarion award. She joined the Board of Overseers in 1984. “Rita was a vibrant, creative and active member of the Board,” notes Dr. Gottesman. “We will miss her elegant, intelligent and spirited presence.”

Philanthropists with a Special Cause

Although success in business was important to Mr. Rosen, “giving back” and social responsibility were paramount. His interest in Einstein was inspired by his mother, Anna, who established the College of Medicine’s first cancer research laboratory, in memory of his father, Isadore. Mrs. Rosen shared her husband’s deep philanthropic convictions. She remarked that of all the causes they embraced, Einstein was the closest to their hearts.

A Lasting Legacy

The College of Medicine recognized the Rosens’ extraordinary service with its Humanitarian and Lifetime Achievement awards, and Yeshiva University awarded them honorary doctorates. The remarkable couple were tireless champions of Einstein and its mission to improve human health and used their many talents to help the College of Medicine grow and flourish. Einstein’s department of communications and public affairs is named in their honor.

“Rita and Philip were both inspired by Albert Einstein’s credo that ‘we are here for the sake of others—upon whose smiles and well-being our own happiness depends,’” says Allen M. Spiegel, M.D., the Marilyn and Stanley M. Katz Dean. “Their exceptional devotion to Einstein and its mission will have an enduring impact on the College of Medicine.”

Please visit our website for individual tributes and additional photos of Rita and Philip Rosen.  

ON THE WEB

www.einstein.yu.edu/r/ritarosen
www.einstein.yu.edu/r/philiprosen
Einstein Professional & Leadership Division Launches New Fundraising Initiative

Last November, Mitchel Maidman, division chair, Raymond S. Cohen, Adam S. Gottbetter, Jack M. Somer and Peter E. Zinman, executive board members of Einstein’s Professional & Leadership Division (formerly the Men’s Division), visited Einstein. Their goal: to learn about the Center for Experimental Therapeutics, the focus of the division’s new fundraising initiative.

The center will place Einstein in the van-guard of medical institutions helping to ensure that biomedical research continues yielding innovative drug therapies.

The group gathered at the Michael F. Price Center for Genetic and Translational Medicine/Harold and Muriel Block Research Pavilion. There Dean Spiegel briefed them on several topics: the trend toward technology-driven research, shared core facilities at Einstein and the role of computational biology in advancing research.

Three faculty members then led tours of their laboratories: Craig A. Branch, Ph.D., director of Einstein’s Gruss Magnetic Resonance Research Center; Sophie Molholm, Ph.D., associate director of research at the Children’s Evaluation and Rehabilitation Center, and Ronald D. Seidel, Ph.D., associate director of the Albert Einstein Protein Production Facility. They described research they are conducting and its potential applications to patient care.

Earlier in the month, the division hosted a fall membership recruitment event. Simon D. Spivack, M.D., M.P.H., spoke about his lung cancer research. Dr. Spivack is professor of medicine, of epidemiology & population health and of genetics and chief, division of pulmonary medicine at Einstein.

The program also featured a panel of industry leaders discussing New York City real estate trends. Executive board member Michael Stoler recruited the panelists and moderated. Mitchel Maidman and Greg Gonzalez, vice chair, sponsored the event. Mr. Stoler and executive board members Peter Bernstein, Marlon Bustos, Henry Cercone and Andrew M. Weinberg served on the event committee.

To learn more about the Einstein Professional & Leadership Division and upcoming events, please contact Allison Halpern at 718.839.7913 or allison.halpern@einstein.yu.edu.

Renaming the Men’s Division

The Men’s Division executive board recently voted to change the group’s name to the Professional & Leadership Division of Albert Einstein College of Medicine.

The name change represents a new phase in the division’s long and distinguished history. It recognizes the variety of professionals and business associates who participate in division programs and events. It is intended to encourage their continued interest in helping advance the division’s philanthropic efforts on behalf of Einstein and its mission to improve human health.

To learn more about the Einstein Professional & Leadership Division and upcoming events, please contact Allison Halpern at 718.839.7913 or allison.halpern@einstein.yu.edu.
The Grand Ballroom of New York’s Plaza Hotel was the setting for a very special event on November 11. The occasion was a dinner marking two important milestones in Einstein history: the 60th anniversary of the College of Medicine’s founding and 60 years of philanthropic leadership provided by the Einstein Women’s Division to help advance the medical school’s mission to improve human health. The evening’s honorees, Broadway producer Daryl Roth and Einstein Overseer Benjamin J. Winter, received the Albert Einstein Humanitarian Award for their dedicated service to the College of Medicine. Jordan Roth, a theatrical producer who is Ms. Roth’s son, donated his time and talent as emcee. Guests enjoyed a special performance by stars from the Tony Award–winning show Kinky Boots.

