

pulse

The “New” Dean

Inside Wound Healing

Tantalizing Telomeres:
What They Say About Your Body

The Strangest Stroke Story

Why Woody Thelusma is Alive

Robert L. Johnson, MD, FAAP '72
The Sharon and Joseph L. Muscarelle Endowed Dean

Message from the Dean

What does being appointed the eighth Dean of UMDNJ–New Jersey Medical School mean to me? In a word: everything. As an alumnus and faculty member of NJMS, I have devoted more than half of my life—43 years to be exact—to working in some capacity at this fine institution.

In many ways, NJMS has been a second home to me. I have had the good fortune of witnessing firsthand NJMS's growth into a first-class institution where students receive a top-notch education; where world-renowned scientists make discoveries that save and improve the quality of people's lives; where doctors are mindful of not just treating the infirmity, but of connecting with the person on the other end of the stethoscope; and where community partnerships are a crucial function of our existence.

The confidence shown in me by UMDNJ President William F. Owen, Jr., and the UMDNJ Board of Trustees is both humbling and exhilarating. Aside from being one of the greatest achievements of my career, my elevation to the role of Dean is validation of years of hard work and recognition of my unwavering dedication to making NJMS great.

But perhaps most importantly, I believe my appointment is a testament to the boundless opportunities afforded to NJMS graduates. I am by no means the only success story

to come out of NJMS. This school is, after all, a breeding ground for talent. Consider a few other examples of graduates and faculty members who have had significant achievements just within the past year:

- NJMS alumnus Kevin M. Barry, MD'87, MBA, who was appointed by New Jersey Governor Chris Christie as Chairman of the UMDNJ Board of Trustees;
- Peter W. Carmel, MD, D.Med.Sci., chairman of NJMS' Department of Neurological Surgery, who assumed the post of President of the American Medical Association;
- David Alland, MD, chief of the Division of Infectious Disease, whose rapid tuberculosis test was endorsed by the World Health Organization;
- The members of the NJMS Class of 2011 who participated in this year's National Resident Matching Program. Their Match Rate of 99 percent exceeded the national average of 95.6 percent. And in the post-



scramble, that postgraduate placement rose to 100 percent.

You can read more about the talented people of NJMS in this issue of *Pulse*, which is chock-full of stories about faculty, students and graduates whose efforts serve to enhance the NJMS reputation of being more than just a medical school.

At a ceremony in May celebrating my appointment as Dean, I spoke about new beginnings. As we enter the next phase of our journey—in which we build on our success and embark on bold new ventures—one thing will remain constant: our commitment to excellence.

In health,

Robert L. Johnson, MD, FAAP '72

The Sharon and Joseph L. Muscarelle Endowed Dean

pulse

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Dean
 UMDNJ–New Jersey Medical School
 Robert L. Johnson, MD, FAAP '72

Director
 University Marketing Communications
 Barbara Hurley

Executive Director for Administration
 Walter L. Douglas, Jr.

Acting Director
 NJMS Marketing Communications
 Kaylyn Kendall Dines

Senior Editor, NJMS Pulse
 Maryann Brinley

Contributing Writers
 Tryon Baldwin
 Gregory Bean
 Doris Cortes-Delgado
 Jen Doktorski
 Eve Jacobs
 Lisa Jacobs
 Mary Ann Littell
 James Netterwald
 Jill Spatz
 Carole Walker

President
 NJMS Alumni Association
 Robin Schroeder, MD'86

AlumniFocus Director
 Dianne Mink

Business Coordinators
 Noreen Gomez
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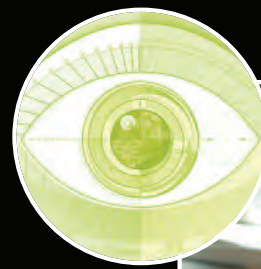
Photo Editor
 Doris Cortes-Delgado

Design
 Sherer Graphic Design

Keep In Touch...

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Send all correspondence to:
Pulse Editor
 University Advancement and Communications
 University Heights–P.O. Box 1709, Room 1328
 65 Bergen Street
 Newark, NJ 07101–1709
 or via email to njmsmarketing@umdnj.edu



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A research team turns out some tantalizing findings on human aging. Did you know that one of the world's foremost authorities is right here in Newark?

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At the end of a long odyssey through recurring waves of illness, his eyes once a deep yellow and his gall bladder distended like a balloon, Woody Thelusma is now healthy and happy thanks to the University Hospital Liver Transplant Program.

