SUMMER/FALL 2012

The Magazine for Alumni and Friends of Albert Einstein College of Medicine of Yeshiva University



Getting Personal The Coming Era of Individualized Medicine Gotton

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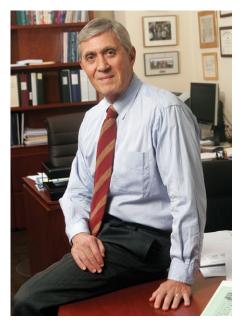
A Message from the Dean

he lead article in this issue of Einstein magazine features the work of several Einstein faculty members who are propelling "individualized medicine" from hype to reality.

Individualized medicine is transforming the remarkable technical achievements of the past decade into better patient care—sparing cancer patients unnecessary and ineffective treatments, for example, and using effective, targeted drugs instead. But realizing the promise of individualized medicine at an affordable cost won't be easy.

Einstein faculty members are uniquely positioned to advance this new field, working in collaboration with their colleagues at Montefiore, the University Hospital and academic medical center for Einstein. Our success depends heavily on the close working relationships among leaders in our department of genetics: Bernice Morrow, who heads translational genetics; John Greally, head of computational genetics; Jan Vijg, department chair; and leaders in pathology, including Harry Ostrer, professor, and Michael Prystowsky, chair, who are responsible for turning research-derived tests into routine clinical practice. All agree that producing relatively inexpensive, rapid DNA sequencing is the comparatively easy part. The hardest and most challenging work will be analyzing the enormous amounts of data produced by the latest technology and determining what information is most relevant for patients.

Individualized medicine not only promises targeted treatments but will help in predicting disease susceptibility



and therefore present new opportunities for prevention. Newborn screening, for example, now focuses on a fairly small number of diseases for which prompt treatment can prevent severe consequences such as intellectual disability. But soon we will be sequencing the newborn's entire genome. Indeed, the National Institutes of Health has just announced funding for research on newborn genome sequencing. The challenge here will be to avoid unintended consequences such as stigmatization and needless anxiety about health risks.

As you will read in this issue of Einstein magazine, our faculty is facing up to the challenges posed by the enormous promise of individualized medicine in an ethical and cost-effective way.

ALLEN M. SPIEGEL, M.D. The Marilyn and Stanley M. Katz Dean

Whith Spiso

EINSTEIN

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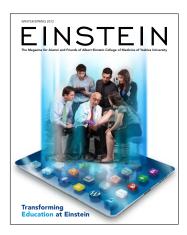
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Letters to the Editor



Winter/Spring 2012

Education Observations

As Einstein basic science faculty members who teach in both the medical and graduate schools, we applaud your article "Transforming Education at Einstein" in the Winter/Spring 2012 issue. While the article separately addressed educational innovations in graduate and medical courses, we want to point out that, in fact, innovation regularly occurs in both arenas. Furthermore, some innovations attributed to one arena were actually introduced and pioneered by faculty in the other arena.

For example, the version of teambased learning mentioned as part of Einstein's graduate school teaching was initially developed in the medical school's family medicine clerkship, under the direction of Pablo Joo and Maria Santos, and was also designed and implemented by Carol Derby and Bill Burton in the Preventive Medicine course.

Use of clicker technology in the grad school started after Michael Risley and Howard Steinman urged former Associate Dean for Educational Affairs

Al Kuperman to purchase clickers. Steve Roderick and others later adopted clickers in their graduate school and medical school teaching.

It is certainly important for Einstein to maintain preeminence in new and transforming educational technologies. However, innovations should not eliminate teacher-student interactions or overshadow the goal of mentoring our graduate and medical students to become analytical thinkers and lifelong learners.

Howard M. Steinman, Ph.D.

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A Personal Look Back

I was moved to see myself and some of my classmates in "A Look Back" (Einstein, Winter/Spring 2012). I went on to specialize in psychiatry and have made listening to patients a lifelong focus of my work. The memories evoked by this photograph are of an extremely happy and fulfilling time.

The other students pictured are Charles Sarner (with stethoscope) and, in order from left, Itamar Salamon



(now associate clinical professor of psychiatry at Einstein); Martin Siegel (who died tragically just a couple of years

after the picture was taken); and Robert Simon. You might notice that our names all begin with "S," as we were grouped alphabetically. The professor was our beloved Dr. Lewis Fraad, and the setting was our thirdyear pediatric clerkship. I loved clinical diagnosis; I loved learning how to listen in this case, exemplified by the stethoscope (not used nearly so much these days for diagnostic purposes). I think all of us went into training in psychiatry, but I'm not certain whether anyone besides me went on to train in psychoanalysis.

Thank you for the memories.

Evelyne Albrecht Schwaber, M.D. '59

Training and Supervisory Psychoanalyst Psychoanalytic Institute of New England Faculty, Boston Psychoanalytic Society and Institute Supervising Faculty, Pittsburgh Psychoanalytic Society and Institute

EDITOR'S NOTE: Dr. Schwaber, one of three women in Einstein's first graduating class, is an internationally recognized expert on clinical listening. She received the 2012 Dominick P. Purpura Distinguished Alumnus/a Award at Commencement on May 30. E



Wanted: Your Opinion Please e-mail us your

comments about Einstein

magazine at letters@einstein.yu.edu. We look forward to hearing from you.



Five happy fourth-year Einstein students hold the match result letters that reveal next year's destinations. The Class of 2012's top residency choice was internal medicine.

Match Day 2012

irst the clang of a gong, then the rustling of paper as the members of Einstein's Class of 2012 opened their match result letters followed by shouts of happiness. In spite of unprecedented competition residency slots have not kept pace with the growing number of American medical school graduates—Einstein's 165 graduating medical students matched in competitive specialties such as anesthesiology, dermatology, ophthalmology, radiology and orthopedics. Three Einstein students won residencies in radiation oncology, a specialty with only 150 spots in the country.

Einstein's M.D./Ph.D. program, one of the first three established in the United States and still one of the largest, is graduating 12 students this year, and the students placed exceptionally well, accounting for two of the three radiation oncology residencies won

by Einstein students as well as spots in orthopedic surgery, ophthalmology and research medicine.

As in recent years, the top residency choice for the class was internal medicine, with 46 students going into the field. Rounding out the top ten were pediatrics (24), diagnostic radiology (16), emergency medicine (14), obstetrics and gynecology (11), anesthesiology (8), surgery (8), orthopedics (6), psychiatry (6) and family medicine (6). Some Einstein students will continue to work in the Bronx, most notably at Montefiore, the University Hospital and academic medical center for Einstein. Others will travel farther afield, to institutions such as Yale, Harvard, Johns Hopkins, Cedars-Sinai, UCSF and Children's Hospital Los Angeles.



Coincidence in Colombia

ecently, five physicians on their annual humanitarian journey to South America realized they all were connected with Einstein.

The five are Arthur Menken, M.D., Class of 1969 at Einstein and an intern/ resident at Montefiore Medical Center from 1969 to 1974; Daniel Aronzon, M.D., a pediatrics resident at Einsteinaffiliated hospitals from 1973 to 1977; David Fenner, M.D., Class of 1980 and an Einstein intern/resident from 1980 to 1984; Michael Simon, M.D., Class of 1992; and Andrew Jacono, M.D., Class of 1996. They first met in 2006 when they joined other healthcare professionals on a mission to repair cleft palates in underprivileged Colombian children, organized by Healing the Children Northeast (HTCNE).

"We'd been working together on the trips for five years and never really discussed our medical schools until this past October," says Dr. Menken, who has run a private otolaryngology practice for more than 35 years and is the brother-in-law of Einstein Overseer Arnold Penner. "I knew that Dan had done his pediatric residency at Einstein and then found out David had been a student. A bit more asking around and we had a basketball team."

In addition to their Einstein connection, these physicians clearly share a commitment to improving health around the globe. "Einstein is doing something right," says Dana Buffin, HTCNE's executive director.



Lab Chat

David J. Sharp, Ph.D., studies microtubules-dynamic, intracellular protein polymers that help cells move. Last year, he and his colleagues reported in Nature Cell Biology that members of the katanin enzyme family regulate cell motility by dissolving microtubules. Cells moved faster when katanin production was inhibited—a finding with implications for wound healing, where accelerated movement of fibroblasts and epithelial cells would close wounds faster. Dr. Sharp is a professor of physiology & biophysics.

How is the cell motility work going?

We're collaborating with Einstein colleagues on translating our basic research findings into therapies. We've put the drug that inhibits katanin production—an siRNA—into nanoparticles developed by Joel Friedman and Adam Friedman. That allowed us to overcome a big problem with siRNA therapy: difficulty delivering it where it's needed. Together with Josh Nosanchuk, we've obtained exciting wound-healing results after applying the nanoparticles topically to mice.

You're known for your competitive basketball playing during lunchtime at the Falk Center. Does play influence your work? Actually, almost all my collaborations at Einstein have come from the gym. The wound-healing project, for example, resulted from conversations there with Josh Nosanchuk and fellow basketball player Joel Friedman. And chatting with basketball buddy Bin Zhou led to our research project on how microtubule regulators affect new vessel formation in hearts.

"Actually, almost all my collaborations at Einstein have come from the gym."

Did you always want to be a scientist?

No. I didn't even take any science courses in college until my junior or senior year. My dad was a scientist—a professor of chemistry at Michigan. He's a very smart guy who went to MIT at age 16. I realize now that I inherited a love of science from him. But as a kid I wanted to be better at something than he was, so I focused on football. I was a nose guard in high school and was named to the "All-Metro" team for the Detroit area. But I tore my Achilles tendon during senior year and went to the University of Wisconsin to get an education instead of to play football which turned out to be a good thing.

What was your major?

Psychology, at first.

Why? While we were standing in line to register for classes during freshman year, the best-looking girls were in the psychology line, so that's where I went.

What's the best thing about research?

The first time you do an experiment and it actually works—you see something under the microscope that nobody has ever seen before—it's thrilling and addictive. Now that I'm a principal investigator, my students are the ones seeing things for the first time, so I experience that joy vicariously.



Scientist and basketball player David Sharp, Ph.D., professor of physiology & biophysics.

What do you like to do on weekends?

Spend time with my kids. We have an 8-year-old boy and a 5-year-old girl. I don't see them much during the week, since they're usually asleep by the time I get home. So on weekends it's things like playing chess or catch with my son or dolls with my daughter.

What was the last book you read?

To the Last Man, by Jeffrey Shaara. I like books that look at things from different perspectives, and this book is historical fiction about World War I from the American, British, French and German points of view.



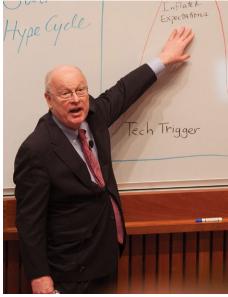
Going Social: Davidoff Education Day

he topic was "Educating Physicians in the 21st Century: Twitter, Facebook and Digital Medicine," and the audience of Einstein faculty was skeptical—even resistant.

"How many people here use Twitter? Facebook?" asked keynote speaker Kent Bottles, M.D., a senior fellow at the Thomas Jefferson University School of Population Health. Just a few hands went up. Dr. Bottles, who has more than 6,600 Twitter followers and is noted for his views on social media and medicine. suggested that his audience was behind the times: "This train has left the station," he said.

Dr. Bottles said that his Twitter contacts and Facebook friends keep him current on healthcare reform and other major issues. Doesn't the flood of information take over his life? He accesses his Twitter account just once a day, in the morning, and advised that social media "are tools—it's up to the users to learn how to use them." He discussed how he uses the tools wisely, giving the example of "crowdsourcing" the content of his Einstein presentation by reaching out to his Twitter followers. Within a couple of hours, he said, he received suggestions from more than 30 followers-information that helped shape his presentation.

As for digital medicine, physicians may not like the sound of "digitizing a human being," but Dr. Bottles noted that scientists and physicians are already mapping the genome, remotely monitoring vital signs and imaging every part of the body, with medical records as close as a mobile device. Future digital systems could play roles in diagnostics, drug delivery and even minimally invasive surgery.





And then there's the educational angle. Gone, for the most part, are the days of paging through journal articles in the library stacks, memorizing symptoms and taking patient notes longhand. Today a diagnosis may be performed with the assistance of a smartphone, and patient records reside in computer folders rather than manila ones.

Top photo: Social media authority Kent Bottles, M.D., told the Einstein audience how Twitter, Facebook and other interactive web tools can boost information exchange. Bottom photo: Katherine Chretien, M.D., explained how Einstein faculty can use social media for professional purposes while avoiding the information highway's pitfalls and potholes.

Following the morning keynote address by Dr. Bottles, attendees broke into groups for workshops, followed by a networking lunch and a second keynote speech, "The Road to Professionalism in the Digital Age," delivered by Katherine Chretien, M.D., F.A.C.P., medicine clerkship director at the Washington, DC, VA Medical Center.

By day's end, some of the skepticism had dissolved. "We saw a shift from 'We don't have time for this stuff' to the realization that a Twitter presence or Facebook group can be immensely beneficial," said Einstein marketing specialist Carla Berger, who facilitated a discussion group. "Once our speakers explained that 'social media' doesn't just mean spending hours each day blogging or scanning millions of Twitter posts, and that Twitter and Facebook actually improve communication with patients, residents and families, attendees got excited and the ideas started flowing."

Davidoff Education Day is sponsored by the Einstein education and faculty support committee and the office of faculty development.



Einstein Nutrition Expert Helps Disney Get Healthier

ast June, the Walt Disney Company announced strict new nutritional standards for food advertised on its media outlets and sold at its theme parks. Some of the credit for Disney's highly publicized initiative—the first time a major media company has taken responsibility for the food it advertises to children—goes to Keith T. Ayoob, Ed.D., associate clinical professor of pediatrics (child development) at Einstein and one of two consultants who helped Disney develop the new nutritional standards.

Dr. Ayoob noted that "quite a few products" now being advertised on the ABC-TV network and other Disneyowned media outlets would no longer be acceptable when the new rules

take effect in 2015. "But this is not just about banning certain junk foods," he said. "It's also about emphasizing good foods." He noted, for example, that Disney-approved foods would contain less sodium and sugar and that the company would be

promoting healthy diets containing fruits, vegetables, whole grains and low-fat dairy foods.

> Dr. Ayoob said the new Disney standards should

> > especially help the one-third of American children who are overweight or obese. "Ideally," he said,

"Disney's initiative will pressure other

parts of the entertainment industryparticularly rivals such as Nickelodeon and the Cartoon Network—to take similar action to promote better nutrition for children."

Social Media: Online at Einstein

Social media allow for almost instantaneous contact and information exchange. "Social media are great tools for connecting people with ideas and one another," says David Flores, social media manager for Einstein. Here's how and where at Einstein:

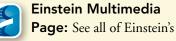
Facebook: Einstein shares news and images in its Timeline and engages with nearly 4,000 followers via comments and polls. Like us at http://facebook.com/ EinsteinCollegeofMedicine.

Twitter: Einstein sends out messages multiple times daily (to 4,200+ followers—and counting)! To follow Einstein's Twitter feed, visit http://twitter.com/EinsteinMed.

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Einstein's Wild Side

The Bronx's pockets of green—the Jack and Pearl Resnick Campus among them—can provide a home for animals or a welcome resting place for wildlife passing through. In November, a young red-tailed hawk stopped by to pause and refresh. Red-tailed hawks typically live in open country, where they perch on tall trees and fly over fields hunting for prey. The woodlands and wetlands of nearby Pelham Bay Park are a stopover for many migratory species, and this hawk evidently took a slight detour.

We thank Tim Gonzalez, of Einstein's auxiliary services department, for snapping the picture. We received similar red-tailed hawk photos that were taken on the lawn near the Anne and Isidore Falk Recreation Center by Jorge



A red-tailed hawk paused—and posed—on a wall visible from inside the Arthur B. and Diane Belfer Educational Center for Health Sciences.

Ventura, C.P.A., M.S., project manager. We also thank New York City Audubon for helping us correctly identify our visitor. Einstein magazine welcomes your photos of Bronx fauna on campus.

Please submit them to letters@einstein. yu.edu. Did you see the mockingbird or the red admiral butterflies?

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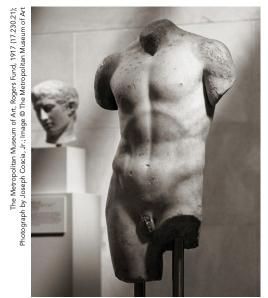
The Art of Observation

Good physicians must be skilled observers. In this year's Gold Humanism Honor Society project, a fine-arts program is helping fourthyear med students master the art of observation. The Einstein program is called "Think Outside the Body: The Art of Observation in Medicine."