Proceeds from the 60th Anniversary Celebration of the Women’s Division and Albert Einstein College of Medicine totaled $1,350,000. The funds will help support vital research into men’s and women’s cancers, including ovarian, cervical, uterine, breast, prostate, lung, colon and pancreatic cancers and leukemia.

The Einstein Women’s Division was formed in 1953 by a group of influential New York women. They were inspired by the dream of a new medical school, grounded in the humanistic values and scientific excellence embodied by Albert Einstein, that would welcome students regardless of religion, race, gender or creed—a revolutionary concept at that time. The division has since raised millions of dollars to support medical research and education at Einstein, which opened in 1955.

Daryl Roth, whose theatrical ventures have earned the highest accolades, including the Pulitzer Prize and multiple Tony Awards, has been an active board member of the Women’s Division...
Carol Roaman, Women’s Division president, chaired the event; dinner co-chairs were Linda and Earle Altman, Judy and Ron Baron, Renée E. and Robert A. Belfer, Carol and Roger Einiger, Ruth L. and David S. Gottesman, Janet and Arthur Hershaf, Ronnie Heyman, Karen and David Mandelbaum, Pamela and Edward S. Pantzer, and Kathy and Samuel G. Weinberg; Burton P. Resnick served as journal chair.

For more photos of the 60th Anniversary Celebration, please visit our website.

To join the Einstein Women’s Division’s initiative to support research on women’s and men’s cancers, or to learn more about the Women’s Division, please contact Janis Brooks at 718.430.2818 or janis.brooks@einstein.yu.edu.
Einstein Emerging Leaders Go Global

Members of Einstein Emerging Leaders (EEL), a group of New York City professionals committed to helping advance Einstein’s mission to improve human health, met recently with faculty and students from Einstein’s Global Health Center (GHC) at the Ohm Lounge in Manhattan.

They participated in round-table discussions led by GHC co-directors Kathryn Anastos, M.D., professor of medicine, and Louis M. Weiss, M.D., M.P.H., professor of pathology and of medicine; Johanna P Daily, M.D., associate professor of medicine; H. Dean Hosgood, Ph.D., assistant professor of epidemiology & population health; fourth-year student Ken Shafer; and GHC program manager Jill Raufman, M.S., M.P.H.

Dr. Weiss gave an overview of the center and its work; Ms. Raufman spoke of her work with Kenyan youth; Dr. Anastos talked about programs she started for Rwandan women with HIV/AIDS; Dr. Hosgood described his studies of non-smoking Nigerian women who may be at risk for lung cancer; Dr. Daily explained her malaria research in Malawi; and Mr. Shafer shared his experiences as a recently returned global health fellow in Uganda. Adam Friedman, M.D. ’06, assistant professor of medicine (dermatology) and of physiology & biophysics, and Dr. Karthik Krishnamurthy, assistant professor of medicine (dermatology), who both serve on the EEL board and co-chair its education committee, organized the event with Ms. Raufman.

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— Joy Goldstein, Class of 2016, Alumni Scholarship recipient

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For more information: 718.430.2013 or alumni@einstein.yu.edu.
1950s

Leon Chameides, M.D. ’59, has published two books since retiring as the director of pediatric cardiology at Connecticut Children’s Medical Center and as a clinical professor at the University of Connecticut. *Strangers in Many Lands: The Story of a Jewish Family in Turbulent Times* is a family history and personal memoir of survival in hiding during World War II; *On the Edge of the Abyss: A Polish Rabbi Speaks to His Community on the Eve of the Shoah* is a translation of his father’s essays written for a Polish newspaper between 1932 and 1937. For more information, visit www.amazon.com.

Fred Rosner, M.D. ’59, retired in September 2013 and plans to move to Israel, where all of his children and grandchildren live.