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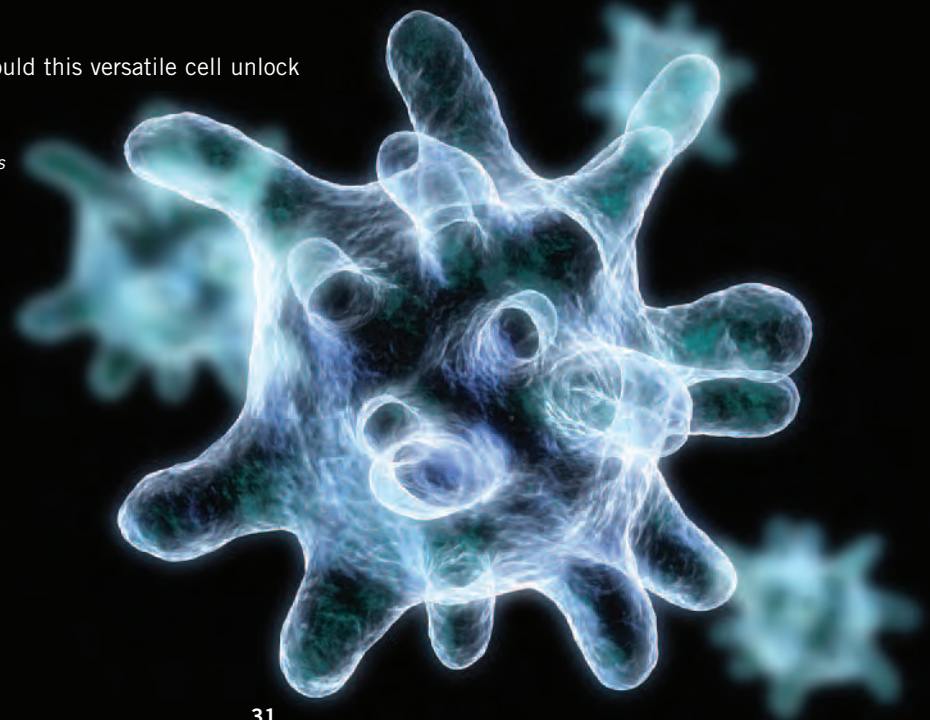
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FYI

Notable



Here's to excellence!

SYLVIA CHRISTAKOS, PHD, (above) professor, biochemistry and molecular biology, and **Mark Jay Zucker, MD, JD**, clinical assistant professor, medicine, are among five UMDNJ educators selected as the 2011 recipients of the Edward J. III Excellence in Medicine Awards.

Ground-Breaking...Again!

DAVID ALLAND, MD, professor, medicine, is back in the news for his number 12 ranking by the National Institute of Allergy and Infectious Diseases (NIAID), which selects ground-breaking biomedical research advances that have made a dramatic impact on healthcare or research. The development of a new rapid TB test, a discovery that was many years in the making for Alland and his team, is one of 20 featured on the NIAID website. Check out this milestone as well as the other revolutionary innovations online.



TO SEE CELLS BETTER...

Patricia Fitzgerald-Bocarsly, PhD, and **David Lagunoff, MD**, received NIH "Shared Instrumentation Grant Awards." Fitzgerald-Bocarsly, professor, pathology and laboratory medicine, got \$500,807 for a state-of-the-art cell sorter with advanced safety features while Lagunoff, adjunct professor, surgery, won \$475,138 for a live cell imaging microscope and scanner.

THE NEW DEAN...

It's official! **Kathleen W. Scotto, PhD**, who has been serving as interim dean of the Graduate School of Biomedical Sciences (GSBS), was formally appointed by the Board of Trustees in June.



Scotto is internationally recognized for her work on the regulation of drug resistance genes that impact sensitivity of cancer cells to therapeutic agents.

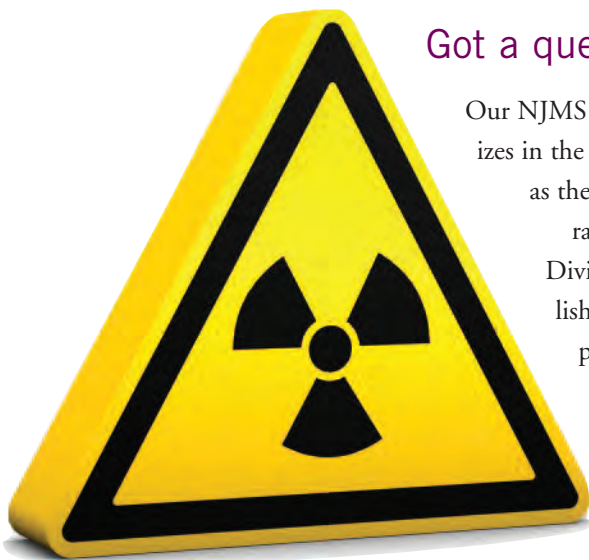
CONGRATULATIONS!

Mark S. Johnson, MD'79, has been appointed dean of the Howard University College of Medicine. He will assume the position on September 6 as the 17th dean since the founding of the College of Medicine in 1868. Johnson was the very first chair of the NJMS Department of Family Medicine, which he's led for 20 years. Here's to an exciting new chapter in an amazing career.



Got a question about radiation?

Our NJMS expert **Roger W. Howell, PhD**, specializes in the biological effects of radioactive materials as they relate to both radiation protection and radiation therapy. A professor and chief of Division of Radiation Research, he just published a study about the use of chemotherapeutic drugs along with radiation therapy for solid tumors, in the April issue of *The Journal of Nuclear Medicine*. Co-authors were John M. Akudugu, PhD, and Prasad V.S. V. Neti, PhD.