In early April, about two dozen students attended a practice session with Rebecca Hirschwerk, M.S.Ed., who developed an observational-skills program for third-year students at Mount Sinai School of Medicine, where she is a teaching assistant.

Similar programs are in place at more than 20 other medical schools, including Yale, Harvard, Columbia and Cornell, all aimed at helping doctors-to-be derive subtle but crucial information when examining patients. "We're using art to supplement the clinical teaching of observational skills," said Ms. Hirschwerk.

Rather than trying to diagnose illness in the person or people depicted in the artworks, the Einstein students were encouraged to look for the telling detail—and ask questions, which they did: "What can I learn





mage copyright © The Metropolitan Museum of Art. Image source: Art Resource,

A torso by an ancient Greek sculptor and a 17th-century portrait by Flemish painter Anthony Van Dyck were among the artworks that sparked discussion among fourth-year Gold Humanism inductees.

from this person's posture?" "What should I be thinking?" "What am I not seeing?" "What stops me from looking?"

Questioning, said Ms. Hirschwerk, leads to understanding: "Art forces us to question assumptions about ourselves and others, and that can help to open our eyes."

Later in April, more than a dozen students visited New York's Metropolitan Museum of Art, where a Greek marble torso and Van Dyck's portrait of Lucas van Uffel from the 17th century

were among the five artworks they scrutinized. "One of the best parts of the day was hearing people's different perspectives about the same work of art," said Jill Berkin, Class of 2012, one of the Gold Humanism project's leaders.

Art for observation's sake is proving Emerson's adage "Skill to do comes of doing": An analysis of Yale's "Enhancing Observational Skills" course found that students who took the course were 10 percent more effective at diagnosis than other students.

AHA Appoints Bruce Schwartz, M.D., Section Chair



Bruce J. Schwartz, M.D., has been named chair of the American Hospital Association's governing council of the section for psychiatry and substance abuse services. The governing council represents 1,300 behavioral-health providers across the country. During his one-year term, Dr. Schwartz and the 16-member council will work with the AHA to define and focus AHA policy and improve the quality and delivery of psychiatric and substance abuse services. Dr. Schwartz is professor of clinical psychiatry and behavioral sciences at Einstein and deputy chair and clinical director of psychiatry and behavioral sciences at Montefiore.

Behind the Scenes: Accelerating Einstein Inventions

ith 300 independent researchers working away, the words "I think I may have discovered something" are often uttered around the Einstein campus. And perhaps surprisingly, some scientists make clinically important findings without initially realizing it.

Either way, Einstein's offices of biotechnology and business development (OBBD), located on the ninth floor of the Belfer building, are tasked with working with the faculty to identify those discoveries, submit invention disclosures to the Einstein patent committee for review, file patent applications on the inventions and find commercial partners who will license the inventions and further develop them.

"Most Einstein scientists come to our office regarding their inventions, but we don't just sit back and wait for them to visit us," says David Silva, Ph.D., an assistant director of the office of business development. "We attend internal faculty seminars, read papers and walk the floors of Forchheimer, Ullmann and the other buildings to chat with researchers. I'll typically ask, 'Anything interesting going on in your lab?' If they say 'Not much,' I'll ask them to tell me about the 'not much.' Several times, this sort of digging has uncovered real gems."

Next, the OBBD asks the researcher to fill out an invention disclosure form describing the finding and its significance. This form is submitted to Einstein's Committee on Patents, composed of faculty from several scientific disciplines. The patent committee then recommends to the dean whether Einstein should pursue a patent application. In a typical year, Einstein evaluates about 50 inventions and files

patent applications on more than half of them.

"Except for clinical trials, licensing and all other relationships with industry flow through our offices," says John Harb, assistant dean of scientific operations and director of the office of biotechnology. For the past two years, the OBBD has also handled all inventions and licensing activities on behalf of Montefiore Medical Center.

Once Einstein files a patent application on an invention, the OBBD staff swings into action, drawing on contacts and relationships in the pharmaceutical and biotech industries as well as life science entrepreneurs and venture capitalists to find a commercial partner that will license the technology. The licensing partner must make a significant investment in time and resources to develop the invention from its early preclinical stage and then take it into the clinic, through clinical testing and, finally, to approval by the U.S. Food and Drug Administration.

"Our role is to develop relationships that will benefit our faculty, advance their research and serve Einstein's mission of improving human health."

"Our involvement with our licensing partners doesn't end when we sign the license," says Richard Kosman, director of the office of business development. "OBBD must also manage the relationship for years to come."

Notable Einstein licensing successes include the enzyme inhibitors, known as transition-state analogs, developed by Vern Schramm, Ph.D., professor and chair of biochemistry and the Ruth Merns Chair in Biochemistry, in collaboration with New Zealandbased Industrial Research Ltd. OBBD



The staff of Einstein's offices of biotechnology and business development help shepherd discoveries through the development maze. From left, back row: John L. Harb; Richard Kosman; and David Silva, Ph.D. Front row: Michelle Acosta-Rivera; Janis Peck Paradiso, M.B.A.; Janet Walters; Ece Auffarth, Ph.D.; and Yao Cheng, Ph.D.

successfully licensed the analog compounds to BioCryst Pharmaceuticals, Inc., which developed them into drugs that are now in clinical trials for treating leukemia, lymphoma and gout.

The College of Medicine receives significant income each year from OBBD's licensing efforts. After accounting for Einstein's expenses, one-third of the income from an invention goes to the scientist-inventor, one-third to the scientist's research and one-third to Einstein.

The proposed new Center for Experimental Therapeutics could potentially mean more lucrative licensing income for Einstein. One aim of the center is for Einstein to push discoveries farther through the drugdevelopment pipeline than has generally been possible in the past. "The more development we do on an invention here at Einstein," says Mr. Harb, "the more attractive the invention becomes to potential licensing partners, since it makes their investment less risky."

The OBBD's work has numerous beneficiaries, beginning with the discoverers themselves. "After spending years in the lab toiling away at a problem, how great is it to have your research—your baby—evaluated as something that can help people?" says Dr. Silva. "Just to be clear, we're not here solely to generate income. Our role is to develop relationships that will benefit our faculty, advance their research and serve Einstein's mission of improving human health."



New Yeshiva-Einstein Deans' Program

In fall 2011, Yeshiva University launched a program that brings undergraduates from Yeshiva and Stern College for Women to Einstein for a series of classes. Ten students, hand-picked by the deans of their schools, attended six fall and six spring sessions, each centered on a specific topic. Students received a reading assignment before each session. At the session, they heard presentations by Einstein faculty and then joined with the faculty for discussion.

"We want to encourage talented and bright freshmen at Yeshiva and Stern in their scientific interest and expose them to the latest science and medicine," says Victoria Freedman, Ph.D., Einstein's associate dean for graduate programs in biologic sciences. Yeshiva University President Richard M. Joel notes that the program "puts them on a path to later success in medical school or in advanced scientific work."

In Memoriam

The Einstein community recently lost two beloved surgeons and faculty members.

Stanley M. Levenson, M.D.

Dr. Levenson, distinguished university professor emeritus of surgery, was worldrenowned for his advances in treating burns and helped found the Burn Center at Jacobi Medical Center. He was revered by students and colleagues alike for his intellect, enthusiasm and love for investigative nutritional and scientific research. He continued to be active in his field after retiring, making significant contributions to the understanding of surgical nutrition and metabolism and of the mechanisms of stress-induced catabolism. Dr. Levenson and Dr. Ralph Ger (below) were colleagues and published several journal articles together. Dr. Levenson was 96 at the time of his death on March 28.

Ralph Ger, M.D.

Born in Cape Town, South Africa, Dr. Ger studied medicine at the University of Cape Town and had a distinguished career as a surgeon and faculty member there until forced to leave because of his active support of the antiapartheid movement. He arrived in New York in 1966. Internationally recognized as a pioneer in myocutaneous flap and laparoscopic hernia surgery, he was better known by generations of Einstein students as a professor of anatomy and structural biology. His erudition and dry wit made his course one of the most memorable in the curriculum. Dr. Ger was a member of the Einstein faculty for more than 40 years and retired in 2010. He was also a founding member and officer of the American Association of Clinical Anatomists; wrote a widely used anatomy textbook, Essentials of Clinical Anatomy; and developed many surgical devices and procedures to assist in treating hernias and prune belly syndrome. Dr. Ger died on April 9 at age 91.

"Personality Genes" May Help Account for Longevity



"It's in their genes" is a common explanation for why some people live to age 100 and beyond. Until now, researchers looking for these "longevity genes" have focused on genetic variations that offer a physiological advantage, such as high levels of HDL ("good") cholesterol. But Einstein scientists have found that personality traits such as being outgoing, optimistic and easygoing may also be part of the longevity-genes mix.

The findings, published in May in the journal Aging, come from Einstein's Longevity Genes Project, which includes more than 500 Ashkenazi Jews over the age of 95 and 700 of their offspring. Ashkenazi (Eastern European) Jews were selected because they tend to be genetically homogeneous, making it easier to spot genetic differences within the study population.

The present study of 243 of the nonagenarians and centenarians (average age 97.6 years, 75 percent women) was aimed at detecting genetically based personality characteristics by developing a brief measure (the Personality Outlook Profile Scale, or

POPS) of personality among people in this age group.

"When we assessed the personalities of these 243 centenarians, we found qualities that clearly reflect a positive attitude towards life," says Nir Barzilai, M.D., director of Einstein's Institute for Aging Research, the Ingeborg and Ira Leon Rennert Chair in Aging Research and co-corresponding author of the study. "Most were outgoing, optimistic and easygoing. They considered laughter an important part of life and had a large

social network. They expressed emotions openly rather than bottling them up." In addition, the centenarians had lower scores for being neurotic and higher scores for being conscientious compared with a representative sample of the U.S. population.

"We should keep in mind that genetics alone does not determine personality and that nongenetic factors including family upbringing and birth order can also exert powerful influences," notes Dr. Barzilai, also a professor of medicine (endocrinology) and of genetics at Einstein and attending physician in medicine (endocrinology) at Montefiore, the University Hospital and academic medical center for Einstein. "We also don't know whether our centenarians have maintained their personality traits across their entire lifespans. Nevertheless, our findings suggest that centenarians share particular personality traits and that genetically based aspects of personality may play an important role in achieving both good health and exceptional longevity."



Finding Ancient Viruses

Einstein scientists have shown that humans' closest known extinct relatives— Neandertals and Denisovans—were infected with human endogenous retrovirus K (HERV-K). They detected unique HERV-K DNA insertions in the complete genome of Neandertals and Denisovans obtained recently by other researchers.

The Einstein scientists (Lorenzo Agoni, M.D.; Aaron A. J. Golden, Ph.D.; Chandan Guha, M.D., Ph.D.; and Jack Lenz, Ph.D.) published their findings in June in Current Biology. They show that Neandertals and Denisovans were infected with HERV-K both before and after the time that the Neandertal-and-Denisovan lineage separated from the lineage leading to modern humans and, subsequently, from each other. The researchers proved that their computational approach can find evidence of ancient viral infections during significant times in the emergence of modern humans.

Molecule Inhibits Estrogen, a Key Cancer Risk for Women

Einstein-led research has discovered a molecule that inhibits the action of estrogen. This female hormone plays a key role in the growth, maintenance and repair of reproductive tissues and fuels the development of endometrial and breast cancers. The molecule, discovered in animal studies, could lead to new therapies for

preventing and treating estrogen-related diseases in humans. The findings were published in April in PNAS Plus.

The hormones estradiol (the most important form of estrogen) and progesterone prepare the uterus for pregnancy. They trigger a series of cellproliferation and cell-differentiation events that prepare the uterine lining (endometrium) for implantation of a fertilized egg. Although this process is tightly controlled, uterine cells sometimes proliferate abnormally, leading to menstrual irregularities, endometrial polyps, endometriosis or endometrial cancer—the most common female genital tract malignancy, causing 6 percent of cancer deaths among women in the United States and a higher proportion worldwide.

"The molecular mechanisms that underlie these pathologies are still obscure—and so are the mechanisms involved in normal hormonal regulation of cell proliferation in the endometrium, which is essential for successful pregnancy," says lead author Jeffrey Pollard, Ph.D., professor of developmental and molecular biology and of



A molecular model of estrone, one of three estrogens produced by mammals. Estrone is the only estrogen that is naturally present in significant amounts in postmenopausal women.

obstetrics & gynecology and women's health at Einstein. He also holds the Louis Goldstein Swan Chair in Women's Cancer Research and is the deputy director of the Albert Einstein Cancer Center and director of the Center for Study of Reproductive Biology and Women's Health.

In studies involving rodents, Dr. Pollard discovered that a molecule called KLF15 (Kruppel-like transcription factor 15) controls the actions of estradiol and progesterone in the endometrium by inhibiting the production of MCM2, a protein involved in DNA synthesis.

"Our findings raise the possibility that it may be feasible to prevent or treat endometrial and breast cancer and other diseases related to estrogen by promoting the action of KLF15," says Dr. Pollard.



Deciphering Diabetic Neuropathy



The nerve damage (neuropathy) that affects the majority of people with diabetes can

be both painful and incapacitating. A paper published in May in Nature Medicine describes for the first time the molecular chain of events responsible for diabetic neuropathy. Among the paper's chief authors is Michael A. Brownlee, M.D., professor of medicine (endocrinology) and of pathology and the Einstein Diabetes Research Center's associate director for biomedical sciences. Dr. Brownlee is also the Anita and Jack Saltz Chair in Diabetes Research and attending physician in medicine (endocrinology) at Montefiore.

The authors found that elevated levels of a toxic by-product of glucose metabolism called methylglyoxal bind to and change the structure of a sodium channel called Nav 1.8, found only in neurons involved in signaling pain. Consequences of this change in the "pain channel" include an increase in its electrical excitability. These findings may provide new therapeutic options for treating diabetic neuropathy.

Grad Students Honored at 2012 Marmur Symposium

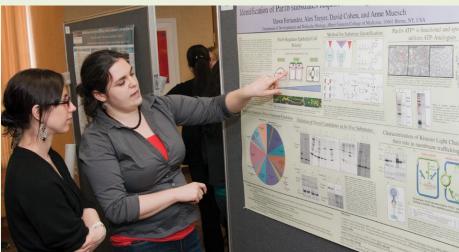
hree Einstein grad students were honored for their research last March at the 16th annual Marmur Symposium, where they also described their work to the Einstein community. The symposium is named for Julius Marmur, Ph.D., a renowned Einstein scientist who helped pioneer the use of yeast as a model organism for studying genetics. This year's awardees:

Abhishek Bhattacharya, Ph.D., now at Columbia University, joined Einstein's Ph.D. program in 2003. He completed his doctoral research in the laboratory of Nicholas Baker, Ph.D., professor of genetics and of developmental and molecular biology. Dr. Bhattacharya's work uncovered a novel way in which the basic helix-loop-helix family of proteins is involved in regulating the fate of cells during development. His work was published in the journal Cell in 2011.

Yong (Tiger) Zhang, Ph.D., entered Einstein's Ph.D. program in 2006 and the next year joined the lab of Vern Schramm, Ph.D., professor and chair of biochemistry and the Ruth Merns Chair in Biochemistry. Dr. Zhang's research centered on designing transition-state inhibitors for use as drugs in treating malaria. Dr. Zhang was the first author on four research papers while at Einstein and is now a postdoc at the Scripps Research Institute.

Vivek Patel, an M.D./Ph.D. student, joined Einstein's Medical Scientist Training Program (MSTP) in 2007 and is completing the program's Ph.D. portion in the lab of Robert H. Singer, Ph.D., professor and co-chair of the department of anatomy and structural biology. Vivek's thesis work involves identifying the molecular marks on





Top: Dean Allen M. Spiegel, M.D., left, and Myles Akabas, M.D., Ph.D., right, director of Einstein's Medical Scientist Training Program, with Marmur award winners Yong (Tiger) Zhang, Ph.D., Abhishek Bhattacharya, Ph.D., and Vivek Patel. Bottom: sixth-year Ph.D. candidate Dawn Fernandez explains her poster to a student.

messenger RNA (mRNA) that determine where in a cell mRNA molecules will localize and function as templates for protein synthesis. He has presented his findings on numerous national platforms, including the American Society of Hematology annual meeting and the Structural Biology Discussion Group. Vivek will soon start the two years of clinical rotations required for his medical training.

The Julius Marmur Symposium event also included an afternoon session, where more than 60 graduate and MSTP students presented their research in poster format. Presenters discussed their work with faculty members, current students and newly accepted applicants to Einstein's graduate school. The Graduate Division and the Student Symposium Committee organized the symposium.