1960s

Ron Grober, M.D. ’62, writes, “I am retired from my career in orthopedics, which I loved. I am concerned about the growing inability of well-trained and motivated physicians to exercise their best judgment in the best interests of their patients because of insurance companies and government-issued ‘cookbooks’ instructing them how to treat patients. On a lighter note, Dorothy and I enjoy our second home in the Rocky Mountains of Colorado as well as ocean sailing, golf and snow skiing. I continue to pursue my interest in jazz with my jazz band. The biggest part of my life now is grandkids. I am sure that is true for most of us!”

Mark A. Hardy, M.D. ’62, F.A.C.S., writes, “I participated actively in our 50th Reunion, which allowed many of us to share once again the esprit de corps that distinguished our class in medical school. The reunion was mostly happy, but with moments of sadness because of the premature loss of classmates. I have been at Columbia New York–Presbyterian Hospital since 1975. I stepped down as director of transplantation in 2004 but continue to see patients. As a residency program director I helped organize a global surgical rotation for our senior surgical residents. Since 2008 I have operated only while on goodwill missions to countries in Africa, Asia and South America. My wife, Ruthie, and I have spent several months a year getting to know each country and its people. At home, we’re busy with our three children: Peter, a lawyer; Arthur, a financial advisor (and his family, including two boys ages 12 and 13); and Karen, a pediatrician (who has a son, 3, and a daughter, 6). They all live nearby, and we enjoy being with them without having to use our frequent-flyer miles. We feel lucky and happy with our lives and look forward to hearing from our classmates.”

Ruth E. K. Stein, M.D. ’66, received the C. Anderson Aldrich Award in Child Development at the National Conference of the American Academy of Pediatrics in October 2013. The award is given for outstanding contributions in the field of child development. Dr. Stein is a professor of pediatrics at Einstein and The Children’s Hospital at Montefiore. She is also a past president of the Academic Pediatric Association (APA) and has received the APA Research Award and the Society for Pediatric Research’s Douglas Richardson Award. Dr. Stein has worked as a clinician, researcher and advocate, primarily in the areas of chronic pediatric conditions, children’s mental health, health services research and assessing children’s health. She has been published extensively and has served on many advisory groups.

Stewart L. Aledort, M.D. ’64, writes, “I am affiliated with the National Group Psychotherapy Institute in Washington, DC, and the Washington Center for Psychoanalysis; I am also a clinical associate professor at George Washington University Medical Center and have a private practice in DC. I was named a fellow of the American Group Psychotherapy Association and have published many journal articles in *Group* and the *International Journal*...
of Group Psychotherapy. I focus on the role of excitement in working through conflicted impasses in groups, and run training groups for senior therapists.”

Joseph Berke, M.D. ’64, has a feature film based on his book Mary Barnes: Two Accounts of a Journey Through Madness, which he co-authored with Mary Barnes, in the works.

Les Cohen, M.D. ’64, has had two stories, “Two Doctors” and “Mirage of Health,” published in the Yale Journal of Humanities for Medicine.

Francis A. Forte, M.D. ’64, is a hematologist/oncologist and senior medical director at the Institute for Patient Blood Management and Bloodless Medicine and Surgery at Englewood Hospital, in Englewood, NJ. He was quoted in an article about treating a 26-year-old woman whose heart’s mitral valve was leaking and whose family was looking at options for surgery that precluded transfusion. “Englewood Hospital’s cardiac surgeons and I worked together as a team. I worked on getting Tyleah’s blood count up, and the operation was successfully performed without blood.”

Arnold Bresky, M.D. ’65, a preventive gerontologist in the field of behavioral neurology, writes, “As a veteran myself, I am trying to open a nonprofit Veterans’ Wellness Center in Southern California to assist both young vets with PTSD and elderly vets with delayed PTSD. I serve as medical director for the Dorie Miller Memorial Foundation, which assists homeless veterans. I founded Hands with Kindness, which aims to help prevent the progression of dementia in seniors by having them knit blankets for homeless vets. I need assistance and networking to work with the overwhelmed VA system.” For more information: www.DorieMillerMemorialFoundation.org; www.caregiver411MD.com; www.handswithkindness.org. Or write to Dr. Bresky at abresky@earthlink.net.

Stuart A. Levy, M.D. ’65, writes, “My latest book, The Medical-Legal Aspects of Occupational Lung Disease, has been published. This fully referenced text represents the culmination of my more than 30 years of experience in the field.” To view Dr. Levy’s book online, go to www.lawyersandjudges.com/productdetails.cfm?PC=1320.