More spinal fluid secrets...

Steven Schutzer, MD, professor of medicine, and colleagues, talked about his new research on *CBS Evening News*, for his work identifying proteins in the spine that appear unique to patients suffering from chronic fatigue syndrome, along with different proteins specific to persistent Lyme disease. The research received widespread media coverage, including articles by the *Associated Press* and the *Wall Street Journal*.



Aha...asthma answers!



AMARILIZ RIVERA, PHD, pediatrics, and colleagues have pinpointed a receptor in mice that appears to regulate inflammatory responses associated with asthma and induced by inhalation of *Aspergillus fumigatus*, one of the most common fungi. Their findings were published in the *Journal of Experimental Medicine*.

NJMS News by the Numbers

1

At the very top of the five best medical papers according to the *Wall Street Journal's* blog on health and its peer-nominated experts, was the NJMS-led study, CREST, comparing stents and surgery for treating clogged carotid arteries.

180

Graduates receive medical degrees at the University's 41st Annual Commencement Ceremony on May 25, at the Izod Center in East Rutherford.

100

Robert Heary, MD, professor, neurological surgery, and director, The Spine Center at the Neurological Institute of New Jersey, is in the top "100 of the Best Spine Surgeons and Specialists in America" by *Becker's Orthopedic, Spine & Pain Management*.

14

UH ranked 14th on the list of hospitals in the New York City metro area by *U.S. News & World Report*, which also recognized seven "high-performing" adult specialties: ear, nose and throat; gynecology; kidney disorders; orthopedics; pulmonary; rehabilitation, and urology.

177

Fourth-year NJMS students match with residency programs including Johns Hopkins, Duke, the Cleveland Clinic, Yale and Harvard.

\$1.2 million

Grant awarded to the NJMS-UH Cancer Center by the National Cancer Institute to support a summer education program for medical students, the longest running program of its type nationwide.

\$1 million

Donated by Richard Pozen, MD, '74, and his wife, Ann Silver Pozen, to the Foundation of UMDNJ to support NJMS student participation in community service projects.

FYI Quotable

“Many female colleagues... chose not to have children to be competitive. Having children is the best thing that I have done. I am more effective at work and integrate my skill and knowledge into the society...”

THERESA CHANG, PHD (NJMS-PHRI) IN AN ESSAY PUBLISHED IN *SCIENCE* MAGAZINE, “WHY BOTHER?”

“I am taking on this exciting new role after working for the past five years in the Department of Neurology and Neurosciences at the Cancer Center on studies of breast cancer. As a biomedical researcher for more than 20 years in both academic and pharmaceutical settings, I believe that my expertise offers insights for research investigators with grant needs. Although I truly miss the Cancer Center, serving the entire research community enables me to contribute to our research progress in many areas.”

DEBORAH LAZZARINO, PHD, NEW ASSISTANT DEAN FOR RESEARCH ADMINISTRATION AND DIRECTOR OF THE OFFICE OF RESEARCH AND SPONSORED PROGRAMS



“It was not the best time in my life... but...I survived, thanks to UMDNJ’s University Hospital.”

KENO SCHUERMANN, GERMAN BUSINESSMAN AT A NEWS CONFERENCE TO THANK THE HEALTHCARE TEAM WHO TOOK CARE OF HIM AFTER HE EXPERIENCED SEPTIC SHOCK DURING A FLIGHT INTO NEWARK’S AIRPORT.

“I am honored to be elected to lead the nation’s most influential physicians’ organization. As AMA president-elect, I pledge to serve as a strong voice and dedicated advocate for patients and physicians on the pressing issues confronting our healthcare system.”

PETER CARMEL, MD, D.MED.SCI, OUTGOING CHAIR OF NEUROLOGICAL SURGERY

“We are seeing robust regeneration of axons—those long slender projections of the nerve cell—across a spinal cord injury site! This is astounding. I’ve never seen anything like it before.”

OSWALD STEWARD, PHD, UNIVERSITY OF CALIFORNIA AT IRVINE, A GUEST SPEAKER AT THE MAY 11 “CURRENT ADVANCES IN SPINAL CORD INJURY RESEARCH” SYMPOSIUM ON CAMPUS

“I went into pediatrics because I loved children but I wasn’t prepared to go to so many funerals at the beginning of my career. My teeth were cut on all the AIDS kids I took care of.

Kids would come in with all their baby teeth blackened to the gum line. They’d have abscesses and thrush so bad it would be impossible for them to swallow. They would be left alone, shunned even by the doctors. In that era, I would reach my hand through the bars—kids always seem to be in these cages—and just hold their hand or leg.”

JAMES OLESKE, MD, ’71, MPH, PROFESSOR, PEDIATRICS, IN *RELIGION & ETHICS NEWSWEEKLY*



Runners’ High

It was all happening on May 5 in the courtyard of the Newark campus. Hula-hooping, watermelon and pie-eating contests, jazz sets including bongo drummers, guitarists and UH employee Bruno Lee on his trumpet, games of chance, food demonstrations, massage therapists and manicurists brought crowds out into a sun-filled afternoon to rally runners who planned to participate in the May 15th Susan G. Komen Race for the Cure. Even rain on the day of this annual run to raise funds for breast cancer didn’t dampen the spirits of the UMDNJ–NJMS team.