Salty Observations

Should the amount of sodium (salt) in food be restricted to prevent cardiovascular disease—or would a low-sodium diet actually aggravate health problems? To help answer that question, Michael H. Alderman, M.D., and Hillel W. Cohen, Dr.P.H., M.P.H., carried out a systematic review of nearly 30 observational studies and randomized clinical trials that have looked at dietary sodium's association with health outcomes.

The researchers conclude that the data strongly suggest a "J-shaped" relation of dietary sodium intake to cardiovascular

outcomes. This means that adverse outcomes are experienced at the extremes of sodium intake—by people ingesting very little sodium and by those ingesting a great deal of it. Their findings appear in the May 24, 2012, issue of the American Journal of Hypertension. Dr. Alderman is a distinguished university professor emeritus of epidemiology & population health and of medicine (general internal medicine); Dr. Cohen is professor of clinical epidemiology & population health.

Mapping Roundworm Mating Nerves

In a study published in Science, Einstein researchers determined the complete wiring diagram for the part of the nervous system controlling mating in the male roundworm Caenorhabditis elegans.

The study contributes to the new field of connectomics—the effort to map the myriad neural connections in a brain, brain region or nervous system to find the specific nerve connections responsible for particular behaviors. A long-term goal of connectomics is to map the human "connectome" all the nerve connections within the human brain. The findings could lead to insights into brain problems such as Alzheimer's and multiple sclerosis.

C. elegans' simple nervous system of 302 neurons makes it a good animal model for understanding the millionsof-times-more-complex human brain.

The Einstein scientists developed software to analyze serial electron micrographs that other scientists had taken of the region. They found that male mating requires 144 neurons—nearly



Tail region of adult male roundworm. 200X scanning electron micrograph courtesy of Carolyn Marks and David Hall, Einstein department of neuroscience.

half the worm's total number-and their paper describes the connections among those 144 neurons and 64 muscles involving some 8,000 synapses (junctions at which one neuron passes signals to another neuron).

The paper's senior author is Scott W. Emmons, Ph.D., professor in the department of genetics and in the Dominick P. Purpura Department of Neuroscience at Einstein, and the Siegfried Ullmann Chair in Molecular Genetics.

Einstein Researcher **Receives Top Award from American Federation for** Medical Research



Meredith Hawkins, M.D., director of Einstein's Global Diabetes Initiative, received the American

Federation for Medical Research's highest honor for biomedical research, the Outstanding Investigator Award. The prestigious prize is given annually to one exceptional investigator age 45 or younger.

Dr. Hawkins was selected for her diabetes research examining the liver's role in glucose regulation and production, and how elevated fatty acids contribute to insulin resistance and inflammation in people with glucose intolerance or obesity. While insulin's role in regulating blood glucose has been widely studied, Dr. Hawkins' group did pioneering studies showing that, in susceptible individuals, the liver fails to sense an increase in blood glucose—findings that may lead to novel diabetes drugs. She and her colleagues also study malnutrition diabetes, a poorly understood form of the disease that particularly affects the developing world. Dr. Hawkins is a professor of medicine (endocrinology) at Einstein and an attending physician in medicine (endocrinology) at Montefiore Medical Center.

New Major Grants at Einstein

Research at the College of Medicine is being fueled by an impressive number of recent grants

Interfering with Viral Infections

Deborah Palliser, Ph.D., has been awarded a \$2 million grant over five years from the National Institute of Allergy and Infectious Diseases to investigate whether RNA interference (RNAi)—a recently identified method of silencing specific genes can help snuff out sexually transmitted infections, including the genital herpes virus and HIV.

Using an animal model of genital herpes infection, Dr. Palliser will evaluate a number of different RNAi molecules for their ability to silence both viral and host genes. She will also determine whether RNAi-mediated protection helps boost the host's immune response and investigate whether vaginal cells express cell-surface proteins that bind RNAi molecules.



New Vaccine Against Drug-Resistant TB Strains



The National Institutes of Health (NIH) has awarded Einstein researchers a five-year, \$5.9 million grant to develop a new vaccine against tuberculosis (TB), including the toughest-to-treat forms of the disease, known as multi-drugresistant and extensively drug-resistant TB. The grant will build on a new

approach to TB vaccine design based on genetically altered Mycobacterium smegmatis, which is closely related to the bacterial species (Mycobacterium tuberculosis) that causes TB in humans.

"Novel therapies for TB are urgently needed, particularly a new and effective vaccine," says William R. Jacobs, Jr., Ph.D., who led the development of the new vaccine approach and is principal investigator of the NIH grant. Dr. Jacobs is a Howard Hughes Medical Institute investigator.



Answering "Provocative" Cancer Questions



Two Einstein research teams have each been awarded an NIH grant aimed at addressing key questions in cancer research. The two grants total more than \$3 million over five years.

The first team of grant recipients will be led by John Condeelis, Ph.D., Sumanta Goswami, Ph.D., and Maja H. Oktay, M.D., Ph.D. They'll focus on developing new approaches to investigating the biology of metastasis the usually fatal spread of a primary cancer to other parts of the body. Using human breast cancer cells obtained from tumors of patients treated at Montefiore, the scientists will focus on intravasation—the crucial step in which tumor cells invade blood vessels and are

then carried to distant sites, where they become seeded in new tissues.

The researchers have hypothesized that different breast tumors contain varying proportions of cells capable of invading blood vessels and that these cancer cells have distinct gene-expression profiles. The proportion of such tumor cells and the genes they express would determine whether a breast tumor metastasizes or not.

The goal of the research is to develop a human intravasation "signature" that will predict whether a breast cancer tumor is destined to metastasize.

The second grant was awarded to Richard N. Kitsis, M.D., and Steven K. Libutti, M.D. They'll investigate why certain mutations promote cancer in some tissues of the body but not in others.

The model they'll be using is a rare type of human cancer called multiple endocrine neoplasia type 1 (MEN1). This inherited cancer results from a mutation in a gene called MEN1. Since MEN1 is a tumor-suppressor gene, mutations to this gene permit tumors to occur. People with this cancer have a mutated MEN1 gene in every cell of their bodies, yet their tumors occur only in their endocrine glands (most often the parathyroid glands, the pancreas and the pituitary glands) and their duodenums (small intestines). The goal of this study is to discover why.

Both research teams will leverage the shared resources and unique assets of the two institutions to tackle their research projects, tapping into the

clinical opportunities at the Montefiore Einstein Center for Cancer Care and the advanced technical resources at the Albert Einstein Cancer Center and the Gruss Lipper Biophotonics Center.

Probing Hemoglobin's Toxic Effects



The NIH has awarded nearly \$11 million to Einstein to carry out a five-year study of hemoglobin toxicity, which

complicates blood transfusions and reduces the effectiveness of blood substitutes. A long-term goal of the research is to make blood transfusions safer and more effective.

The program project grant will be overseen by Einstein's Joel M. Friedman, M.D., Ph.D., the principal investigator, and will fund research projects at Einstein, Rice University, the University of California, San Diego, and the Food and Drug Administration.

Hemoglobin normally stays inside red blood cells. But under some

conditions—including sickle cell anemia and transfusions involving stored blood—red cells break open, causing substantial amounts of hemoglobin to spill into blood plasma, where it can trigger toxic chemical reactions. The researchers will try to find the mechanisms that make this extracellular hemoglobin toxic and develop strategies for preventing, reducing or possibly reversing toxicity.

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Legacy: A Genetic History of the Jewish People

by Harry Ostrer, M.D. Professor of Pathology, of Genetics and of Pediatrics Albert Einstein College of Medicine Director, Genetic and Genomic Testing, Clinical Pathology Montefiore Medical Center

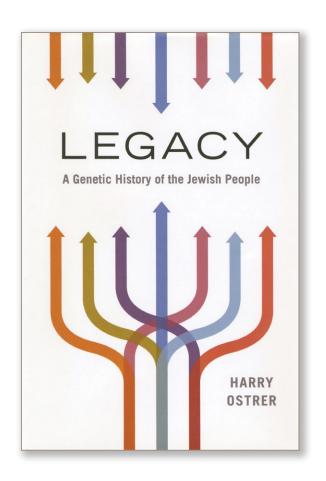


he question has been asked for centuries: Are Iews a race, an ethnic group or a religious society? Dr. Ostrer takes us on a journey through history that introduces us to scientists and anthropologists who've sought the answer. Pictures, timelines, graphs and color plates illustrate his

points and add visual appeal along the way.

In the early 1900s, anthropologists charted Jewish traits by measuring head size and assessing hair and eye color. After studying about 2,000 Jews living in New York City, the American anthropologist Maurice Fishberg reported that 80 percent had dark hair. That the other 20 percent were fair-many of them with blond hair and blue eyesis "still the subject of considerable debate almost 100 years later," notes Dr. Ostrer. Fishberg also noticed that certain medical conditions were more common among Jews than among other groups. He mentioned a progressive neurodegenerative condition called amaurotic family idiocy known today as Tay-Sachs disease.

Dr. Ostrer describes the work of a number of other researchers, including Chaim Sheba, surgeon general of the Israeli army, director general of the Israeli ministry of health and a pioneering geneticist. Some 50 years ago,

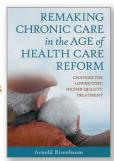


Dr. Sheba realized that the science of genetics could help reveal whether the Jews constituted a single homogeneous group or a series of genetically related groups.

Using today's sophisticated genetic tools, Dr. Ostrer and other scientists can answer questions about the common ancestry of Jewish populations in far-flung regions such as Africa and India and their predispositions to certain diseases or protection against them. The author concludes that as Jews and non-Jews alike become more interested in learning about their ancestors and relatives, population genetics will increasingly influence the formation of group identity alongside shared social values, spirituality and cultural legacy.

PUBLISHED BY Oxford University Press, 2012

Remaking **Chronic Care** in the Age of **Health Care Reform: Changes** for Lower Cost, **Higher Quality Treatment**



by Arnold Birenbaum, Ph.D. Professor of Pediatrics (Child Development), Associate Director, Rose F. Kennedy University Center for Excellence in Developmental Disabilities Education, Research and Service, Albert Einstein College of Medicine

"The U.S. healthcare system's capacity to care for people with chronic illnesses has far to go," writes Dr. Birenbaum, a medical sociologist and health policy analyst. He cites a study showing that Medicare spends three-fourths of its budget on fewer than one-fourth of its

clients—usually patients with five or more chronic conditions, who see an average of 14 different doctors yearly. Such patients, he writes, may be getting unnecessary tests, having insurance claims denied or returning to the hospital soon after discharge—all costly and fragmented ways to receive care.

Dr. Birenbaum favors a model called the patient-centered medical home. It's not a place to live but rather a type of comprehensive primary care that provides services ranging from preventive care to management of chronic diseases.

Two main goals of the patientcentered medical home are helping patients better manage their healthcare and preventing unnecessary use of emergency department facilities. Currently, about one-fifth of elderly patients released from the hospital need to return within 30 days. "Rehospitalization," Dr.

Birenbaum writes, "leads to a new round of payments, usually welcomed by the health care providers."

Instead of the prevailing fee-forservice payment regimen, the author favors a "bundled fee" for the duration of a chronic illness or surgery, giving patients "a fighting chance of reducing costs and unnecessary procedures."

The recommendations made in Remaking Chronic Care parallel many of the incentives for change that are found in the Affordable Care Act.

For more on Dr. Birenbaum and his point of view, see his entry "The Coming Crisis in Primary Care Medicine" on Einstein's blog, The Doctor's Tablet.

PUBLISHED BY Praeger, 2011



Terrorism and **Public Health:** A Balanced Approach to Strengthening Systems and **Protecting People**



Edited by Victor W. Sidel, M.D. Distinguished University Professor of Social Medicine, Department of Epidemiology & Population Health, Department of Family and Social Medicine, Albert Einstein College of Medicine and Montefiore Medical Center, and Barry Levy, M.D., Adjunct Professor of Public Health, Tufts University School of Medicine

Dr. Sidel helped found Physicians for Social Responsibility and International Physicians for the Prevention of Nuclear War, which received the 1985 Nobel Peace Prize. The first edition of Terrorism and Public Health: A Balanced Approach to Strengthening Systems and Protecting People came out soon after 9/11. Now Dr. Sidel and his co-editor (Dr. Barry Levy, a consultant in occupational and environmental health and, like Dr. Sidel, a past president of the American Public Health Association) have completely revised the book to include the latest information on emergency preparedness and response planning, along with lessons learned from recent terrorist attacks abroad. Chapters include "Investigating the Health Consequences of the World Trade Center Attack," "The Mental

Health Consequences of Terrorism" and "Protecting Civil Liberties and Human Rights," as well as discussions of small arms and light weapons, nuclear and radiological weapons, chemical weapons and biological weapons.

A key message of the book appears in its subtitle: "a balanced approach." In addition to strengthening the public health system, protecting rescue and recovery workers and reducing access to biological agents, for example, public health workers should respond to the challenge of terrorist threats by advocating for human rights and promoting the abolition of nuclear weapons.

PUBLISHED BY Oxford University Press, 2012

Getting Personal The Coming Era of Individualized Medicine

by Gary Goldenberg Illustrations by Margaret Nielsen

"Personalized medicine is...

the tailoring of medical treatments to the individual characteristics of each patient, and the ability to classify individuals into subpopulations based on their susceptibility to a particular disease or their responses to a specific treatment. Personalized medicine therefore has the potential to optimize targeted delivery and dosing of treatments so patients can receive the most benefit with the least amount of risk, cutting out the difficulties of the current trial-and-error process many patients endure to find the correct drug and dose to treat a condition."

 President's Council of Advisors on Science and Technology (2008)

hysicians have long known that no two patients are the same. Hippocrates, for example, believed that illness stemmed from imbalances of the four humors (blood, phlegm and black and yellow bile), which varied from person to person.

Only in the twentieth century following the work of Gregor Mendel, James Watson and Francis Crick and others—was it established that our individuality and susceptibility to certain diseases are rooted in our genomesour full complement of genetic material. More recently, we've learned that our epigenomes—consisting of the thousands of molecules that bind to genes and control their expression—also affect our health. Since our epigenomes are influenced by environmental factors such as diet, stress, cigarette smoking and physical activity, it has now become clear that nature and nurture—our genetic and our epigenetic profiles are interacting to make us biologically unique.

This knowledge is creating a new medical era in which healthcare is based not on what works for most patients but on what is ideal for a subgroup of patients or even particular patients, based on their genetic or epigenetic profiles. Variously referred to as individualized, personalized or precision medicine, the field was made possible in large part by the 13-year human genomemapping project, completed at a cost of \$3 billion in 2001. Since then, the cost of sequencing all or part of a person's genome has plunged dramatically, along with the time required for the task.

In the near future, "whole-genome sequencing" is expected to cost as little as \$1,000—comparable to a routine MRI or colonoscopy—and take just a single day.

"Genomic sequencing is a technology whose time has come," says Harry Ostrer, M.D., professor of pathology, of genetics and of pediatrics at Einstein and director of genetic and genomic testing in clinical pathology at Montefiore, the University Hospital and academic medical center for Einstein. "It will be transformative. We will be able to predict a patient's risk for disease,





Harry Ostrer, M.D.

Professor of pathology, of genetics

and of pediatrics

the course of the disease, whether the patient will respond to this or that therapy and whether the patient will experience toxic side effects."

Dr. Ostrer notes that personalized medicine is already bolstering cancer treatment for patients whose tumors are driven by specific gene mutations that can be precisely targeted by drugs. But don't expect it to totally transform medical therapy any time soon. "It's going to be a sequential rollout—one disease, one test, one therapy at a time," he cautions. "We would be giving you risk assessments for very specific conditions."

Although personalized medicine will one day be based on whole-genome sequencing, Dr. Ostrer notes the large gap that now exists between the massive amount of data generated from whole-genome sequencing and our ability to interpret those data.

"To say, at this point, that we are going to be able to sequence your whole genome and then give you some sort of meaningful analysis about your overall disease risk is a great exaggeration," cautions Dr. Ostrer. "The science for that is not there yet."

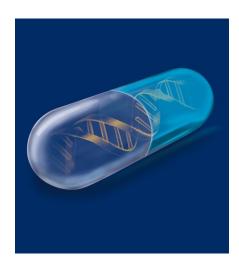
Others at Einstein agree. "We have this explosion of information about the genome and epigenome, but we don't know what is important and what is not," adds Michael B. Prystowsky, M.D., Ph.D., professor and chair of pathology at Einstein and at Montefiore Medical Center, who studies biomarkers that can distinguish between aggressive and nonaggressive head and neck cancers. "Bioinformatics—the processing of all this information and figuring out what it means and how it applies to the individual—is going to take a lot of work."