Melvin Stern, M.D. ’65, was awarded emeritus status at George Washington University Medical School in June 2012. Dr. Stern retired as managing partner of PsychoGeriatric Services LLC, based in Chevy Chase, MD, in July 2013.

Daniel Nussbaum II, M.D. ’67, F.A.A.P., writes, “I retired in 2011 for medical reasons. While in practice, I was a pioneer of developmental pediatrics. My most enjoyable experience was having my own one-person practice in New Bedford, MA. Due to the machinations and politics of specialty recognition, I took and passed the boards for developmental pediatrics when they...”
When Elizabeth Taylor came in to consult with plastic surgeon Frank Kamer, he was nervous. “She wasn’t my first celebrity, but she was the Queen of Hollywood,” he recalls. After Liz, treating Academy Award winners was just another day at Dr. Kamer’s Beverly Hills office.

“Entertainers and stars whose faces were their fortunes were the easiest patients,” he says. “They knew exactly what they wanted, and I knew exactly what I could do for them.”

A surgeon, a teacher and past president of the American Academy of Facial Plastic and Reconstructive Surgery, Dr. Kamer is a member of Einstein’s fifth graduating class. He remembers the local Jewish and Italian delicatessens—“I gained 20 pounds in my first year,” he says, laughing—as well as “wonderful professors, an innovative curriculum, and a lot of hard work. I felt very capable when I left for my internship and surgical residency.”

Dr. Kamer focused on removing cancers of the head and neck during his surgical residency at Mount Sinai. “In medicine, conditions are either fixable or not,” he says, noting that head and neck cancers are all too often among the latter. “My patients became my friends, and I couldn’t stand watching them die.”

So he turned his talents to the fixable. “I performed the first cosmetic facelift ever done at Mount Sinai under the teaching service,” he says. But he grew tired of Manhattan traffic and relocated to the West Coast, where he built his practice.

Back then, “we used to keep facial surgery patients in the hospital for two or three days. Now they go home after two or three hours,” he says, crediting an anesthetic for the dramatic change. “When I started doing facial plastic surgery, I learned from an oral surgeon friend about sedation and local anesthesia for ambulatory cases. I tried it and it worked for my patients, too.”

Dr. Kamer then helped draw up standards for outpatient protocols that would “transform the entire practice of surgery in this country in a way that benefited the patients.”

Dr. Kamer performed tens of thousands of reconstructive surgeries over his career. He has written more than 80 papers, lectured and performed surgery around the world, and earned dual academic appointments: clinical professor of head and neck surgery at the University of California Los Angeles’s David Geffen School of Medicine and clinical professor of otolaryngology at the Keck School of Medicine–University of Southern California. And he established the Lasky Clinic, a renowned outpatient center for cosmetic surgery in Beverly Hills—one of the first such centers in California. Now retired, he returned to the Einstein campus last spring to take part in a ceremony at which he was honored for being a 2013 Alpha Omega Alpha Honor Medical Society inductee.

“Einstein gave me the core values to uphold and succeed in my chosen profession, and I will be forever grateful.”

In the end, he says, it’s all about the patients: “To heal people, to fix people, to improve the quality of their lives—what a great thing to be able to do in life.”
were first offered in 2003; I was 62. The prospect of taking them again seven years later helped ease me into retirement. I currently live in Rochester, NY, with my wife of 48 years, Alice, a Judaic needlework designer. We have two children. Yapha, the chief librarian at the Brentwood Lower School in Los Angeles, is married and has a daughter. Joe, a successful film director in Hollywood, is married and has a son. If any alumni are in upstate New York, I will be delighted to host them.”

Robert Hoffman, M.D. ’69, writes, “My firstborn son, Ari Joshua, and his wife, Micah, had their first daughter in September 2013. Ari is an architect specializing in renewable design and works for a start-up, Gobie H2O, which makes a completely compostable filtered-water bottle that replaces the need for more than 1,000 plastic water bottles or a filter. Ari’s brother, Dov, lives near him, so we visit both on our frequent trips to Point Loma, CA, in our small motor home. I’ve had a fifth book chapter accepted for publication in a book on pituitary disease. An integrative medicine practitioner, I’ve also had chapters published on psycho-oncology/breast cancer, ductal carcinoma in situ, heart disease and somatic manifestations of depressive disorders.”

1970s

Craig Morris, M.D. ’70, completed his psychiatry and child psychiatry fellowships at Einstein in 1976. He presently practices in New City, NY, and is an assistant professor at Columbia University’s College of Physicians and Surgeons, in the department of child psychiatry.