Clockwise: Runners included Craig Van Dien, ’13, Leila Mady, MD/PhD student, Janet Lee, MD’11, Sam Chu, MD’11 and Vidhi Kapoor, MD’11. Playing the bongo drums was Nestor Hernandez. In the watermelon eating contest were Jenifer Hashem, MD’11 and Janet Lee. And, among the hula-hoopers was Steve Roberts, MD’11.



FYI Seen&Heard

Don't miss these one-of-a-kind lectures. Check the UMDNJ website as well as *This Week at UMDNJ* and mark your calendars.

JANUARY

As one of the youngest chairs of ophthalmology in the country, Roy S. Chuck, MD, gave an update on "Ocular Surface Reconstruction" using cutting-edge corneal stem cell surgery. He runs ophthalmology and visual sciences at Albert Einstein College of Medicine of Yeshiva University and Montefiore Medical Center and is a prominent cornea specialist.



MARCH

Drawing on his 2005 book, *Medical Errors and Medical Narcissism*, John D. Banja, PhD, a medical ethicist and professor of rehabilitation medicine at the Center for Ethics at Emory University, talked about "Empathic Disclosure of Medical Errors" and "Managing Emotionally Difficult Conversations."



To study aging, Coleen T. Murphy, PhD, assistant professor of genomics and molecular biology at the Lewis-Sigler Institute in Princeton University, uses a tiny worm, *C. elegans*. It turns out that yeast, nematode worms and fruit flies have more in common with humans than previously expected. Her presentation was aptly titled, "Slowing the Ticking Clock: What We Can Learn about Aging and Memory from *C. elegans* or Aging Worms."

APRIL

"CEA or CAS-P: What is the Best Carotid Disease Treatment in 2011?"...Christopher Loftus, MD, DHC (Hon.), FACS, professor and chair of neurosurgery and assistant dean for international affiliations at Temple University School of Medicine in Philadelphia, presented the latest results from a 2010 Asymptomatic Carotid Surgery Trial (ACST). It turns out that the current best medical treatments, anti-platelet and high-dose statin therapy, are sufficient for ACS. No intervention of carotid artery stenting/angioplasty or carotid endarterectomy is needed, except of course, lifestyle modifications.

MAY

In her presentation, "Understanding and Targeting Survival Signals in Herpes Viral Cancers," Ethel Cesarman, MD, PhD, discussed the malignancies associated with AIDS and other immunodeficiencies. She's a professor of pathology and laboratory medicine at New York-Presbyterian/Weill Cornell Medical Center.

JUNE

Our own David S. Chu, MD, assistant professor of ophthalmology at NJMS and associate director of cornea and refractive surgery at the Institute of Ophthalmology and Visual Science, talked about "Pediatric Uveitis," an inflammation of the eye, and a leading cause of blindness in the U.S. for children under 16.

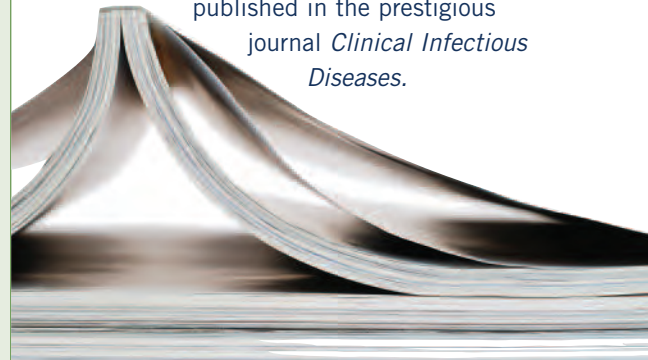


Papers with punch...A study by Anuradha P. Patel MD, assistant professor, anesthesiology, was chosen by *Anesthesia and Analgesia* as the editor's pick for significant scientific or clinical impact. Contributing authors were Melissa Davidson, MD'87, Minh C. J. Tran, MD'01, Catherine Schoenberg, BSN, Manasee Sant, MD, Albert Lin, MD, and Xiuru Sun, MS, all in anesthesiology; and Huma Quraishi, MD, in otolaryngology.

Get this book...*Antibiotic Resistance: Understanding and Responding to an Emerging Crisis* by Karl Drlica, PhD, and David Perlin, PhD, PHRI, published in March. "Once hailed as a magic bullet, antibiotics are now used so widely that their success is threatening their effectiveness...If we fail to address resistance, we may lose control of infectious disease, reverting back to the dangerous era before penicillin."

Highly Cited! Hungarian-born researcher Csaba Szabo, MD, PhD, professor, surgery, has written a paper other experts can't stop citing. Published in the *Journal of Cellular and Molecular Medicine*, Szabo and his co-authors found that adding ethyl pyruvate (EP) to resuscitation fluids during trauma made a huge difference in life or death. Check it out on ISI Web of Knowledge: ISI HighlyCited.com.