Einstein's department of genetics is tackling the major challenge of managing and analyzing the huge amount of data from their gene-sequencing work. "We anticipated this problem back in 2009 when we started using these new sequencing technologies," says John M. Greally, M.B., B.Ch., Ph.D., who heads the division of computational genetics in the department of genetics. "People were puzzled as to why we were investing so heavily in high-performance computing and software development at the time, but we have seen it pay off since," says Dr. Greally, also professor of genetics, of medicine (hematology) and of pediatrics, the Ruth L. and David S. Gottesman Faculty Scholar for Epigenomics, and attending physician in pediatrics at The Children's Hospital at Montefiore.

Jan Vijg, Ph.D., professor and chair of genetics, agrees. "Our sequencing analysis capabilities are seen as a model for other institutions," says Dr. Vijg, also professor of ophthalmology and visual sciences and the Lola and Saul Kramer Chair in Molecular Genetics. "Especially here in the Bronx, with its extraordinarily diverse population, we need to be particularly good at analyzing genetic data and tailoring our findings to people so that they can receive the optimal benefits of personalized medicine."

Researchers across the Einstein campus are working in the realm of personalized medicine and genetic profiling, discovering—to paraphrase Leo Tolstoy—how "all unhealthy patients are unhealthy in their own way," and translating those findings into individualized diagnostics and therapeutics. We describe the work of eight of those scientists in the following pages.

Cancer



Tailoring Breast Cancer Therapy to Gene **Expression**

In theory, there's a simple algorithm for treating women with early-stage breast cancer: If the cancer is unlikely to recur locally or spread to other parts of the body, then surgical excision of the tumor, followed by radiation and hormonal therapy, is sufficient. But if recurrence or spread is likely, then additional treatment in the form of chemotherapy is warranted.

Unfortunately, standard diagnostic criteria such as tumor size and tumor grade don't reliably distinguish between the two types of breast cancer—the reason current treatment guidelines recommend erring on the side of caution and treating most breast cancer patients aggressively.

"While this approach ensures that most women with high-risk cancers get treated, it also means that most women with low-risk disease are overtreated and unnecessarily exposed to potentially toxic therapies," says breast cancer specialist Joseph A. Sparano, M.D., professor of medicine (oncology) and of obstetrics & gynecology and women's health at Einstein, director of the Clinical Trials Office at the Albert Einstein Cancer Center and chief of the section of breast medical oncology at Montefiore Medical Center. He and other Einstein researchers are searching for new tools to predict a breast cancer's course so that doctors can deliver the right therapy to each patient.

One promising tool is called Oncotype DX. Developed by Genomic Health, a California-based biotechnology firm, Oncotype DX analyzes the expression of 21 breast tumor genes to come up with a "recurrence score" ranging from 1 to 100, with a low score associated with a low risk for recurrent cancer. The test is specifically



Joseph A. Sparano, M.D. Professor of medicine (oncology)

and of obstetrics & gynecology and women's health

Individualized Medicine:

Cancer



"Developing these new tests marks an important first step towards meeting our goal of providing the right treatment for the right patient at the right time." geared toward women with estrogenreceptor-positive tumors (i.e., tumors that respond to hormonal therapy), which account for about two-thirds of all breast cancers.

Clinical trials of Onco*type* DX had found that about 75 percent of patients had either a low or high score, while 25 percent had an intermediate score. Patients with low scores can be effectively treated with hormonal therapy alone, while those with high scores need chemotherapy in addition to hormone therapy to have a high likelihood of a cure. When the test started being used in clinical practice, most patients were expected to fall into either the high or low range—but the opposite turned out to be true.

"After the test was put into wide-spread practice, in 2005, about 65 percent of patients had scores in the intermediate range," says Dr. Sparano. "That was because clinicians were using the test mainly on patients who met clinical guidelines pointing to chemotherapy but also had favorable or intermediate tumor characteristics. We didn't know what therapy to recommend for women in this gray zone and needed a large-scale clinical trial to find out."

Dr. Sparano and his fellow researchers got their wish. In 2006, the National Cancer Institute sponsored a clinical trial called TAILORx, or Trial Assigning Individualized Options for Treatment (Rx), to address several issues related to Onco*type* DX—most notably, the best therapy for women with intermediate recurrence scores. A noted authority on clinical trials, Dr. Sparano was tapped to lead the study on behalf of the coordinating body, the Eastern Cooperative Oncology Group (ECOG), where he was co-chair of the breast committee.

TAILORx recruited about 10,000 patients at 900 sites in the United States, Canada, Europe, South America and Australia. All women with a midrange recurrence score of 11 to 25—about 6,900 in total—had surgery and then were randomly assigned to receive hormonal therapy or hormonal therapy plus chemotherapy. The remaining 3,100 women underwent surgery and then were assigned to hormonal therapy if the recurrence score was low and to chemotherapy plus hormonal therapy if the recurrence score was high.

Women enrolled in the trial will be followed for up to 25 years. Tissue collected in the study will be stored for use in future studies to learn more about breast cancer and to evaluate, and potentially refine, diagnostic tests that might prove even more useful than the Onco*type* test for guiding treatment decisions.

TAILORx met its goal for accruing patients in October 2010, and Dr. Sparano and his colleagues are awaiting the results, which are not expected to be available until 2016. Those results could dramatically affect the care of tens of thousands of breast cancer patients by sparing them chemotherapy that would otherwise have been recommended for them.

Dr. Sparano has also worked with ECOG and Genomics Health to develop and validate a test for predicting the fate of ductal carcinoma in situ (DCIS), a condition in which abnormal cells are found within a breast duct.

Most cases of DCIS are cured with surgery plus radiation, but a significant number can also be cured using surgery alone. In some cases, the DCIS can transform into a more aggressive form of cancer that can spread to other organs, making it very tricky to figure out the best treatment option for an individual patient. The new test, called the "DCIS score," measures the expression of 12 of the same 21 genes in the Oncotype DX test but uses a different formula to calculate the score. The study carried out by Dr. Sparano's team found that the DCIS score was able to identify which patients treated with surgery alone were more likely to have a recurrence—especially recurrence with a lethal form of breast cancer.

"This test can help us make moreinformed decisions about the optimal treatment for our patients," says Dr. Sparano. "Developing these new tests marks an important first step towards meeting our ultimate goal of providing the right treatment for the right patient at the right time."

Predicting Breast Cancer Metastasis

Another group of Einstein researchers has devised a test that predicts whether a breast tumor will metastasize, so women with nonaggressive forms of the disease can be spared from undergoing unnecessary chemotherapy.

Several years ago, a team led by John S. Condeelis, Ph.D., professor and cochair of anatomy and structural biology, co-director of the Gruss Lipper Biophotonics Center and the Judith and Burton P. Resnick Chair in Translational Research, found that breast cancers metastasize, or spread, only when a specific trio of cells co-localize at a microanatomic site on a blood vessel. This complex of cells consists of an endothelial cell (a type of cell that lines



the blood vessels), a perivascular macrophage (a type of immune cell found near blood vessels) and a tumor cell that produces a protein called Mena, which enhances a cancer cell's invasiveness. A site with these three cells constitutes what is called a tumor microenvironment of metastasis, or TMEM.

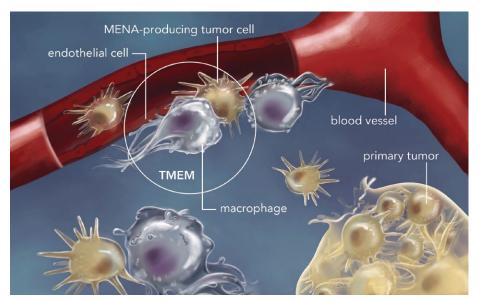
Then a team involving Dr. Condeelis' group and investigators from New York-Presbyterian/Weill Cornell and MIT developed a tissue test to detect the presence and density of TMEMs. The test consisted of a triple immunostain containing antibodies to the three cell types. A high number of TMEMs in a tissue sample means that the tumor is likely to metastasize or has already done so.

To assess the test's accuracy, it was tried on surgical tissue samples from 30 patients with metastatic breast cancer and 30 patients with localized breast cancer, all of whom had been followed for at least five years. The resulting immunostains were evaluated by two

John S. Condeelis, Ph.D. Professor and co-chair of anatomy and structural biology

Individualized Medicine:

Cancer



Metastasis requires the presence of three cells in the same microanatomic site: a tumor cell that produces the protein Mena; a macrophage (a cell that guides tumor cells to blood vessels); and a blood-vessel endothelial cell. The presence of three such cells in contact with each other is called a tumor microenvironment of metastasis, or TMEM, which is depicted within the circle in this illustration.

pathologists who were not aware of the patients' clinical outcomes.

The analysis confirmed that TMEM density is significantly higher in patients who had developed metastatic breast cancer than in those who had localized disease. For every 10-unit increase in TMEM density, the risk for metastatic disease doubled.

While the new test promises to reduce overtreatment of breast cancer, it could reduce undertreatment as well. "There are some patients with grade 1 breast cancer who ultimately develop metastatic disease," says Dr. Condeelis. "By measuring TMEM

Mark H. Einstein, M.D., M.S.

Associate professor of obstetrics & gynecology and women's health and of epidemiology & population health

counts, we could identify those people and treat them appropriately."

The current TMEM test requires surgical tissue, but the researchers are working on a simpler, blood-based version. "It could be part of a regular checkup, especially for women with a strong

family history of the disease," says Dr. Condeelis, also scientific director of Einstein's Analytical Imaging Facility.

Einstein researchers are now conducting a study, involving some 500 women, to validate the TMEM test. This effort is being led by Thomas E. Rohan, M.D., Ph.D., professor and chair of epidemiology & population health at Einstein and Montefiore, and the Atran Foundation Chair in Social Medicine at Einstein.

A Crystal Ball for Cervical Cancer

A century ago, cervical cancer was the number one cancer killer among American women. Today, it's not even among the top ten, thanks to widespread use of the Papanicolaou test (better known as the Pap smear), which can detect potentially precancerous changes in the cervical lining. Now that there's a vaccine for human papilloma virus (HPV)—the underlying cause



of virtually all cervical cancers—fewer women are likely to develop the disease in the years ahead.

Despite this progress, the clinical management of women at risk for cervical cancer is not ideal. Studies have shown that only one in ten women with persistent HPV infection and early precancerous cervical lesions will develop more-serious disease. "But there's no way to determine exactly which one of those ten will actually progress," explains Mark H. Einstein, M.D., M.S., associate professor of obstetrics & gynecology and women's health and of epidemiology & population health at Einstein and director of clinical research for women's health and gynecologic oncology at Montefiore.

As a precaution, clinicians typically advise all women with persistent HPV infection and suspicious cervical lesions to get regular follow-up tests, a scenario that can go on for years. "This is not trivial," says Dr. Einstein. "Each year, about 3 percent of women have equivocal Pap smears, which means millions of women who must endure extra testing, not to mention the added anxiety. We need a crystal ball to predict which early lesions will regress and which will progress."

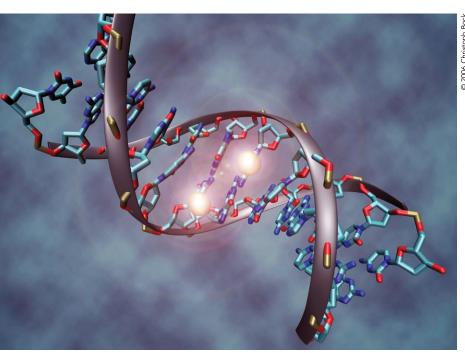
Or perhaps the scientific equivalent of a crystal ball: a test for detecting molecular patterns hidden in a precancerous cervical lesion that telegraph the eventual onset of cancer. Dr. Einstein and his colleagues suspect that cervical cancer starts with an epigenetic process called DNA methylation, which involves molecules known as methyl (CH₃) groups that bind to and silence certain genes that regulate normal cellular processes. DNA methylation occurs all the time in cells, but when it affects

tumor-suppressor genes (which, as their name implies, help keep cancerous cells in check), cancer can develop. If gene silencing helps spur cervical cancer, it should be possible to distinguish benign lesions from potentially dangerous ones by looking for differences in the epigenetic patterns inside their cells. To test his hypothesis, Dr. Einstein has been studying 100 patients with persistent HPV infection and early precancerous cervical lesions. The patients—recruited from Montefiore Medical Center in the Bronx, home to a population at especially high risk for cervical cancer—are being examined every six months for two years, and their lesions are analyzed for epigenetic changes affecting tumorsuppressor genes.

"We hope that knowledge from this study will eventually allow us to triage women who need aggressive treatment versus those who can be followed safely and conservatively without treatment," says Dr. Einstein.

If gene silencing helps spur cervical cancer, it should be possible to distinguish benign lesions from potentially dangerous ones by looking for differences in the epigenetic patterns inside their cells.

Illustration of a DNA molecule that is methylated at the two center cytosine bases. DNA methylation plays an important role in normal development and in disease.



Individualized Medicine:

Cancer



With the aid of a technician, a head-andneck cancer patient undergoes radiation therapy at Montefiore Medical Center.

A Leg Up on Head and Neck Cancer

Head and neck cancers are the sixth most common malignancy among men worldwide and one of the deadliest: only half of such patients are still alive more than five years after diagnosis. This survival rate hasn't budged in 40 years, partly because physicians have no way of knowing which tumors are likely to spread and therefore warrant aggressive treatments such as the surgical removal of surrounding lymph nodes.

Earlier this year, researchers at Einstein and Montefiore, its clinical partner, found a biomarker in head and neck cancers that appears to predict whether a patient's tumor will be life-threatening. The biomarker is especially promising because it can indicate the risk level immediately after the cancer is diagnosed, notes the study's co-leader, Geoffrey J. Childs, Ph.D., professor of pathology.

Dr. Childs' study involved 123 head and neck cancer patients. He and his colleagues took tissue samples from the tumors and nearby healthy tissue and measured levels of 736 members of a class of RNA molecules known as microRNAs (miRNAs). Of the miRNAs measured, one in particularmiR-375—stood out for being the most downregulated (i.e., expressed at low levels) in cancerous tissue compared with its levels in adjacent normal tissue.

The researchers ranked the patients according to how extreme the difference was between the miR-375 in their tumors and in surrounding healthy tissue. All of the patients were then followed throughout the course of their illness. MiR-375 proved to be highly useful for predicting disease outcome. The patients for whom the difference between their tumors and normaltissue miR-375 levels was most extreme (i.e., the one-fourth of patients with the lowest tumor-to-healthy-tissue miRNA ratios) were nearly 13 times more likely to die or 9 times more likely to experience distant spread (metastasis) of their cancer, compared to patients with higher miR-375 ratios.

"We hope that miR-375 will become part of a laboratory test to determine which patients have potentially lethal tumors and therefore should be treated aggressively following initial diagnosis," says Dr. Childs, whose study was published in the American Journal of Pathology. "And for patients with less-threatening disease, such a test could spare them the potentially poor quality of life that can result from aggressive surgery."





Einstein and Montefiore have received a patent on the use of PIK3CA mutations to predict whether or not patients will benefit from EGFR inhibitors.

The Right Drug for the Right Colon **Cancer Patient**

Over the last decade or so, treatment advances have added a full year to the median survival of patients with metastatic colon cancer. Much of the credit goes to a new class of drugs called EGFR (epidermal growth factor receptor) inhibitors. They block EGFR, a cell-surface receptor that fuels cell growth and proliferation and is abundantly present on the surface of colon cancer cells (and is found in other types of cancer as well).

Unfortunately, a large percentage of colon cancer patients do not respond to EGFR inhibitors. The cancer's response to these drugs depends on a gene called K-ras: tumors with a mutated form of K-ras are drug resistant. But something else must also be counteracting these drugs.

Sanjay Goel, M.D., M.S.

Associate professor of medicine (oncology)

"Even if you exclude colon cancer patients with mutant K-ras genes, you still find that only about half of colon cancers respond to EGFR inhibitors," says Sanjay Goel, M.D., M.S., associate professor of medicine (oncology) at Einstein and attending physician in oncology at Montefiore. In laboratory studies of colon cancer cells from 22 patients, Dr. Goel and his colleagues discovered two other genetic anomalies—mutations to the genes PIK3CA and PTEN—that reduce a tumor's sensitivity to EGFR inhibitors.

Moving from the lab to a study of 76 colon cancer patients, the researchers found that the presence of the two mutations reliably predicts a poor response to EGFR inhibitors, as they reported this year in Clinical Colorectal Cancer. Einstein and Montefiore have since filed and received a patent on the use of PIK3CA mutations to predict whether or not patients will benefit from EGFR inhibitors. The patent has been licensed for development by Transgenomic, Inc., an Omaha, NE, biotechnology company.