David Siegel, M.D. ’73, M.P.H., writes, “I am very pleased that my son, Leon, has joined the Einstein Class of 2017. It was great to go to the most recent reunion for the Class of ’73 and see so many old friends. Nancy and I have three grandsons and are reserving spots for them at Einstein for about 20 years from now.”

Steven P. Rosenberg, M.D. ’75, a board-certified dermatologist, has been practicing in West Palm Beach, FL, since 1980. In June 2013, Governor Rick Scott appointed him to the Florida Board of Medicine. In 2006, he became the first dermatologist to serve on the 12-physician board in more than 30 years—and was reappointed by Governor Charlie Crist in 2007. The board is responsible for licensing, disciplinary action, regulating and rule-making for more than 150,000 licensed practitioners in the state of Florida. Dr. Rosenberg has served as chair of the rules and legislative committee and currently chairs the probable-cause panel. A clinical professor of dermatology and cutaneous surgery at the University of Miami’s Miller School of Medicine, Dr. Rosenberg works to improve access to quality healthcare and participates in state and federal healthcare-related politics. He has been listed in “Best Doctors in America” since 1996.

Stuart Orenstein, M.D. ’78, reports that his acting career is advancing: he now has two listings in the Internet Movie Data Base (IMDB) for films in which he has had an acting role.

Rubin Silverman, M.D. ’78, has moved his cardiology practice to 1250 Waters Place in the Bronx. Dr. Silverman practices at Montefiore’s Weiler Hospital and is chief of cardiology at St. Barnabas Hospital, also in the Bronx. He has five children, one of whom took the MCATS, and nine grandchildren (none of whom, so far, has taken the MCATS).
Stephen Goldstone, M.D. ’79, reports, “Both of my twin sons are now happily married. Andrew, a cardiac surgery resident at the University of Pennsylvania, married Arielle Goren in June 2012; Robert, a general surgery resident at Massachusetts General Hospital, married Cornelia Griggs in September 2013. I’m a very happy and proud papa.”

1980s

Eileen Wolf Feldman, M.D. ’80, writes, “I retired from my academic practice of nephrology several years ago, after being diagnosed with transverse myelitis in 1996. I remain vicariously involved in medicine through my husband of 33 years, James Feldman, M.D. ’80, who still has the stamina to do overnight shifts in the ER at Boston Medical Center; my daughter Stephanie, now in her senior year at Boston University Medical School; and my daughter Hope, who kept me entertained with the narratives of her medical school applications. (Trust me, my children were not coerced to follow this pathway.) I volunteer at a local elementary school, trying to keep the plaques and tangles at bay by working with advanced students in enrichment mathematics and other subjects. I’m sure Dr. Purpura would be pleased.”

Dorothy Levine, M.D. ’80, of Stamford, CT, was elected secretary of the Fairfield County Medical Association. Board certified in pediatrics, Dr. Levine is a pediatrician at New England Pediatrics (based in Stamford and New Canaan, CT) and an attending physician at Stamford Hospital. She served on the board of directors of Stamford Hospital and has authored several medical papers, published in Pediatrics, the Journal of the American Medical Association and Connecticut Medicine.

Lynne Carmickle, M.D. ’81, Ph.D. ’81, writes, “I continue to practice neurology in New Jersey. Recently, in addition to my private office, I set up a charity-care neurology clinic through the Zufall Center in Dover, which is immensely rewarding. Our son, Eric Mittelmann, age 27 (his dad was the late Alex Mittelmann, M.D. ’76), is now a first-year neurology resident at Einstein! I am counting the days until he can join me in the practice. He married his wife, Lauren, in 2012, on the beach in Amagansett, where we have spent summers since the kids were small. Our daughter, Laurie Mittelmann, age 25, graduated from Sarah Lawrence in 2011 and, with a friend, is co-founder and co-director of the Museum of Reclaimed Urban Space, a radical-history museum in the East Village. They host tours and events, and the museum is well on its way to becoming an East Village landmark (www.morusnyc.org).”