Down with fungi...The lab of David Perlin, PhD, executive director, PHRI, designed a new ultra-sensitive test to diagnose *Aspergillus* infections and spot signs of antifungal resistance to the class of drugs now used to treat patients. The study was published in the prestigious journal *Clinical Infectious Diseases*.



Upstairs, Downstairs

Nine stories high...the building is buzzing with activity. Upstairs more than 100 researchers work together. Downstairs, three floors finally open for patients whose lives may depend upon their answers.

BY JENNIFER SALVATO DOKTORSKI

Hope is the word that springs to mind as I walk into the NJMS–University Hospital Cancer Center. With its warm, inviting entryway, open floor plans, abundant natural light, and space for a terrace garden, the nine story, 200,000-square-foot building—which was completed and officially opened to researchers in 2006—is designed to support communication and collaboration between researchers, physicians and patients. All have good reasons to reach for hope.

“Cancer therapy is a very emotionally challenging experience so we want to provide an environment that is vibrant with life and energy,” explains Ian Whitehead, PhD, the new director of the Cancer Center. He took over last summer from Harvey Ozer, MD, who led the Center for its first six years.

Indeed, while the architects certainly succeeded in capturing the shared vision of all those involved in the early planning sessions, there is so much more here now than the building itself. It is the people inside this towering glass structure, their interactions, and the critical work being done that fills this building with palpable hope.

From the start, the uppermost floors of the state-of-the-art facility—levels F, G, H and I—have been home to faculty, staff and graduate students conducting innovative basic and translational cancer research. There



are more than 100 professionals there now.

Yet, the Cancer Center was always designed to provide the highest quality clinical care as well. This past spring, the facility reached an important milestone when the New Jersey State Department of Health gave the Center the go-ahead to open its doors to patients and begin filling levels A, B and C, designated for clinical practice. These floors are also physically connected to University Hospital.

On May 9, the very first patients visited the clinic, Whitehead says. “What we’re going to see are two floors being used almost immediately for patients receiving cancer treatment.” A third floor will house the clinicians’ offices. Space reserved for a

terrace and garden will also be completed at last. Visible to patients receiving chemotherapy, the views are important. “We want these areas to be comfortable and relaxing,” he insists. The remaining space in the building is for future expansion and a mechanical floor.

“It’s exciting to see the Center approaching its full potential,” says Ozer, who served as the inspiration as well as the first director. It’s the culmination of a vision that began two decades ago when Ozer first arrived on campus as chair of the Department of

Microbiology and Genetics. He asked the dean back then, “Why don’t we have a cancer center?” And he never let it go. That question always remained in the back of his mind.

As the years went by and the promise of this dream seemed to be on the horizon, Ozer put Whitehead on the short list of people he wanted involved with such a comprehensive facility. In 1998, Whitehead was recruited to come to NJMS as an assistant professor in microbiology and molecular genetics. “He has been a cancer biologist for his entire career,” Ozer explains.

Whitehead had been a postdoctoral fellow at the Lineberger Comprehensive Cancer Center at the University of North Carolina at Chapel Hill. He received his PhD from the University of British Columbia in Vancouver, Canada, in 1992. “I did my graduate work in classical genetics, and afterward I wanted to do research with more direct clinical relevance. I find cancer research to be slow, but much more fulfilling,” Whitehead says.

Eventually, Whitehead became a full professor and as plans for the new cancer center progressed, Ozer asked him to help design the research space. “Dr. Whitehead was drawn in as a partner. When I took over the operation I consulted with the people we were going to invite into the building. He was involved from very early in the game,” Ozer recalls. “The idea of the open laboratory was something we each had experienced.” The concept was new to some researchers, but Ozer believes everyone has come to appreciate it. “I think we were a little ahead of the curve. It’s now becoming the mode.”

Whitehead says that the lab floors, each 25,000 square feet, are designed on a floor plan to promote interaction between post docs and students. The model is also very adaptable as programs grow. “There are six to ten labs per floor, side by side in an open space,” he points out. “We cluster the labs programmatically.”

From sharing equipment and exchanging ideas, to writing grants together, there’s a lot of collaboration going on, according to Whitehead. The building is also home to a



Harvey Ozer, MD

state-of-the-art comparative medicine research facility, a shared cell culture operation, a campus-wide Molecular Imaging Core, and the UMDNJ Center for Advanced Proteomics.

When the doors first opened unofficially in 2005, Whitehead’s lab was the first tenant. Ozer had invited the younger doctor to move in even before construction was completed. A small number of senior faculty members from diverse departments within the medical school were also encouraged to relocate their laboratories to provide a critical core of interactive and interdisciplinary scientists. “Then Dr. Ozer asked me to chair recruitment,” Whitehead recalls.

National and international searches were conducted for the research space. “It has been important for the growth of this medical school that we have this cancer center,” Whitehead says. The brand-new, fully-equipped building has attracted some of the best talent available.

“It has been very easy to recruit people to come to work in the Cancer Center. We had no problem attracting our top choices from the very beginning,” Whitehead says, and this continues to be true now. “The equipment is still state-of-the-art.”