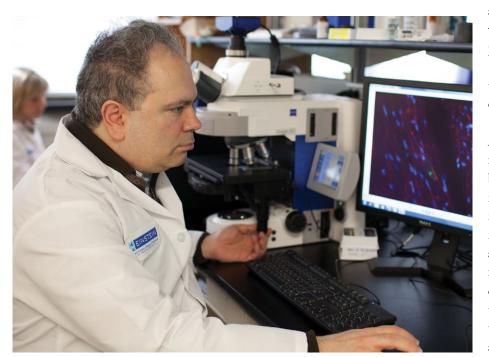
The PIK3CA test could spare a fair number of patients from potentially dangerous treatments that won't help them. "EGFR inhibitors can be quite toxic, with side effects ranging from skin rashes to diarrhea," says Dr. Goel. The test would also reduce healthcare expenditures, he notes, since taking these drugs can cost thousands of dollars a month.

Individualized Medicine:

Heart Disease



Nikolaos Frangogiannis, M.D. Professor of medicine (cardiology)



Minimizing Heart **Attack Damage**

A cut to the skin is usually benign: a clot forms, and maybe a small scar, but most evidence of the wound soon vanishes. Unfortunately, this minor, everyday miracle of repair and regeneration doesn't extend to the heart. After a heart attack, the body can do little to rejuvenate damaged heart muscle. Scars form but never disappear, limiting heart function. Over time, the heart begins to change its architecture in an attempt to wring more pumping power from the weakened organ. This process, known as remodeling, may help in the short term but ultimately can lead to a host of health issues—most notably heart failure.

So the cardiologist's first task when treating a heart attack patient is to minimize heart muscle damage, and job number two is to limit remodeling. Over the years, doctors have made great strides in achieving the former but not the latter, says Nikolaos G. Frangogiannis, M.D., professor of medicine (cardiology) and the Edmond J. Safra/Republic National Bank of New York Chair in Cardiovascular Medicine.

The problem, Dr. Frangogiannis explains, is that remodeling can take two different forms: dilated remodeling (in which the heart muscle stretches and thins) or hypertrophic remodeling (in which the walls of the heart's ventricles thicken and stiffen). Each form requires a different treatment approach, but it's impossible to know which disease path the heart will follow before harmful changes occur. And once remodeling starts, it's hard to stop or reverse.

"We end up treating all heart attack patients pretty much the same way," says Dr. Frangogiannis, who studies the molecular signals that orchestrate cardiac healing after a heart attack. "Ideally, we would have a panel of biomarkers that, together with a patient's genetic background, clinical history and other factors, could tell us early on whether to treat for dilated or hypertrophic remodeling."

Dr. Frangogiannis may have identified one such biomarker. In a series of studies published in Circulation, Circulation Research and the Journal of Molecular and Cellular Cardiology, he found that transforming growth factor beta (TGF-beta), a molecule involved in regulating immune and inflammatory responses as well as in tissue repair, is elevated after a heart attack and increases heart muscle stiffness. His findings suggest that TGF-beta causes connective tissue cells called fibroblasts to pump out excess collagen, which in turn leads to fibrosis and to thickening and stiffening of the heart muscle.



Dr. Frangogiannis hopes that a test will be developed (an imaging test or one that relies on genetic profiling, for example) to identify patients who have high levels of TGF-beta after a heart attack and are therefore at risk for hypertrophic remodeling. Such a test could lead to personalized post-heart attack treatment strategies that would curb the expression of TGF-beta as the heart heals.

Cardiogenetics in Action

Many individualized diagnostics and therapeutics have already found their way into everyday clinical practice. The recent case of Adam (not his real name), a young boy who was treated at The Children's Hospital at Montefiore, is a perfect example.

After fainting several times, Adam was diagnosed with long QT syndrome, a type of arrhythmia that can cause fast, chaotic heartbeats, with potentially fatal consequences. In the past, the boy would probably have been given the standard anti-arrhythmia therapy, a beta blocker. His doctors might also have recommended an implantable cardiodefibrillator (ICD), a small device that can instantly detect and correct abnormal heart rhythms.

Since implanting an ICD requires surgery and carries some risks, it is usually reserved for patients with dangerous arrhythmias or a lethal family history of the disease. But Adam was adopted and his family's history was unknown, so the risk-benefit ratio of implanting an ICD was difficult to assess. Fortunately, Adam's Montefiore doctors were able to find exactly what therapies he needed, no more and no less.

"We now know many of the genetic mutations that can cause long QT," explains one of his caregivers, Thomas V. McDonald, M.D., professor of

Thomas V. McDonald, M.D. Professor of medicine (cardiology) and of molecular pharmacology

medicine (cardiology) and of molecular pharmacology at Einstein, attending cardiologist at Montefiore and co-director of the Einstein-Montefiore Cardiogenetics Clinic. "So, as a matter of routine, we sent a sample of Adam's DNA to the lab for genetic testing."

The test revealed a genetic variant never before seen—a result that would put most cardiologists back at square one. But Dr. McDonald's lab was equipped to delve deeper into Adam's DNA anomalies using sophisticated genetic sleuthing. Then his team recreated that mutation in a cellular model and determined its physiological effect.

"We found that Adam's mutation wasn't a severely deleterious variant, so an ICD wasn't necessary," he says. "We were able to reassure his family that he has little risk of sudden cardiac death."

What's more, Dr. McDonald was able to recommend appropriate treatment for Adam's particular arrhythmia risk. All genetic mutations that cause long QT do so by disturbing ion channels in the heart. However, the various mutations affect different channels in different ways and thus require different remedies.

"In Adam's case, the genetic variation caused a gain of function in his heart's potassium channels, which is best treated with beta blockers," says Dr. McDonald, a basic researcher as well as a clinician. "If, on the other hand, his potassium channels were underactive, we would be looking at different drugs."

Individualized Medicine: Diabetes



Predicting Type 2 Diabetes Risk

If you're overweight or lead a sedentary lifestyle, you face an elevated risk of developing type 2 (adult onset) diabetes. But a number of other factors also influence whether someone will become diabetic.

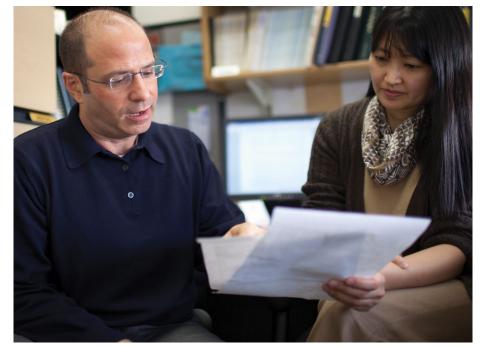
"We know, for example, that obesity is a major risk factor for diabetes. But some overweight individuals don't develop diabetes, while some thin people do," explains Howard D. Strickler, M.D., M.P.H., professor of epidemiology & population health. In his quest to understand the molecular underpinnings of diabetes, Dr. Strickler may have identified a more accurate way to estimate someone's risk for developing diabetes, long before the first signs and symptoms emerge.

Dr. Strickler has focused on the IGF axis—a group of proteins that includes

insulin-like growth factor-1 (IGF-1). IGF-1 earned its name because it shares some biological effects with insulin (the hormone that regulates blood glucose levels) but has a greater effect on growth than insulin does. The IGF axis also includes six IGF binding proteins, or IGFBPs, that may have strong effects independent of IGF-1.

Researchers have hypothesized that the IGF axis may influence risk for developing diabetes—an idea supported by laboratory and mouse studies, and a few initial human studies. Now, in the largest and most comprehensive prospective study of its kind, Dr. Strickler and his colleagues have found that levels of certain IGF-axis components found in blood are associated with a greatly increased risk for developing diabetes a decade or more later.

The researchers analyzed levels of IGF-1, IGFBP-1, IGFBP-2 and IGFBP-3 in blood taken from 742 women in the Nurses' Health Study who



Howard Strickler, M.D., M.P.H.

Professor of epidemiology & population health, pictured here with colleague Mimi Kim, Sc.D., professor and head of the division of biostatistics in the department of epidemiology & population health



A patient with diabetes obtains blood for measuring his blood glucose level. Research at Einstein may help people learn they're at risk for diabetes long before it occurs.

years later developed type 2 diabetes, as well as a similar number of women in the study who did not develop diabetes. None of the women had any signs or symptoms of diabetes at the time their blood samples were taken. The median time between the taking of blood samples and diabetes onset was nine years.

Each component of the IGF axis analyzed (IGF-1 and IGFBP-1, -2 and -3) had a significant independent association with diabetes risk-most notably IGFBP-1 and -2. Women with the lowest levels of IGFBP-1 had a threefold increase in risk for diabetes, compared with those with the highest levels of the protein. Women with the lowest levels of IGFBP-2 had a fivefold increase in diabetes risk compared with women with the highest levels, according to the study, published earlier this year in Diabetes.

If the findings are confirmed, adds Dr. Strickler, they could help doctors

more accurately determine who is actually at risk for the disease, long before it occurs—which could give millions of diabetes-prone people ample warning and added incentive to lose weight, get more exercise and change their diets. In addition, Dr. Strickler's studies could eventually lead to novel therapies that prevent or treat diabetes and that are specifically tailored to the individual's unique IGF-axis signature.

Dr. Strickler cautions that it's too early to apply these findings to clinical practice. "IGF-axis proteins have other effects, some beneficial and some not," he notes. "We need to learn more about the connection between the IGF axis and diabetes before we recommend that people get tested for these substances, and before deciding how we can exploit the IGF-1 axis to help address diabetes."

"Obesity is a major risk factor for diabetes. But some overweight individuals don't develop diabetes, while some thin people do."





Going Dutch

ichael B. Prystowsky, M.D., Ph.D., was bitten by the painting bug at a late age and at a busy time—he's professor and chair of pathology at Einstein and at Montefiore, the University Hospital and academic medical center for Einstein, and has a full academic and family life.

"For our thirty-third wedding anniversary, I got the idea that I wanted a portrait done, but not the typical portrait—instead, a genre painting

[a scene from everyday life]," he says. In college, Dr. Prystowsky had taken a single art course—on northern Renaissance art history—and had been captivated by the realism, colors and light of Rembrandt and Vermeer. He found an artist, Alex Gnidziejko, who painted in the style of the Dutch Masters. Two years later, the portrait of Dr. Prystowsky and his wife, Janet, in a typical home scene relaxing with a glass of wine, was completed. But a

Artichoke: Egg tempera and oil glazes on linen-covered board. 2010.

He was captivated by the realism, colors and light of Rembrandt and Vermeer.

bond between artist and patron was just forming. "Alex and I talked about my photography hobby, and I said I was interested in learning to paint," he says.

So one spring day in 2008, Dr. Prystowsky got out of a car in Camden, Maine, and entered the artist's studio, where he spent a week as a student.

Mr. Gnidziejko demonstrated composition, drawing and color. In the tradition of the Renaissance masters initiated by Van Eyck in the 1400s, they used egg tempera—pigment mixed with egg as a binder-and oil glazes, which need hours to dry; such paintings take weeks to complete. Told by Mr. Gnidziejko that the method requires great patience, Dr. Prystowsky replied: "Alex, don't worry about the patience. I don't think I have any talent." His mentor's response: "Don't worry about the talent. We'll figure that out as long as you're patient."

Once home, "I got studio lights and set up still-life compositions, and Alex critiqued them by e-mail," Dr. Prystowsky recalls. He returned to Maine several times, collaborating with Mr. Gnidziejko on four paintings.

Then came inspiration in the form of a vegetable. "One night, my daughter was preparing artichokes, and I'd never seen one cut in half like that," he says. "I said, 'Gee, don't cook it yet!' I took it to my studio, set up the composition, took pictures and brought it back. Then we









had it for dinner." He painted the artichoke from a photo and later followed the same procedure for other subjects, such as bread baked by a son and a rose from a bouquet he gave his wife.

Dr. Prystowsky continues to refine his technique. In the artichoke painting, "the front line is sharp, but the back line is fuzzy—an 'atmospheric edge," he says. "There's so much to learn: transitions, shadings, colors...." He's now

completing his first portrait, a great challenge: "The rendering has to be exact and capture the qualities of the person you know," he says—in this case someone very important to him: his father, who passed away two years ago. The portrait will be displayed at Ad Libitum night later this year—once the paint has dried and this talented artist has gotten it just right.

Above, clockwise from top left:

Eggs in Stainless Steel Bowl: Egg tempera and oil glazes on oil-primed gesso. 2010.

Arthur's Bread: Egg tempera and oil glazes on linen-covered board. 2011. Dr. Prystowsky exhibited this painting at Ad Libitum night in December 2011. It appeared in the Ad Libitum journal this spring.

Rose with Note: Egg tempera and oil glazes on linen-covered board. 2009.

Bread Basket: Egg tempera and oil glazes on linen-covered board. 2009.

Commencement Speaker 2012 Margaret A. Hamburg, M.D. Commissioner, U.S. Food and Drug Administration

"One thing I've learned as the head of the FDA is that it's very hard to satisfy all competing interests," said Dr. Hamburg. "Someone is always unhappy. So I ground my decisions in the best available science." She has followed this policy throughout her professional journey—from her internship and residency (internal medicine) at New York-Presbyterian Hospital-Weill Cornell Medical Center, to research positions (neuroscience) at Rockefeller University and the National Institute of Mental Health, to the upper echelons of the National Institute of Allergy and Infectious Diseases, the New York City Department of Health and now the world's leading regulatory agency.

"My experience taught me to step up and take responsibility," she told her Einstein audience. "It taught me to ask questions and trust my instincts, to listen and think through problems and defend my decisions. And it taught me that no matter how difficult the night, the morning always comes. I learned I would survive and even thrive—and you will, too.

"Doors open, often unexpectedly, and when they do, you should walk through them, using your innate talents, and the skills you've learned, to make a difference."

Commencement 2012

THE JOURNEY BEGINS



he old Yiddish saying is true:

'People plan, and God laughs,'"
said Margaret A. Hamburg,
M.D., commissioner of the U.S.
Food and Drug Administration, in
her keynote speech at the Einstein
commencement ceremonies, held on
May 30 in Manhattan, at Lincoln
Center's Avery Fisher Hall.

Trained as a physician-scientist, Dr. Hamburg said she was "certainly not planning a career in public service, and I would have bet large sums of money that I would never become New York City's health commissioner or commissioner of the FDA. After all, who would be so foolish?" In the tradition of commencement speakers, she shared the wisdom she has gained over her career (see box, left).

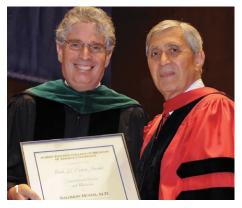
After Dr. Hamburg's address, Allen M. Spiegel, M.D., the Marilyn and Stanley M. Katz Dean, presented her with a gift—a plaque "appropriately limited in value to conform with federal guidelines, but our appreciation for your sharing your insights is unlimited."



Jack Stern, M.D. '74, Ph.D. '73, Alumni Association president, and Richard M. Joel, Yeshiva University president.

Dr. Hamburg was preceded by Yeshiva University president Richard M. Joel, who advised graduates to "stay true to your youthful commitment to heal, to warm, to enrich the society we live in, to partner with the transcendent to build a more perfect and healthy world, a more peaceful world suffused with meaning and human dignity."

The Ph.D. candidates repeated an oath led by Myles Akabas, M.D. '83,













Ph.D. '83, director of Einstein's Medical Scientist Training Program, pledging "to strive for scientific advances that will ultimately benefit all humanity." Dean Spiegel led the M.D. candidates in reciting the Declaration of Geneva, in which future physicians promise to refrain from using their medical knowledge to promote genocide or other human rights abuses.

Dean Spiegel and Victoria H. Freedman, Ph.D. '77, associate dean for graduate programs in biologic sciences,

then conferred 155 M.D. and 42 Ph.D. degrees, 10 of which were combined with M.D. degrees.

This year, for the first time, the College of Medicine presented the Saul R. Korey Award for Translational Medicine and Science, to honor the memory of Einstein's founding chair of neurology. The inaugural recipient was Solomon L. Moshé, M.D., professor, director of clinical neurophysiology and director of pediatric neurology in the Saul R. Korey Department of Neurology

- Solomon L. Moshé, M.D., and Dean Allen M. Spiegel, M.D.
- Dr. Stern and Ronald J. Ross, M.D. '60,
- Cedric Stuart Raine, Ph.D., D.Sc., and Alfred J. Spiro, M.D.
- David H. Abramson, M.D. '69, and Dr. Stern.
- Evelyne Albrecht Schwaber, M.D. '59, and Dr. Stern.
- Carl Grunfeld, M.D. '75, Ph.D. '75, and Roy S. Wu, Ph.D. '72.

at Einstein and Montefiore, and vice chair of neurology at Montefiore.