Javier J. Lugo, M.D. ’81, is chair of pediatrics at Chilton Hospital in Pompton Plains, NJ, and an associate professor of pediatrics at New York

Career Speed Networking: Building Connections

The ever-popular Career Speed Networking event drew more than 50 alumni and 150 second- and third-year medical students to Lubin Dining Hall on a Sunday afternoon in late October. Co-hosted by the Einstein Alumni Association and the office of student affairs, the annual event helps students and alums get to know each other and form meaningful connections. Alumni are seated at tables organized by specialty; interested students join them to discuss issues ranging from career paths to life after medical school. Students are invited to sign up for the alumni/faculty student mentoring program, which puts them in touch with Einstein alumni and faculty members who offer career advice, expertise and guidance. To learn about alumni volunteer opportunities, please contact the office of alumni relations at 718.430.2013 or alumni@einstein.yu.edu.
\textbf{Phone-a-thon 2013}

More than 40 Einstein M.D., M.S.T.P. and Ph.D. students participated in the 2013 fall Phone-a-thon. Thanks to the students’ energy and enthusiasm in reaching out to alumni during five nights in October, the event raised nearly $40,000 for the Einstein Alumni Association Annual Fund. Held twice a year by the office of alumni relations, the Phone-a-thon raises support for scholarships and important student-life programs that the alumni association sponsors. The student volunteers build connections with alumni, update alumni contact information and encourage contributions. By participating in this special program, the volunteers help the Einstein alumni community better support current and future Einstein students.

Medical College (NYMC) in Valhalla, NY. He received NYMC’s 30-year Medical Student Preceptor Award and Chilton’s Physician Recognition Award in June 2013. Dr. Lugo writes that he is “still actively providing pediatric primary care to the underserved,” and adds, “I have two children, both married, but no grandchildren yet! And I am still the all-time Einstein basketball scoring champ over Roger Strair, M.D. ’81.”

\textbf{Steven K. Mishkin, M.D. ’81}, is the managing partner of Millennium Eye Care, which has six locations in central New Jersey. He is pleased to announce that his daughter, Talia Mishkin, O.D., a recent graduate of the Pennsylvania College of Optometry, has joined the practice and is working at their offices in Freehold, Marlboro, Hightstown and Monroe.

\textbf{Brian Rubin, M.D. ’81}, and \textbf{Rhonda Rubin, M.D. ’84}, are proud to announce the birth of their granddaughter.

\textbf{Marsha Seidelman, M.D. ’83}, has launched www.ladydocscornercafe.com with a group of her colleagues in Maryland. She writes, “It’s a fun website designed to provide information about exercise, nutrition, wellness and inspiration.”

\textbf{Jo A. Hannafin, M.D. ’85, Ph.D. ’85}, a sports medicine orthopedic surgeon at the Hospital for Special Surgery in New York City, was honored in March 2013 by Castle Connolly Medical Ltd. as a Physician of the Year. Dr. Hannafin was among three physicians who received the Clinical Excellence Award. A three-time national rowing champion and silver medalist at the 1984 World Championships, she is vice president of the National Rowing Foundation’s board of trustees, a physician for the U.S. Olympic Rowing team and head team physician for the WNBA’s New York Liberty. In July 2013, she became the first female president of the American Orthopaedic Society for Sports Medicine. Dr. Hannafin is married to John Brisson. They have three children: Andrew, Caitlin and Connor.

\textbf{Joseph Maldonado, M.D. ’85}, is working on his M.Sc. thesis in major programme management at the University of Oxford in England. In recent years he received two other degrees from Oxford: a diploma in evidence-based healthcare and an M.B.A. Dr. Maldonado recently completed a two-year term as president of the New York State Urological Society and currently serves as vice president of the Medical Society of the State of New York. He is an assistant clinical professor at Touro College of Osteopathic Medicine in New York City, where he previously served as assistant clinical dean. He welcomes e-mails from classmates and friends at jrmaldonadojr@mguc.org.

\textbf{Deena R. Zimmerman, M.D. ’88}, has published her second book, \textit{MiDor LeDor—Genetics and Genetic Diseases: Jewish Legal and Ethical Perspectives} (Ktav/OU Press); the book is available at Jewish bookstores and online.

\section*{1990s}

\textbf{Jose A. Ortiz Jr., M.D. ’92}, was appointed chief of medical staff at the Mayo Clinic Health System in Eau Claire, WI, in June 2012. He writes, “I find my position fulfilling and feel that my role as co-president of the class of 1992 has helped prepare me for my current responsibilities.”