Ian Whitehead, PhD

In July 2010, when Ozer decided to step down as director, Whitehead seemed like a natural successor. “I knew the quality of his work and that he was dedicated to the concepts that we had in place. It was a very easy recommendation,” Ozer says.

Still, Whitehead admits that being named the Cancer Center’s director was “somewhat of a surprise.” And now that the clinical floors are occupied, this title of “Director” forces him to wear many hats. “It’s going to be more complicated. It was fairly straightforward running the research component,” Whitehead explains. Now, having clinical and research under the same roof presents both challenges as well as opportunities. For instance, practically speaking, he now contends with issues like patient security and house cleaning alongside the licensing of research space within the building. And like the director of a non-profit agency, he’s also more involved with fundraising and advertising, concepts not usually associated with the world of a bench scientist. But whether he’s upstairs or downstairs, this director is exactly where he wants to be. ●

Women Win the Top Prizes

At a spring symposium celebrating innovation and technology in research, the top three winners were women you need to know better. **BY EVE JACOBS**

Three GSBS students were the frontrunners in a scientific poster competition at the “Research Innovation through Technology” symposium on April 12 at Robert Wood Johnson Medical School, featuring faculty speakers from all UMDNJ schools. Interestingly, the three top prizes went to women—in a field that historically has attracted a majority of men. But the tide is turning: In 2008, women earned 46 percent of science master’s degrees and 41 percent of doctoral science degrees, according to the National Science Foundation.

Mona Batish, first-place winner, spends most of her waking hours in the molecular beacons lab at the Public Health Research Institute (PHRI) at NJMS. A native of India, she grew up in Chandigarh, also called “City Beautiful,” she says, and completed her

undergraduate and master’s degrees at Panjab University. Her parents—both teachers—encouraged her to pursue her interest in science; and her husband, Vijay Parashar, a UMDNJ scientist, has been the “driving force” behind her budding research career. Her interest in basic biology steered her to the GSBS Department of Microbiology and Molecular Genetics, where “several labs are working to address basic questions of biology,” and the research faculty’s “hard work, ethics, and knowledgeable and sincere advice” have been her guides.

Batish works in the lab of Fred Kramer, PhD, Salvatore Marras, PhD, and Sanjay Tyagi, PhD, her thesis advisor, who is “always willing to go the extra mile to make sure that our work goes smoothly. I feel very proud to be a part of this dedicated and

simply-awesome group,” she says.

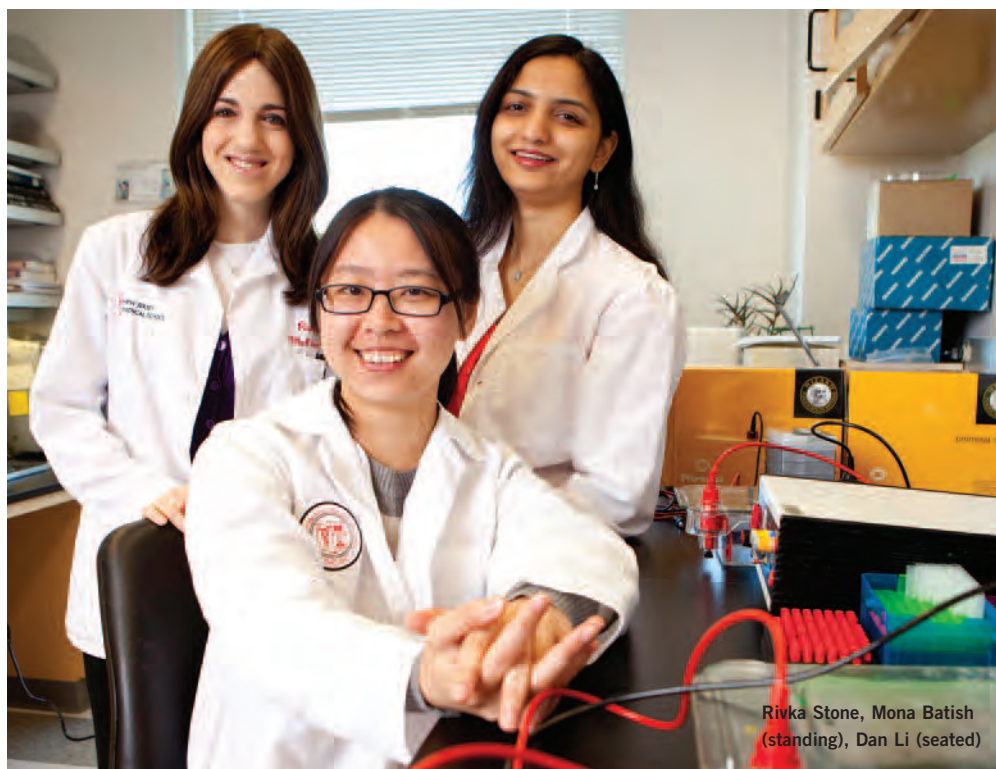
Her work “aims to understand the molecular basis of memory formation,” using a novel method to track individual RNA molecules as they move within cells. The method was developed in the PHRI lab where she works. She has completed her doctoral research and is currently writing her dissertation and manuscripts to publish the research results. Her next step will be a postdoctoral fellowship.