Teaching awards went to six faculty members: Christina M. Coyle, M.D.; Yvonne Man Yee Choi, M.D.; Joseph C. Arezzo, Ph.D.; Jeffrey R. Avner, M.D.; Herbert H. Schaumburg, M.D.; and Pablo E. Castillo, M.D., Ph.D.

Jack Stern, M.D. '74, Ph.D. '73, president of the Alumni Association board of governors, joined Dean Spiegel to present the Einstein Alumni awards. The award recipients were: Evelyne Albrecht Schwaber, M.D. '59, and David H. Abramson, M.D. '69, the Dominick P. Purpura Distinguished Alumnus/a Award; Roy S. Wu, Ph.D. '72, the Distinguished Ph.D. Alumnus Award; Cedric Stuart Raine, Ph.D., D.Sc., and Alfred J. Spiro, M.D., the Einstein Honorary Alumnus Award; Carl Grunfeld, M.D. '75, Ph.D. '75, the Alumni Lifetime Achievement Award; and Ronald J. Ross, M.D. '60, F.A.C.R., the Alumni Lifetime Service Award.

Commencement 2012 closed with a horn fanfare and the traditional turning of the tassels, led by grand marshal Edward R. Burns, M.D. '76, executive dean—followed by joyful applause. E



Reunion 2012 Honors the Class of 1962



Members of the Class of 1962 at the Gala Reunion Dinner.

eunion 2012 was a special one for members of the Class of 1962, who celebrated their 50th Anniversary Reunion at the luncheon held in their honor at the Yeshiva University Museum at the Center for Jewish History in Manhattan.

Allen M. Spiegel, M.D., the Marilyn and Stanley M. Katz Dean, congratulated the Class of '62, describing the fourth class of Einstein graduates and their teachers and mentors as true Einstein pioneers.

Many of the luncheon attendees then proceeded to Lincoln Center's Avery Fisher Hall to march at Commencement 2012, where they were joined by alumni from the other reunion classes (graduation years ending in 2 or 7). As the Class of 1962 led the alumni into the hall, they were applauded by Dean Spiegel, the new graduates and the many guests in attendance.

On Thursday, May 31, all nine reunion classes came together for the Gala Reunion Dinner at the Hilton New York hotel. There was joy and

excitement as old friends greeted each other and reconnected with former classmates.

Alumni Association president Jack Stern, M.D. '74, Ph.D. '73, was the evening's emcee. He recognized original faculty members Milford Fulop, M.D., Distinguished University Professor

During the dinner program, Dean Spiegel congratulated the 2012 Alumni Awardees (see Commencement 2012, page 36). The celebrants also heard from Eric Tanenbaum, a second-year student and a recipient of the Alumni Scholarship. Mr. Tanenbaum described his life as an Einstein student today,

"The students who come to us from Einstein are outstanding and dynamic. It's a pleasure to see the tradition continuing."

-Gail Solomon Hecht, M.D. '62 pediatric neurologist and teacher of medical residents

Emeritus, and Christine Lawrence, M.D., Distinguished University Professor Emerita. Dr. Stern then welcomed the Class of '62 as they entered the ballroom to the strains of "Pomp and Circumstance." Speaking on behalf of his class, Leonard Shapiro, M.D. '62, noted the outstanding medical education he and all of the alumni had received, and cited the memorable experience of being a part of Einstein's early years.

juggling long nights of studying and preparing for the Boards while carving out time for sports, romance and other activities—challenges that struck a familiar chord with his listeners.

Toward the evening's end, a representative of each reunion class shared special memories of Einstein with the group. Speakers were Edward Etkind, M.D. '62; Herbert Tanowitz, M.D. '67; Janina Galler, M.D. '72; Elizabeth Stoner,



M.D. '77; Steven M. Safyer, M.D. '82; Kenneth Wald, M.D. '87; Raja Flores, M.D. '92; James Post, M.D. '97; and Patricia Eshaghian, M.D. '02. Dr. Post received a standing ovation after he spoke movingly about his unique Einstein experience: A quadriplegic, he was rejected by 10 medical schools because of his disability, before being accepted at Einstein. His spirit and determination inspired everyone.

Alumni Day on Campus was held on Friday, June 1. Harris Goldstein, M.D. '80, associate dean for scientific resources, welcomed guests to a morning symposium in the Michael F. Price Center for Genetic and Translational Medicine/Harold and Muriel Block Research Pavilion's Ethel and Samuel J. LeFrak Auditorium. Dr. Goldstein is also professor of pediatrics (allergy & immunology) and of microbiology & immunology, director of the Einstein-Montefiore Center for AIDS Research, the Charles Michael Chair in Autoimmune Diseases and attending physician in pediatrics at The Children's Hospital at Montefiore.

The symposium was titled "Transformation of 21st-Century Medicine by Reversing Aging and Regenerating Cells and by Reinventing Healthcare Delivery and Medical Education." Presenters included Dean Spiegel; Steven M. Safyer, M.D. '82, president and CEO of Montefiore, the University Hospital and academic medical center for Einstein, and professor of medicine and of epidemiology & population health at Einstein; Nir Barzilai, M.D., professor of medicine (endocrinology) and of genetics, director of the Institute for Aging Research, the Ingeborg and Ira Leon Rennert Chair in Aging Research at Einstein and attending physician in endocrinology at Montefiore Medical Center; and Martha S. Grayson, M.D. '79, senior associate dean for medical education and professor of clinical medicine at Einstein and attending physician in internal medicine at Montefiore.

The day concluded with lunch in the Evelyn & Joseph I. Lubin Student Activities Center, followed by guided tours of the Jack and Pearl Resnick Campus. Led by Edward Burns, M.D. '76, executive dean, and Michael J. Reichgott, M.D. '65, Ph.D., professor of medicine and chair of the conflict of interest office, the tours stopped at the Clinical Skills Center in the Van Etten building; the laboratory of Matthew Levy, Ph.D., assistant professor of biochemistry, in the Price Center/Block Research Pavilion; and the anatomy laboratory in the Leo Forchheimer Medical Science Building.

Plans are already under way for Reunion 2013, celebrating the 50th anniversary reunion of the Class of 1963 and reunions for the Einstein classes of 1968, 1973, 1978, 1983, 1988, 1993, 1998 and 2003. For more information or to get involved, please contact the office of alumni relations at 718.430.2013 or alumni@einstein.yu.edu.



Three members of the 50th Anniversary Class prepare to join the Commencement processional. From left, Mark A. Hardy, M.D. '62; Joyce H. Lowinson, M.D. '62; and Michael P. Novak, M.D. '62.













- 1 At Alumni Day on Campus, Michael Fetell, M.D. '72.
- 2 From left, Harvey L. Hecht, M.D. '62; Gail Solomon Hecht, M.D. '62; Susan Etkind; Edward Etkind, M.D. '62; Sara A. Vogel, M.D. '62.
- 3 From left, Jack Hentel, M.D. '67; Herbert Tanowitz, M.D. '67; Michael Ramer, M.D. '67; Stephen Leviss, M.D. '67; Stephen Kardon, M.D. '67.
- 4 Steven M. Safyer, M.D. '82, president and chief executive officer, Montefiore Medical Center, speaking on behalf of his class at the Gala Reunion Dinner.
- 5 From left, Jerry Appel, M.D. '72; Alice Appel, Ph.D. '75; Walter Orenstein, M.D. '72; Margery Inkeles; David Inkeles, M.D. '72.
- 6 From left, Deborah Maliver, M.D. '82; George Friedman-Jimenez, M.D. '82; Arthur Kozin, M.D. '82, president elect, Alumni Association board of governors; Judith Bernstein, M.D. '82; Michael Weiss, M.D. '82.











1 From left, Jack Stern, M.D. '74, Ph.D.



- 3 Members of the Class of 1992.
- 4 Robin Frank-Gerszberg, M.D. '87, and Nadine T. Katz, M.D. '87, senior associate dean for student academic affairs.
- 5 Alumni Day on Campus attendees listen to Edward R. Burns, M.D. '76, executive dean, as he leads a campus tour.



BOARD RETREAT 2012

Overseers' Annual Lunch + Learn Focuses on Einstein's Graduate Programs



Dean Spiegel addresses Overseers and guests during a panel discussion and Q&A session featuring three Einstein graduate students.

t this year's annual Board of Overseers retreat, held on May 16 at the Michael F. Price Center for Genetic and Translational Medicine/Harold and Muriel Block Research Pavilion, Einstein Overseers and friends became better acquainted with the College of Medicine's Ph.D. and M.D./Ph.D. programs, which train aspiring scientists and physician-scientists in basic scientific and translational research.

The retreat began with a luncheon and Q&A session led by Allen M. Spiegel, M.D., the Marilyn and Stanley

M. Katz Dean. He introduced guest speakers Victoria H. Freedman, Ph.D. '77, associate dean for graduate programs in biologic sciences, and Myles Akabas, M.D. '83, Ph.D. '83, director of the Medical Science Training Program and professor in the departments of physiology & biophysics and of medicine, and in the Dominick P. Purpura Department of Neuroscience.

After lunch the group proceeded to the Ethel and Samuel J. LeFrak Auditorium for a presentation, "How Science Works," by Victor L. Schuster, M.D., chair of the department of



- 1 Victor L. Schuster, M.D., left, with Einstein Overseers Stanley M. Katz, Marilyn Katz and Linda Altman.
- 2 Overseers Roger W. Einiger and Daniel R. Tishman.
- 3 Ruth L. Gottesman, Ed.D., chair, Einstein Board of Overseers, standing, right. Seated, from left: Randy Kipp, Ph.D. '12; Samantha Orenstein, Ph.D. candidate, Class of 2013; and Tony Wong, M.D./ Ph.D. '12.
- 4 Audrey Wilf, left, wife of Overseer Zygmunt Wilf, and Overseer Karen A. Mandelbaum.





- "The creativity and dedication of our talented faculty and graduate students play an important role in helping to keep Einstein at the forefront of medical and scientific innovation."
 - Ruth L. Gottesman, Ed.D., chair Einstein Board of Overseers



medicine and professor in the departments of medicine and of physiology & biophysics. Dr. Schuster, who is also the Ted and Florence Baumritter Chair in Medicine, described the basic principles of the scientific process: observation, creating a testable hypothesis or hypotheses, obtaining new data, being willing to discard hypotheses, and revising and creating a new hypothesis or hypotheses.

"The scientific process is not dull or mysterious," he told his audience. "It's a fun, interesting and natural way of thinking that we all use every day." He led an interactive exercise to demystify science and highlight the importance of collaboration and critical thinking. "To bring forth a scientific hypothesis that runs 'against the establishment," he noted, "takes great courage on a scientist's part."

Dr. Schuster's talk was followed by a panel discussion featuring three graduate students. Samantha Orenstein, a Ph.D. candidate, and Randy Kipp and Anthony Wong (who received their Ph.D. and M.D./Ph.D. degrees, respectively, at Commencement on May 30), shared their reasons for coming to Einstein, their professional goals and aspirations, and highlights of their experiences working in the laboratories of their mentors (Ana Maria Cuervo, M.D., Ph.D.; Vern L. Schramm, Ph.D.; and Kartik Chandran, Ph.D., respectively). Excerpts from their remarks appear on the following pages.

The retreat was arranged by Ruth L. Gottesman, Ed.D., chair of the Board of Overseers, along with Dean Spiegel and Drs. Freedman, Akabas and Schuster. "Our graduate programs

EINSTEIN BY THE NUMBERS

M.D. STUDENTS: 724

PH.D. STUDENTS: 248

M.D./PH.D. STUDENTS: 117

are a vital and thriving part of Einstein," said Dr. Gottesman. "The creativity and dedication of our talented faculty and graduate students, as exemplified by all of our presenters today, play an important role in helping to keep Einstein at the forefront of medical and scientific innovation."



Back row, from left: Overseer Roger W. Einiger; Overseer Nathan Gantcher; Audrey Wilf, wife of Overseer Zygmunt Wilf; Overseer Raymond S. Cohen; Overseer Karen A. Mandelbaum; Overseer Linda Altman; Overseer Sue-ann Friedman; Overseer Henry Kressel, Ph.D., chair, Yeshiva University Board of Trustees; Overseer Ronald J. Lissak; Ruth L. Gottesman, Ed.D., chair, Einstein Board of Overseers; Overseer Roslyn Goldstein; Overseer Rita Rosen; Overseer Edward S. Pantzer; Overseer Betty Feinberg; Overseer Benjamin Winter; Overseer Arthur Hershaft; Overseer Daniel R. Tishman; Overseer Arnold S. Penner; Victoria H. Freedman, Ph.D. '77; and Overseer Philip Altheim. Front row, from left: Randy Kipp, Ph.D. '12; Samantha Orenstein, Ph.D. candidate, Class of 2013; Tony Wong, M.D./Ph.D. '12; Overseer Marilyn Katz; Overseer Stanley M. Katz.

Randy Kipp, Ph.D. '12

Randy defended his Ph.D. thesis this spring and received his diploma in May after five and a half years at Einstein. He did his research in the lab of Vern L. Schramm, Ph.D., professor and chair of biochemistry and the Ruth Merns Chair in Biochemistry.

I wasn't particularly interested in science until I started college. There I decided that I wanted to become a medical doctor and joined a program that would best set me up for medical school. But in my third year of college, I started working in a scientific lab, realized I liked lab work and started researching graduate programs. I worked for a year in Colorado as a lab technician. My advisor there knew that Einstein was doing similar work, and he recommended that I apply.

Here at Einstein we had the option to rotate through several labs. The third lab that I rotated through was the lab of Dr. Vern Schramm, who has a fantastic reputation for translating basic research to the clinic. The work done in his lab on drug design, which was my main interest in coming to Einstein, was top-notch.

The drugs developed in the Schramm lab target enzymes. We try to prevent enzymes from doing their jobs by finding their most vulnerable state—known as their transition state—and then blocking it there so that it can no longer function. My research involved HIV, the virus that causes AIDS, and I focused on one particular enzyme that HIV requires for its replication. We asked this question: Is the transition state of this enzyme the same in drug-resistant HIV as in the native form? Importantly, both



We asked this question: Is the transition state of this enzyme the same in drugresistant HIV as in the native form? Importantly, both forms of the enzyme had the same transition state. the same vulnerable state.

forms of the enzyme had the same transition state, the same vulnerable state. So once we synthesize a chemical to inhibit this enzyme, the inhibitor should be able to block both forms. We collaborate with a company in New Zealand that makes all of our drugs. I'm the first author on two publications pertaining to this research, in the Proceedings of the National Academy of Sciences and the Journal of the American Chemical Society.

Next I'm taking a postdoctoral fellowship at the Novartis Institute for Biomedical Research in Cambridge, MA. It's a unique program, offering mentors on both the academic and pharmaceutical sides.

My Einstein research on HIV will be on ice until somebody who's interested

in it joins Dr. Schramm's lab. When new postdocs come into the lab, they'll be given several options regarding projects they'd want to join, and that will be one of them.

Tony Wong, M.D./Ph.D. '12

Tony graduated this year from Einstein's MSTP program. He worked in the lab of Kartik Chandran, Ph.D., associate professor of microbiology & immunology.

Einstein has one of the strongest M.D./Ph.D. programs in the country and it's one of the best established, which were major attractions for me. I rotated through four labs before I chose the lab of my mentor, Dr. Kartik Chandran. I was looking for someone who would help me develop the skills to become a scientist on my own. When I met Dr. Chandran, within five minutes we were throwing ideas at each other and drawing figures on whiteboards. I had a really stimulating interaction with him, and it led me to believe that his would be the right lab for me.



When viruses infect cells. you can compare that process to a burglar breaking into a house. But the house has thousands of doors. each with a different lock. Each virus has a key that fits into one lock.

I studied Ebola virus, which was discovered in the early 1970s and is one of the deadliest pathogens known to man. As many as 90 percent of the people who are infected will die, and there are no approved effective treatments. When viruses infect cells, you can compare that process to a burglar breaking into a house. But the house has thousands of doors, each with a different lock. Each virus has a key that fits into one lock.

Ebola virus can infect almost every cell in the body, and for years, no one knew which door the Ebola virus uses to break into cells. No one in the United States has died of Ebola virus infection, but it's of interest to us because of its potential as a bioterrorism agent. If someone were to weaponize the virus, it would be terrible in terms of both psychological and physical harm to people.

There are only a couple of centers in the United States in which researchers are allowed to work with live Ebola virus, and Einstein is not one of them. So how do we study the virus? We create a virus that expresses enough of the Ebola virus protein to mimic the behavior of Ebola virus but causes no disease, and we do our studies using this defanged virus. We have collaborators at U.S. AMRIID [United States Army Medical Research Institute of Infectious

Diseases] in Maryland, and they try to replicate our experimental results using the live virus.