\textbf{Eric Rose, M.D. ’93}, has been appointed to the Health Information Technology Standards Committee (HITSC) by HHS Secretary Kathleen...
Sebelius. HITSC is a federal advisory committee that provides guidance to the Office of the National Coordinator for Health Information Technology on standards, implementation specifications and certification criteria for the electronic exchange and use of health information (www.hhs.gov/news/press/2013pres/20130301a.html).

Nicole Schreiber-Agus, Ph.D. ’94, is the program director for the Program for Jewish Genetic Health of Yeshiva University and Einstein. It recently launched a Jewish genetics online education series called GeneSights; see www.GeneSights.com.

Brian Blaufeux, M.D. ’96, is a member of Mount Kisco Medical Group, based in Mount Kisco, NY, working in the group’s Urgent Care centers.

2000s

Alissa Burge, M.D. ’06, a board-certified radiologist, recently joined the department of radiology and imaging of the Hospital for Special Surgery (HSS) in New York City. She also is an assistant professor at Weill Cornell Medical College. Dr. Burge focuses on musculoskeletal magnetic resonance imaging. She has received the HSS Radiology and Imaging Fellow Research Award as well as a number of Radiological Society of North America research awards. Dr. Burge has published peer-reviewed articles and book chapters and has given many presentations at local and national scientific forums.

Casey Barbaro, M.D. ’07, writes, “I have been having an incredible time in Cape Town, South Africa. This experience has been just what I was looking for. The time off I had before starting work here doing trauma surgery turned out to be a blessing in disguise: I explored the city, went on countless hikes, met many cool people, learned how to kite surf and played a ton of guitar. It’s been such a good feeling to be back in the fray, doing what I have been trained to do. I’ve been posting a blog every one to two weeks, so check in from time to time, if you get a chance. The address is http://capetowntrauma.blogspot.com/.”

Sheref E. Hassan, M.D. ’07, recently joined the Mount Sinai Doctors Brooklyn Heights medical group as an orthopaedic surgeon and sports medicine specialist.

Ira Taub, M.D. ’07, completed a fellowship in pediatric cardiology at the Cleveland Clinic. He has been a clinical pediatric cardiologist at Akron Children’s Hospital in Akron, OH, since July 2013.

Michelle Ruth Yasharpour, M.D. ’07, recently completed a fellowship in allergy and immunology at the University of California, Irvine, and had her second child in September 2013, “just in time for my fellowship boards!” She completed a residency in internal medicine at the Cedars Sinai Medical Center in 2010. Dr. Yasharpour lives in Beverly Hills with her husband, Shahram Yasharpour. She writes: “Our son Jacob, age 3, will tell anyone who asks that his mommy is a doctor and that he’s going to be a doctor too. (We’d love it if he went to Einstein!) I recently joined a private allergy and immunology practice in Beverly Hills.

I am grateful for the solid foundation that Einstein provided for me to build upon, and always look back with the fondest of memories.”

Dana Kotler, M.D. ’09, completed her residency in physical medicine and rehabilitation at the Rehabilitation Institute of Chicago/Northwestern University. She began a sports medicine fellowship at Spaulding Rehabilitation Hospital/ Harvard University in August 2013. Dr. Kotler competes in bicycle races with XXX Racing-Athletico in Chicago, and recently premiered a new film, #bikewinter, at the Bicycle Film Festival in New York. To view the film online: https://vimeo.com/59622297.

For news about Reunion 2014 and other upcoming alumni programs and events, please visit our website.

In Memoriam

We acknowledge with sadness the passing of the following Einstein alumni. We honor their memories and extend our deepest condolences to their families and friends.

Carol E. Burnett, M.D. ’60
Stephen B. Kardon, M.D. ’67
Leo Masciulli, M.D. ’71
Martin S. Roshco, M.D. ’60
Keith M. Sadler, M.D. ’62
Alan R. Schrift, M.D. ’59
Stephen A. Udem, M.D. ’72, Ph.D. ’71
Sandra M. Weiss-Schwartz, M.D. ’60
Carol-Jane (CJ) Segal-Isaacson, Ed.D., and her husband, Adam, crammed seven tables, four large jewelry cases and a mound of draperies into their Honda Fit one recent Sunday morning. Then they drove from Brooklyn to Greenwich Village to set up Dr. Segal-Isaacson’s jewelry booth at the Washington Square Outdoor Art Exhibit. Adam headed home to be with Samantha, the couple’s 15-year-old daughter, until it was time to return and help pack things up.