When not in the lab, Batish can often be found in the kitchen, her “second lab,” where she creates and tests new recipes. She also enjoys watching movies and game shows and writing on an array of topics, although, right now, science is her focus.

Batish is not a “one-hit wonder”: she has maintained a 4.0 GPA throughout her academic career. Her love of teaching was acknowledged with a mentor appreciation award from Bergen Academy High School in 2009. Last year, she was recognized for the best oral presentation at the 17th Annual GSBS student research symposium and, in 2011, won the best poster award at the 24th International RNA symposium and an Executive Women of New Jersey Graduate Merit Award.

Second prize winner, **Dan Li**, came to GSBS from Shijiazhuang, China, southwest of Beijing. A pharmacy major, her undergraduate thesis targeted the effects of GABA (gama amino butyric acid, an inhibitory neurotransmitter that is essential for the proper function of the brain and central nervous system) on morphine withdrawal symptoms in morphine dependent mice. GSBS, which she says “provides the opportunity for students to explore their interests in various research areas through lab rotations,” called to her, since she was interested in studying disease mechanisms and development of new therapies.

The daughter of a hematologist, she landed in the NJMS-UH Cancer Center lab of Lizhao Wu, PhD, where she is studying the role of E2F3 in Myc oncogenic signaling pathways in prostate cancer. “A better understanding of these signaling pathways



Rivka Stone, Mona Batish (standing), Dan Li (seated)

will allow us to identify prognostic markers and therapeutic targets,” she explains.

GSBS has answered her needs as a doctoral student-researcher with a comfortable research environment, seminars, and a mentor who is “an exact and patient scientist who inspires and motivates others constantly and always welcomes discussions.”

Li hopes to graduate next year if “my thesis committee members feel I’m well prepared” and she looks forward to finding a job in her field—gene therapy. “I’m confident that gene therapy will be the hope for lots of currently incurable diseases.”

This “huge fan of outdoor activities,” including hiking, bicycling, rafting and traveling, proudly explains her winning poster: “It describes a state-of-the-art technology that genetically engineers tumor cells to generate detectable signals. By monitoring signal change in a living mammal, IVIS (*in vivo* imaging system) allows us to visualize the process of tumor formation. Our lab is using IVIS to study signaling pathways in prostate cancer using mouse models.”

The third prize went to **Rivka Stone**, whose academic history features a series of wins. After earning a BS in biomedical engineering from NJIT in just three years, she was awarded a full scholarship to the seven-year MD/PhD program at NJMS and GSBS. She began her MD studies in 2005.

Stone’s academic successes include graduating as valedictorian of Bruria High School in Elizabeth and winning a National Merit Scholarship, an Edward J. Bloustein Distinguished Scholars award, and a Bausch and Lomb Science Award. Her perfect, 4.0 cumulative grade-point average at NJIT won her the Outstanding Academic Achievement Award from the school’s Alumni Association. In the summer of 2004, she launched her research career with an internship at Immunomedics, Inc. in Morris Plains, where she “tested and characterized antibodies that can bind to the receptors on the surfaces of tumor cells to block their growth and proliferation.” In her final semester at NJIT, she participated in research to design a new drug delivery patch

A CLOSER LOOK

What you don’t know about University Hospital (UH) might be surprising. The principal teaching hospital of NJMS, it provides extraordinary training experiences for the GSBS students on the Newark campus as well. As the clinical research site for the medical



At UMDNJ-University Hospital

school, UH gives patients the most up-to-date therapies while serving as “family doctor” for Newark, delivering care to the entire region with its Level 1 Trauma Center, and offering statewide referral services for neurosurgery, ophthalmology, and musculoskeletal oncology. UH also has one of only two liver transplant programs in the entire state.

[THE FACTS]

- 503 physicians serve UH
- 711 community outreach activities last year
- 20,049 admissions in 2010 and 1,545 births at this 519 bed facility
- 498,000 outpatient visits to clinics and emergency department
- Largest safety-net provider for charity care and Medicaid patients in New Jersey
- Recognized by the American Heart Association/American Stroke Association with gold level for heart failure care and bronze distinction for stroke care
- A top 5 performer among academic medical centers for orthopedic surgery and urology
- Top 10 percent of all hospitals nationally in 6 of 7 measures for stroke care
- Significant progress in implementing electronic medical records, now in the emergency department and many ambulatory care clinics
- Despite financial challenges, ended last 2 fiscal years with break even status and has a break-even budget for 2011 as well
- Average length of stay is 5.1 days—significant because UH cares for the most complex, acutely ill patients in the state

at the New Jersey Center for Biomaterials.

In 2008, Stone was awarded an Executive Women of New Jersey Graduate Merit Award, a scholarship to help develop leaders in a broad spectrum of specialties. She also won a prestigious P.E.O. Scholar Award in 2010, given to women pursuing doctoral degrees who demonstrate the potential to make significant contributions to their field of study. She was one of this year’s recipients of the Stanley S. Bergen, Jr., MD, Medal of Excellence, awarded annually by UMDNJ.