We published our findings, in collaboration with two labs at Harvard and with AMRIID, last September in the journal Nature. We discovered that a protein called NPC1—a causative agent for Niemann-Pick disease when present in mutated form—appears to be the door that Ebola virus uses to break into cells. Significantly, we found that cells with mutated NPC1 appear to be resistant to infection by Ebola. We're collaborating with a small biotech company that develops antiviral agents. Knowing that NPC1 is Ebola's entry point into cells, we hope to develop compounds that can prevent infection.

I'll be starting an internship in the department of medicine at Memorial Sloan-Kettering this summer. I'll be there for a year and then transfer to the University of Chicago to do my residency in radiation oncology.

Samantha Orenstein, Class of 2013

Samantha is a fifth-year Ph.D. student whose mentor is Ana Maria Cuervo, M.D., Ph.D., professor of developmental and molecular biology, of anatomy and structural biology and of medicine (gastroenterology and liver diseases), and the Robert and Renée Belfer Chair for the Study of Neurodegenerative Diseases.

I've always been interested in science. When I was in college, I became really interested in neurodegenerative disorders on a personal level: My mom has



During my Cell Biology course, Ana Maria Cuervo, who later became my mentor, was lecturing, and she was so excited and so thrilled with what she was working on that I knew I had to work in her lab.

both multiple sclerosis and Alzheimer's disease. When she was diagnosed, it prompted me to want to do something related to these types of disorders. Research and getting my Ph.D. in biomedical sciences were how I wanted to make a difference.

I was attracted to Einstein because I had a friend who was very happy in the Ph.D. program here. During my Cell Biology course, Ana Maria Cuervo, who later became my mentor, was lecturing, and she was so excited and so thrilled with what she was working on that I knew I had to work in her lab. Around the same time, an outside speaker lectured on neurodegenerative diseases and autophagy. He actually referenced Dr. Cuervo in his talk. I immediately

contacted her and joined her lab, and I'm really happy there.

Neurodegenerative disorders are very similar in that they all involve some protein that aberrantly accumulates in the brain. The particular brain region in which the damaging protein accumulates leads to the specific problems that you see. Many neurodegenerative diseases result, at least in part, from impaired autophagy—the process by which cells digest and then recycle proteins and various parts of the cell itself. Think of a trash facility: if the garbage hauler stops coming, you have tons of trash around, and that's exactly what's happening in the brain in so many of these disorders. Autophagy has become less efficient, and proteins that should be digested are instead accumulating inside brain cells and ultimately damage or even kill these cells.

I work on a specific mutation associated with Parkinson's disease, a mutation in leucine-rich repeat kinase 2, or LRRK2. We've been looking directly at how autophagy is altered in cells and animals harboring this mutation, and are trying to promote more garbage haulers coming, more recycling and more degradation, so that we can potentially translate our research into a treatment for this type of Parkinson's disease.

I just submitted this work in my first lead-author paper to *Nature*Neuroscience, and we're currently revising the manuscript for resubmission in the fall. Wish me luck!

- 1 Overseers Arthur Hershaft, left, and Edward S. Pantzer.
- 2 Overseer Benjamin Winter, left, with Myles Akabas, M.D. '83, Ph.D. '83.
- 3 Overseers Roslyn Goldstein, left, and Sue-ann Friedman.







Spirit Luncheon Spotlights Women's Cancer Research







- Roxanne Palin, center, Lizette H. Sarnoff Award recipient and vice president, New York chapter, Einstein National Women's Division, with her husband, Dean Palin, and her aunt, Michele Wolkoff, Spirit Luncheon chair and New York chapter executive board member.
- Spirit honoree Lorraine Schwartz, right, with Willie Geist of MSNBC, Spirit Luncheon emcee, and Sofia Vergara, star of Modern Family.
- From left, Mindy Feinberg, New York chapter co-president; Andrea Stark, Spirit Luncheon honorary chair and New York chapter vice president; and Mara Sandler, New York chapter co-president.
- Kathy Weinberg, center, president, National Women's Division, with daughter Lisa Weinberg, left, New York chapter assistant vice president, and daughter-in-law Jenna Weinberg.



he New York chapter of Einstein's National Women's Division hosted a starstudded 58th Annual Spirit of Achievement Luncheon on May 9 at New York City's Plaza Hotel. The event benefited the Women's Division's initiative to support research targeting breast and gynecological cancers at the Albert Einstein Cancer Center. The honorees were Roxanne Palin, a board member of the National Women's Division and a New York chapter vice president; famed jewelry designer and cancer research advocate Lorraine Schwartz; and Mark H. Einstein, M.D., M.S., associate professor of obstetrics & gynecology and women's health and of epidemiology

& population health, and director of clinical research for women's health and gynecologic oncology at Einstein and Montefiore Medical Center.

Ms. Palin received the Women's Division's Lizette H. Sarnoff Award for outstanding volunteer service. She was cited for her leadership in the Women's Division and for her instrumental role, over 10 years, in growing the New York chapter's annual Family Day Carnival into one of the Hamptons' major family-oriented events of the summer social season.

Michele Wolkoff, a New York chapter board member, served as luncheon chair; Andrea Stark, an assistant vice president of the New York chapter, was honorary

chair. Luncheon committee members were Arlene Farkas, Bambi Felberbaum, Tasha Genatt, Jackie Harris Hochberg, Erica Karsch, Allison Koffman, Cathy Schwartz and Jodi Sussman.

Mindy Feinberg, New York chapter co-president, opened the program with a surprise for Willie Geist of MSNBC and NBC, who has donated his time as luncheon emcee for four years. She announced that the Women's Division will include the names of Mr. Geist's children on the "Wall of the Future" in Einstein's Michael F. Price Center for Genetic and Translational Medicine/ Harold and Muriel Block Research Pavilion.

Her co-president, Mara Sandler,

To join the Einstein National Women's Division's initiative to support research on women's health and cancers, or to learn more about the Women's Division, please contact Janis Brooks at 718.430.2818 or janis.brooks@einstein.yu.edu.









- Spirit honoree Mark H. Einstein, M.D., M.S., with Terri Goldberg, left, national executive board member, and Audrey Wilf.
- From left: Bambi Felberbaum, past president, National Women's Division; Janet Hershaft, past president, New York chapter; Karen Mandelbaum, Einstein Overseer and New York chapter executive board member; and Renée Belfer, Einstein Overseer, national vice president and New York chapter executive board member.
- Einstein Overseer Rita Rosen, a past president of the National Women's Division, with her daughter, Phyllis Hadley.
- From left: Dean Spiegel; Jade Ullmann; and Ruth L. Gottesman, Ed.D., chair, Einstein Board of Overseers.

told the assembled Women's Division members and guests, "People usually get involved with great causes after the fact—supporting the institution where they were treated or where their doctor is affiliated. Your presence here is so wonderful because Einstein is at the forefront of forward-thinking research designed to make a future difference in our lives, and in the lives of our children and grandchildren."

In a departure from past programs, this year's event included a fashion show featuring designer Randi Rahm's couture collection, complemented by Ms. Schwartz's jewelry.

Other notable attendees included past Spirit honorees Einstein Overseer Rita Rosen; Honorary Overseer Emily Fisher Landau; cosmetics entrepreneur Adrien Arpel; Stephanie Winston Wolkoff, head of New York's fashion week; and Einstein faculty members Sylvia Wassertheil-Smoller, Ph.D., and Joseph A. Sparano, M.D. They were joined by three of Ms. Schwartz's clients: TV stars Sofia Vergara (Modern Family) and Kyle MacLachlan (Desperate Housewives, Sex and the City), and Tina Knowles, mother of singer Beyoncé.



Family Day 2012

Hosted by the Einstein National Women's Division New York chapter on August 5, at the Ross School in Bridgehampton, NY, the 23rd Annual "Family Day in the Hamptons" raised funds to benefit research on women's health and cancers at the Albert Einstein Cancer Center. The event co-chairs were Marlowe Bamberger, Alison Brettschneider, Mindy Feinberg, Jackie Harris Hochberg and Lyss Stern.



ON THE WEB

www.einstein.yu.edu/home/donors/WomensDivision.asp

Men's Division Golf and Tennis Outing Highlights Translational Research

embers and friends of the Einstein Men's Division gathered on June 5 at Century Country Club in Purchase, NY, for the 2012 Men's Division Golf & Tennis Tournament and Dinner. The day of friendly competition and camaraderie honored past Men's Division chair Peter A. Gatof. Proceeds from the event helped the group reach the \$3 million fundraising goal for its Men's Division Research Scholars Program, an initiative to support the career development of Einstein physician-scientists involved in translational research aimed at the discovery of new treatments for cancer, diabetes, Alzheimer's disease and other serious medical conditions.

Mr. Gatof, CEO and co-founder of US Data Capture, Inc., has been a leading member of the Men's Division since 1995. He chaired the division from 2008 to 2010 and continues to serve on its executive board. Under his chairmanship, the group successfully completed its previous initiative to fund a wing of stem cell research laboratories in Einstein's Michael F. Price Center for Genetic and Translational Medicine/Harold and Muriel Block Research Pavilion.

At the dinner, he received the 2012 Albert Einstein Humanitarian Award in recognition of his outstanding service to Einstein and his dedicated leadership in the Men's Division.

"Einstein research scientists and clinicians are working to transform health for all of us and for future generations," said Mr. Gatof. "The



rewards that come from supporting this institution and its mission are immeasurable."

Raymond S. Cohen, outgoing Men's Division chair. thanked his fellow division members for their "passion and commitment in bringing our Men's Division Research Scholars Program

from dream to reality." He also recognized Neil A. Clark, Martin Luskin and Robert C. Patent, who served as journal co-chairs for the event; Duane Fiedler and Daniel Och, dinner chairs; Peter Bernstein and Peter E. Zinman, golf cochairs; golf committee members Jeffrey A. Fiedler, Mitchel Maidman, Andrew M. Weinberg; and tennis co-chairs Marc Altheim and Jonathan D. Resnick.

Allen M. Spiegel, M.D., Einstein's Marilyn and Stanley M. Katz Dean,



introduced Steven K. Libutti, M.D., F.A.C.S, professor of genetics at Einstein, associate director for clinical services at the Albert Einstein Cancer Center, professor and vice chair of surgery at Einstein and Montefiore, and director of the Montefiore-Einstein Center for Cancer Care. Dr. Libutti spoke about Einstein's role as a national leader in cutting-edge translational research that may lead to innovative approaches to cancer treatment.













- 1 Peter A. Gatof, third from right, 2012 Einstein Humanitarian Award recipient, with his wife, Bonnie Gatof, third from left; Daniel and Jane Och, left, and Joanne and Duane Fiedler.
- 2 From left, David Luski, Martin Luskin, Neil Clark and Rob Horowitz.
- 3 From left, Steven K. Libutti, M.D.; Matthew Trundle; Overseer Stanley M. Katz; and Neil Katz.
- 4 From left, David Mate, Marc Altheim, Stephen Samuels and Rusty Paparo.
- 5 Overseer Philip Altheim, center, with Bob Frank, left, and John Mari.
- 6 Dean Allen M. Spiegel, M.D., and Overseer Samuel G. Weinberg.
- 7 From left, David J. Klein, Michael Patent and Casey Klein.
- 8 From left, Andrew Frank, Andrew Weinberg and Peter Bernstein.

Einstein's Men's Division

Since 1961, the Men's Division of Albert Einstein College of Medicine has provided volunteer leadership to encourage the growth and development of the College of Medicine. Its current fundraising initiative is the Men's Division Research Scholars Program.





KEEP EINSTEIN UPDATED WITH YOUR NEWS!

Please tell us what you are up to so your classmates can read about it in Einstein magazine. To be included in the next issue, e-mail your news to alumni@einstein.yu.edu.

1950s

'59, writes, "I am officially retiring as division chief of geriatric psychiatry from the State University of New York at Buffalo School of Medicine and Biomedical Sciences department of psychiatry. It has been a varied and

Marion Zucker Goldstein, M.S., M.D.

delightful voyage. One conceivable retirement activity is writing an autobiography. I am a member (one of three women) of the very first graduating class at Einstein. If there are any potential co-authors, or suggested co-authors, out there, please be in touch at mzg@ buffalo.edu or 716.898.3630."

1960s

Jack Katz, M.D. '60, was recently awarded the American Psychiatric Association's Irma Bland, M.D., Award for Excellence in Teaching Residents. Dr. Katz is currently an attending physician at North Shore University Hospital and clinical professor of psychiatry at Hofstra North Shore-Long Island Jewish School of Medicine.

Stanford M. Goldman, M.D. '65,

became professor emeritus of radiology at the University of Texas Health Science Center in Houston in May 2012, with the approval of the Board of Regents of the University of Texas. Dr. Goldman received the Albert Einstein Distinguished Alumnus Award in 1996. He also received the Gold Medal of the Texas Radiological Society, the Gold Medal of the American Society of Emergency Radiology (2006) and a Lifetime Achievement Award from the Society of Uroradiology (2008). During his career, he has served as the chair of various departments at the following institutions: U.S. Public Health Service Phoenix Indian Medical Center (2 years); the Johns Hopkins Bayview Medical Center (14 years); and the University of Texas Medical Center (7 years). He is also past president of the Texas Radiological Society and the American Society of Emergency Radiology. He is currently professor of radiology and urology at MD Anderson Cancer Center, and adjunct professor of radiology and urology at Baylor College of Medicine.

Ronald Grober, M.D. '62, writes, "I have thoroughly enjoyed my career as an orthopedic surgeon subspecializing in total joint replacement and arthroscopic surgery of the knee and shoulder. I retired about three years ago, at age 73. My practice, since 1971, has been in Fort Pierce and Stuart, FL. I am divorced, with two daughters and three grandchildren. My hobbies include my jazz band and jazz radio show as well as snow skiing and sailing. I have a wonderful lady in my life; we have a second home in Durango, CO, which allows us to enjoy the Rocky Mountains. This past summer we sailed our boat from Florida up to New England and the coast of Maine; we returned in early October. It all started at Einstein, and I have been grateful for that."

Arnold Bresky, M.D. '65, writes, "For the past 15 years, I have practiced in southern California as a preventive gerontologist in the field of behavioral neurology. Presently, I am the medical director of the Dorie Miller Memorial Foundation. In May, the organization's founder, Sergeant Stephen Sherman, was honored at the White House by President Obama as a Champion of Change. I'm a veteran myself, and we serve as a community partner resource to the overwhelmed Department of Veterans Affairs. I plan to open a pilot nonprofit organization in southern California called Veterans Wellness Center. It will assist young veterans affected by post-traumatic stress disorder (PTSD), traumatic brain injury, depression, anxiety, unemployment and homelessness, as well as elderly veterans with delayed PTSD, who have a higher incidence of Alzheimer's disease. I will train veterans in my whole-person care

Alumni Leadership Brunch

llen M. Spiegel, the Marilyn and Stanley M. Katz Dean, hosted the annual Einstein Alumni Leadership Brunch on April 22 at the Price Center/Block Research Pavilion.

The event celebrated all alumni whose giving to Einstein totals \$25,000 or more, placing them at the Dean's Club level. Dean Spiegel recognized all alumni who this year reached giving levels of \$25,000, \$50,000, \$100,000, \$150,000 and \$250,000, as well as alumni who donated \$1,000 or more to Einstein this year.

The program featured a presentation by Steven Almo, Ph.D., the Wollowick Family Foundation Chair, professor of biochemistry and of physiology & biophysics and director of the structural biology resource at the Albert Einstein Cancer Center. Dr. Almo described how he is developing new proteinbased strategies for treating cancers such as melanoma and autoimmune diseases such as type 1 diabetes. Following Dr. Almo's remarks, the group toured his laboratory.







Left photo: Dean Allen M. Spiegel, M.D., with Einstein Dean's Club Award recipient Martin H. Brownstein, M.D. '61, center, and Arthur Kozin, M.D. '82, president elect, Einstein Alumni Association board of governors. Center photo: Ronald J. Ross, M.D. '60. Right photo: From left, Harvey L. Hecht, M.D. '62; Miriam Levitt Flisser, M.D. '71; and Gail Solomon Hecht, M.D. '62.

system so that they can help other veterans reintegrate into society. They will eventually open other Veterans Wellness Centers throughout this nation under the auspices of our foundation."