For the past 10 years, Dr. Segal-Isaacson has led something of a double life. By day, the assistant professor of epidemiology & population health teaches nutrition science to Einstein medical students and collaborates on journal articles. Much of the rest of the time, she makes jewelry.

Sometimes her two worlds collide. “At a previous Washington Square exhibit,” she recalls, “I was all sweaty and grungy after setting up my booth and a young woman came by. Surprised to see me, she called out ‘Dr. Isaacson!’ Just the week before, I was teaching her nutrition and family medicine.”

Jewelry-making and her work at Einstein actually have much in common, she notes: “I don’t think there’s that much difference between art and science. Both require creativity and problem-solving skills.”

In addition to spending about 45 days a year exhibiting at craft fairs, Dr. Segal-Isaacson often makes pieces on commission. She’s certainly not in it for the money, estimating she nets about $2.50 an hour from her avocation.

“When I sit down at my jewelry bench, I feel a tremendous peace,” she says. “It’s a Zen kind of thing.”

Dr. Segal-Isaacson first felt the urge to create jewelry when Samantha was
five and they made a simple beaded necklace for Adam’s mother. “I found it frustrating to have to decide on the designs in the bead store,” says Dr. Segal-Isaacson. “I wanted to design things myself.” She jumped in with both hands, she says, when a friend started taking classes “and was making gorgeous stuff.”

Although she works mainly with gems and precious-metal wire, Dr. Segal-Isaacson also creates original cast-silver designs. And she’s still learning her craft. She is taking a class in gemstone setting and teaching jewelry-making from her home.

Connecting with her customers brings special enjoyment. “You put a piece of jewelry on someone, and you can see whether it works for or against that person,” says Dr. Segal-Isaacson. Is she reluctant to part with her hand-crafted pieces? “Not really,” she says. “You have to keep things moving to make them sparkle.”

ON THE WEB
www.hungrycatcafejewelry.com

“I don’t think there’s that much difference between art and science. Both require creativity and problem-solving skills.”
On June 14, 1993, results of the landmark clinical trial made the front page of the New York Times. The Times called the findings “the most important discovery for diabetics since insulin.” Since then, those findings have helped thousands of people with type 1 diabetes lead longer, healthier lives.

The Diabetes Control and Complications Trial (DCCT) had followed 1,441 patients with type 1 diabetes for an average of 6.5 years. It was designed to answer a key question: Could intensive insulin therapy to maintain blood glucose levels close to normal reduce the frequency and severity of complications? Einstein helped provide the answer—a resounding “yes.”

Einstein was one of 29 centers nationwide that conducted the DCCT. The Times article featured Christopher Sabin, one of the Einstein research volunteers, and quoted Harry Shamoon, M.D., leader of the DCCT at Einstein, who is pictured at left with DCCT directors from the other centers. Dr. Shamoon is now associate dean for clinical and translational research, director of the Harold and Muriel Block Institute for Clinical and Translational Research at Einstein and Montefiore and professor of medicine (endocrinology).
Ensuring the future vitality of the College of Medicine as a global leader in biomedical research and medical education.

“Walking with Einstein” is our new planned-giving society, intended to recognize and encourage friends and alumni to include the College of Medicine in their estate plans.

There are many ways this can be accomplished, such as making the College of Medicine the beneficiary of a charitable gift annuity or a charitable remainder trust, naming the College of Medicine as a beneficiary of a life insurance policy or arranging for the proceeds of a retirement fund to come to Einstein.

All of these methods provide favorable tax consequences, and several of them can actually enhance your current income by offering a higher-value income stream to you and your beneficiaries while securing a meaningful income and, possibly, estate and gift tax reduction.

They might also allow you to be more generous in supporting Einstein’s mission of biomedical research and education than you would have thought possible.

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The ability to visualize proteins and other molecules using green fluorescent protein (GFP) and other FP “tags” has revolutionized light microscopy. But many FPs can weakly bind other copies of themselves, thereby interfering with experiments. Here, GFP was attached to a membrane protein in the endoplasmic reticulum (ER) of a cell. The GFP interactions have distorted the ER’s spaghetti-like tubules, causing them to expand, stack and form large bright structures.

Erik L. Snapp, Ph.D., associate professor of anatomy & structural biology, and graduate student Lindsey Costantini have developed a visual assay to determine whether an FP has unwanted binding properties that can cause inappropriate interactions—and ruin someone’s experimental results.

Image credit: Erik L. Snapp, Ph.D.