Robert S. Hoffman, M.D. '69, writes, "I am still practicing full time as an integrative medicine specialist, conducting individual, couple, family and group therapy, providing psychopharmacotherapy, and treating psychiatrically and medically ill patients, including chronic pain patients (with diagnoses

ranging from migraine to fibromyalgia). I remain on the clinical faculty at the University of California, Los Angeles, and as a psycho-oncologist for the Pacific Breast Centers (Breastlink). I commute on my BMW (R1200RT) motorcycle and play the French horn with the Gold Coast Wind Ensemble. In my 23-foot RV, I visit my five children, two stepchildren and their significant others (five married, one engaged), and my seven (thus far) grandchildren (from the eldest three daughters), who live in San Diego, San Francisco,

San Rafael, Bakersfield and west Los Angeles. The only Einstein grad with whom I remain in communication is Simon (Si) Sobo, M.D. '68, my best friend at Union College, who also became a psychiatrist." Classmates who wish to be in touch can find contact information at www. robertshoffmanmd.com.



Members of the Class of 1972 at the Gala Reunion Dinner.

1970s

Diane Stover, M.D. '70, was recently named one of New York's "Best Doctors" in pulmonary disease by New York magazine. She is proud to announce that her daughter Dana was elected by her peers to be inducted into the Gold Humanism Honor Society and is beginning her fourth year of medical school at New York Medical College.

Lawrence (Larry) Schaffer, M.D. '71,

writes, "Life is good. I retired from pediatrics and administration at the end of 2011. My wife, Brenda, and I have two children who are both married. healthy and doing well. We also have two grandchildren, ages 3½ years and 2 years, who are great. I tell everyone, 'I am doing nothing. I do it all the time, and because of my Einstein education, I do it well."

Miriam Tasini, M.D. '71, received the Laughlin Gold Medal Award for her service as national president of the American College of Psychoanalysts at its annual meeting, held in Philadelphia in May.

Michael Jellinek, M.D. '73, has stepped down after 32 years as chief of child psychiatry at Massachusetts General Hospital and as president of Newton-Wellesley Hospital to work full-time as chief of clinical affairs for the Partners HealthCare System, founded by Massachusetts General and Brigham and Women's Hospitals. He writes, "Sydney and Calla recently joined my first granddaughter, Avalon, so now my wife and I are proud grandparents to three little girls all living near us!"

Michael J. Leibowitz, M.D. '73, Ph.D.

'72, writes, "On June 30, 2011, after 34 years, I retired as professor of molecular genetics, microbiology & immunology at the University of Medicine and Dentistry of New Jersey-Robert Wood Johnson Medical School. On the following day I was appointed professor of medical microbiology & immunology

at the University of California, Davis. Sharon and I have relocated to Roseville, CA, not too far from our son and his family (including our 2-year-old granddaughter) in San Francisco and our daughter in Oakland. For the past year I have spent time in Puerto Rico as a visiting distinguished professor at Universidad del Este. I continue my involvement in increasing diversity in the scientific workforce and my research on malaria."

Steven Mandel, M.D. '75, has moved back to New York and has joined the department of neurology at Lenox Hill Hospital, where he specializes in head trauma and sports concussion, voice disorders (laryngeal electromyogram), neuromuscular disease and neurological Sjogren's syndrome. His wife, Heidi Mandel, Ph.D., D.P.M., does hospice work in New York City. He has published three textbooks and 200 publications, and is committed to doing community service, including with people with disabilities.

William Clusin, M.D. '76, Ph.D. '76,

writes, "I'm still at Stanford University, where I read EKGs and see patients. This year I took a sabbatical to revisit my Einstein Ph.D. thesis topic from a molecular biology perspective. In the lab of Michael V. L. Bennett, D.Phil., in 1974, we claimed to have discovered—or inferred—the existence of calcium-activated potassium channels in the electroreceptors of the skate known as the ampulla of Lorenzini. Recently I ordered skates from Woods Hole and dissected a few hundred ampullae. My colleagues and I succeeded in finding the genetic sequence of the potassium channel in the ampulla. I presented an

ALUMNI PROFILE: Laurence J. Marton, M.D. '69

DR. MARTON IS SHARING HIS

KNOWLEDGE WITH EINSTEIN'S

OFFICE OF BIOTECHNOLOGY.

FARTHER THAN EVER THROUGH

•••••

HE'S AWARE THAT EINSTEIN

WANTS TO TAKE ITS DRUGS

THE PIPELINE.

aurence J. Marton, M.D., Yeshiva College Class of '65, Einstein Class of '69, headed west after medical school—but in some ways he never strayed far from his alma mater.

For years, Dr. Marton stayed in touch with Sam Seifter, Ph.D., the beloved Einstein biochemistry professor who died in 2009 at age 92. "Sam pretty much adopted every medical student as his own child. He was my turn-to guy," Dr. Marton recalls.

Dr. Marton began his medical career as a neurosurgical resident at the University of California, San Francisco

(UCSF), School of Medicine, "but then there was the military draft, and you either went to Vietnam or, if you were lucky, the National Institutes of Health or the U.S. Public Health Service." After two years at the National Cancer Institute (NCI), he joined UCSF's Brain Tumor Research Center.

Because he'd worked on diagnostic testing at the NCI, he soon also joined UCSF's department of laboratory

medicine, "a natural home," says Dr. Marton. While he was chair from 1979 to 1992, the small department—and its scientific productivity—grew considerably.

Dr. Marton's success at UCSF led to his recruitment as dean of the University of Wisconsin School of Medicine; he was the first Yeshiva/Einstein graduate to serve as a medical school dean.

In 1996, Dr. Marton expanded from academe into the private sector "after the Wisconsin pharmacy school dean

and a visiting scientist asked me to help them set up a little company," he says. As co-founder, chief executive officer (CEO) and then chief scientific officer (CSO) of SLIL Biomedical Corp., a drug discovery company, he was involved in investigating polyamine analogs for treating cancer and infections. The company was later bought by CellGate, Inc., and then by Progen Pharmaceuticals. Dr. Marton continued as CSO, gaining experience in drug development and meeting investors along the way.

Now retired, Dr. Marton is sharing his knowledge with a number of nonprofit groups—and with Einstein's office of biotechnology. He's aware that Einstein wants to take its drugs farther than ever through the pipeline. "When Allen Spiegel and Ed Burns came to the Bay Area recently, we discussed

> the commercialization of Einstein's intellectual property," he says. During a follow-up visit to the Jack and Pearl Resnick campus, he put Dean Spiegel and Dr. Burns in touch with potential financial supporters.

"Larry Marton is one of our most distinguished alumni, and we're so fortunate to have him involved in our tech transfer efforts," says

Dr. Burns. "He's spent a good part of his career bridging the medical school-industry divide both as a dean and a biotech CEO.

"Larry has taken the trouble to visit Einstein and review our patent portfolio, and we'll certainly benefit from his help as we do from that of Jay Goldberg, who chairs our Board biotech committee, in taking Einstein discoveries into the marketplace where they can make an impact on human health."

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For more information, please contact the office of alumni relations at 718.430.2013 or alumni@einstein.yu.edu.

abstract at the Experimental Biology meeting in March 2012 in San Diego. It was thrilling to go back to this work."

Alfredo A. Sadun, M.D. '78, Ph.D.

'76, holds the Flora L. Thornton Endowed Chair and is professor of ophthalmology and neurological surgery at the University of Southern California-Keck Medical Center, In 1999, Dr. Sadun received the Pisart Award, the lifetime achievement award given by Lighthouse International, for his ophthalmologic research. He was honored for his contributions to residency teaching in ophthalmology by the American Academy of Ophthalmology (AAO) and the Association of University Professors of Ophthalmology with their highest education prize, the 2002 Straatsma Award. Recently, Dr. Sadun received the 2012 Hoyt Award, the highest award offered in clinical neuro-ophthalmology, given jointly by the AAO and the North American Neuro-Ophthalmology Society. Dr. Sadun has been recognized as an international authority in neuroophthalmology, especially diseases of the optic nerve. He has published more than 260 peer-reviewed articles and 70 book chapters, and has written or edited four books.

Ira Helfand, M.D. '77, writes, "In April, I represented Physicians for Social Responsibility and our global federation, the International Physicians for the Prevention of Nuclear War, at the Nobel Peace Laureates' Summit in Chicago, where I released a report, "Nuclear Famine: A Billion People at Risk" (http://www.psr.org/nuclear-weapons/ nuclear-famine-report.pdf). The study discussed the climate disruption that would follow even a very limited



Mary Buckley Flannery, M.D. '77, and Elizabeth Stoner, M.D. '77.

nuclear war and presented data showing that this disruption would likely trigger a global famine. The study was strongly endorsed by Mikhail Gorbachev, chair of the summit, and received widespread coverage in the international media. Following the release of the report, I was asked to discuss the report at briefings for the American Red Cross and for Congressional staffers. Deb and I continue in practice in western Massachusetts. She is an oncologist at Cooley Dickinson Hospital, and I have an urgent-care center in Springfield, where I also do primary care internal medicine."

Donna L. Vogel, M.D. '77, Ph.D. '78, is serving as the 2012-13 president of the American Society of Andrology. She is director of the professional development office for the Johns Hopkins

Medical Institutions in Baltimore, MD.

Linda Wolf, M.D. '77, recently retired after practicing with Kaiser Permanente in San Jose, CA, for 26 years. "I had a general ENT practice, approximately 20 percent surgical, as part of a five-person

department in a group of 400 physicians. I also served as chief of physician satisfaction and wellness for the group and organized a program to improve my peers' personal and professional lives, for which I received the 'Everyday Hero' award in 2007. My husband, Alex Gelber, M.D., is a neonatologist and pediatrician, and directed the nursery at Kaiser Foundation Hospital of San Jose for 27 years. I have two sons: Richard, 27, a second-year student at the University of Washington Law School in Seattle, and Jonathan, 24, who started at Vanderbilt Medical School in July, after a completing a Fulbright Research Fellowship at the University of New South Wales in Sydney, Australia."

William Breitbart, M.D. '78, is currently interim chair of the department of psychiatry & behavioral sciences at Memorial Sloan-Kettering Cancer Center in New York City. He has been at Memorial since doing his fellowship there in 1984. He has served as chief of the psychiatry service since 1996, and as vice chair of the department since 2009. Dr. Breitbart has been president of the Academy of Psychosomatic Medicine and of the International Psychooncology Society and received each organization's Lifetime Achievement Award, in 2011 and 2009 respectively. For the past ten years, he has served as editor-in-chief of the international journal Palliative and Supportive Care, published by Cambridge University Press. He and his wife, Rachel, have a 21-yearold son, Sam, who will be a senior at the University of Rochester. Classmates and friends can contact Dr. Breitbart at breitbaw@mskcc.org.



Judith Berger; Marc Berger, M.D. '87; Natan Bar-Chama, M.D. '87; Deborah Wald; and Kenneth Wald, M.D. '87.

1980s

Michael J. Katz, M.D. '80, writes, "I am entering my 28th year in private practice in orthopaedic surgery. Sherry and I have been married for 33 years, and our four children are all independent and making their own way in the world. Jonathan is a sixth-year tax associate at Cravath, Swaine and Moore; he and his wife, Jessica, have a 16-monthold, Matthew, and live in Scarsdale, NY. Judith is married and is a second-year medical student at New York University. Ezra is a senior engineer for Siemens Healthcare in Malvern, PA. Daniel is an analyst for the Brattle Group in Cambridge, MA. We still live in the same house in which we raised our kids. It's now just the two of us and Leo, our Tibetan terrier."

Ronald Nagel, M.D. '81, recently became a grandfather for the third time, and was promoted to associate clinical professor of pediatrics at the David Geffen School of Medicine at the University of California, Los Angeles. "I have been married more than 30 years to my wife, Cheryl Joy, who survived my medical school experience at Einstein and residency at Jacobi Hospital. None of my children are doctors, but my three-year-old grandson, Akiva, says he will be a doctor when he grows up, and hopefully will attend his grandfather's medical school. Einstein Class of 2031!"

Cy Stein, M.D. '82, Ph.D., is the Arthur and Rosalie Kaplan Professor in the department of medical oncology and experimental therapeutics at the City of Hope Medical Center, in Duarte, CA.

Pesach Lichtenberg, M.D. '84, writes, "A year ago I was awarded a clinical associate professorship in psychiatry at the Hadassah Medical School of the Hebrew University of Jerusalem, Israel, where I currently serve as the academic chair of the department of psychiatry. An article in Wired magazine profiled some of my work: http://www.wired. com/magazine/2012/02/ff_jerusalemsyndrome/all/1."

Seth Landa, M.D. '86, has been appointed program director of the anesthesiology residency at St. Joseph's Regional Medical Center in Paterson, NJ.

1990s

Misha Roitshteyn, M.D., '91, writes, "After finishing residency at Stanford University in 1994, I worked in private practice as a general pediatrician in the San Francisco Bay area. In June 2001, I joined Bay Valley Medical Group and became a member of its board of directors several years later. Recently, our group became part of University Health Alliance, sponsored by Stanford Hospital and Stanford University. As an assistant clinical professor at the University of California, San Francisco, School of Medicine, I am also involved in teaching general pediatrics to medical students. I would love to hear from my classmates, who can contact me at mroitshteyn@bvmed.com or 925.417.5723."

Richard Alan Rison, M.D. '95, writes, "My wife, Anne Marie Arikian, M.D., and I celebrated the birth of our second daughter and fourth child, Abigail Madeline Rison, on May 14. We have



Members of the Class of 2002 at the Gala Reunion Dinner.

three other children: Max (8), Sam (5) and Katie (3). We also have a 9-yearold beagle, Schmoo, and live on the west side of Los Angeles. I am deputy editor for the Journal of Medical Case Reports, and associate neurology editor for Case Reports in Neurology and Grand Rounds. I am also medical director of the Presbyterian Intercommunity Hospital Stroke Center and the immediate past president of the Los Angeles Neurological Society. I hold the title of clinical assistant professor of neurology at the University of Southern California-Keck School of Medicine-Los Angeles County Medical Center along with boards in neurology, electrodiagnostic medicine, vascular neurology and neurocritical care."

Rachel Teitelbaum, Ph.D. '98, has founded a company, Hervana LTD (hervana-bio.com), which received a Round 4 Grand Challenge Exploration Grant from the Bill & Melinda Gates Foundation. In an annual start-up competition sponsored by the Israel

Life Science Industry (ILSI), Hervana LTD was chosen as runner-up for the Best Startup Company; this honor was announced at ILSI's annual BioMed competition in June.

2000s

Marc D. Haber, M.D. '00, writes, "I am happy to report that baby number 'final,' or four, Maeve Charlotte, was born in October 2011, joining big sister Murphy and big brothers Rowan and Dylan. After having completed three deployments with the United States Army, including two combat tours, I am looking forward to spending time as a T-ball coach in Longmeadow, MA."

Sheila Nazarian Mobin, M.D. '05, is a resident physician in the division of plastic surgery at the Keck School of Medicine at the University of Southern California. She lives in Los Angeles with her husband, Fardad Mobin, M.D., a neurosurgeon. They have three children: Leila (5), Arya (3) and Alaia (6

months). "I am in my final year of plastic surgery residency at USC and am finally seeing the light at the end of the tunnel! Miss everyone from Einstein!"

Gary Schwartz, M.D. '06, completed his residency in general surgery at St. Luke's-Roosevelt Hospital Center in New York City and has begun fellowship training in cardiothoracic surgery at the Johns Hopkins Hospital in Baltimore, MD.

Tova C. Fischer, M.D. '09, of Brooklyn, NY, married Donnie Isseroff, M.D., on March 18, in Brooklyn, NY. The wedding party included Rachel Biller, M.D. '09; Arielle Glueck Hay, M.D. '08; and Caryn Gamss, M.D. '08. Dr. Fischer is an otolaryngology resident at the New York Eye and Ear Infirmary; Dr. Isseroff is an attending anesthesiologist at North Shore University Hospital on Long Island.

In Memoriam

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

> Richard Adelson, M.D. '83 Michael Hanley, M.D. '72 Tsvi Nussbaum, M.D. '62 Keith M. Sadler, M.D. '62 Philip Miller Stein, M.D. '61 Robert Stone, M.D. '59



As this issue's cover story explains, personalized medicine today is all about capitalizing on genetic knowledge: tailoring treatment to the genetic makeup of patients or the mutations detected in their tissues. But 50 years ago, the phrase "personalized medicine" conjured up something entirely different—the ideal way to administer medical care, with each patient receiving individualized attention from doctors and other healthcare professionals.

The cover photo for the Spring 1960 issue of Pulse, the predecessor of Einstein magazine, conveys this old-fashioned notion of personalized medicine. The photo accompanied a feature story on caring for hospitalized children and shows an Einstein doctor bending close to his apprehensive young patient to put her at ease.

"A child in a hospital needs more than skillful diagnosis, therapy and nursing," Henry L. Barnett, M.D., professor of pediatrics at Einstein, is quoted as saying in the article. "In our training program here we stress the point that everyone in contact with young patients—doctors, nurses, aides—must be keenly aware that children need special understanding when they are in this alien world—the hospital."



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