Stone’s doctoral research spans two distinct areas. In the NJMS-UH Cancer Center lab of Betsy Barnes, PhD, assistant professor in the NJMS and GSBS Department of Biochemistry and Molecular Biology, she’s concentrating on the role of interferon regulatory factor 5 (IRF5) in the autoimmune disease, systemic lupus erythematosus (SLE). In the NJMS Center of Human Development and Aging, under the direction of pro-

fessor of pediatrics and researcher Abraham Aviv, PhD, she’s studying the role of insulin-like growth factors in oxidative stress, telomeres and aging. Last year, Stone was featured on *My9News* in an interview conducted by Brenda Flanagan on the association of shortened telomeres and aging.

On April 14, 2011, the young scientist successfully defended her doctoral thesis on IRF5 expression and activation in blood cells of patients with SLE, earning her PhD. Her winning poster focused on the use of next-generation sequencing technologies to characterize alternative splicing on IRF5 in lupus. She has recently returned to finish her last two years of medical school.

Stone is well on her way to achieving her goal of a career in academic medicine. Like the other GSBS poster winners, there’s no doubt that she’s got what it takes to make her mark in the galaxy of science stars. ●

Cardiac Chaos

Symptoms of arrhythmia can vary from a slight fluttering in the chest to a racing heartbeat (tachycardia), chest pain, shortness of breath, lightheadedness, dizziness and fainting. Here is good news for the millions who experience this debilitating cardiac chaos.

BY SANDHYA DHROVAKUMAR, MD
AS TOLD TO MARY ANN LITTELL

Cardiac electrophysiology is an area of medicine that has grown tremendously in the past decade but remains unfamiliar to most people. We are a subspecialty of cardiology that diagnoses and treats all types of heart rhythm disorders. To do this, electrophysiologists pursue at least one or more years of additional fellowship education after their general cardiology training.

The most well-known aspect of our field is device implantation. Electrophysiologists implant devices designed to treat slow heart rhythms and/or protect against sudden cardiac death. Almost everybody knows someone, a friend or family member, who has an implanted device such as a pacemaker or defibrillator. What are less familiar are the catheter ablations—minimally invasive procedures to treat many different types of rhythm problems that affect the heart. These procedures are done in the electrophysiology laboratory through catheters inserted into the large veins in the leg (similar to coronary angiograms) which reach up into the heart. Through these state-of-the-art catheters, we are able to conduct electrical studies of the heart, to induce arrhythmias, and to treat



most common rhythm disorders. We offer the full spectrum of cutting-edge, catheter-based treatments here in the Electrophysiology Lab at University Hospital (UH) with excellent patient outcomes and we are one of the few centers in the northern New Jersey area to do this.

The arrhythmias that are very common in young adults are supraventricular tachycardias. These patients are born with a little

extra wiring in their hearts that can cause a small “short circuit” of the electrical impulse, resulting in a rapid heart rate. In the past, these patients would have to take daily medications for life to control their symptomatic palpitations and lightheadedness since the underlying problem was not cured. We can now perform a simple procedure and cauterize the electrically troublesome area of the heart with a special catheter

heated by radiofrequency energy. In the vast majority of patients, this offers a permanent cure with complete relief of symptoms without lifelong medications.

The most common arrhythmia affecting the aging population is atrial fibrillation. Approximately 2.2 million Americans suffer from it, and 160,000 new cases are diagnosed each year. Disorganized wave fronts of electrical activity storm through the top compartments of the heart: the atria. The cause of this arrhythmia has many related factors but age, high blood pressure, and diabetes all contribute by leading to fibrosis, or scarring, of the heart. The heart becomes larger, stiffer, and more prone to developing atrial fibrillation.

Medical options for a cure are limited, and thinning the blood and controlling the racing heart are mainstays of conservative treatment. Some patients are lucky to have minimal symptoms, but for those who are bothered by their arrhythmia, the options have traditionally been limited. Many people just live with it. Others are put on anti-arrhythmic therapy which is only 30-60% percent effective and, worse, can cause

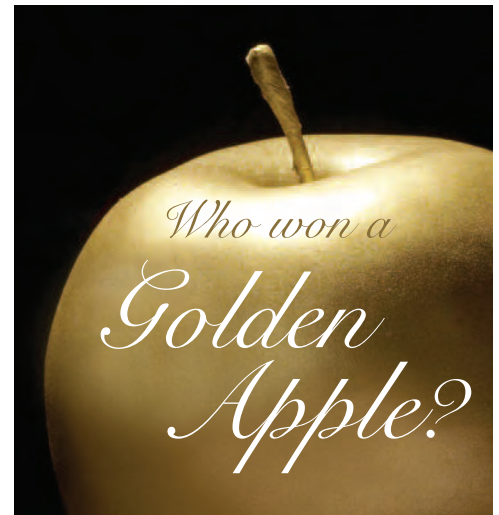


Sandhya Dhruvakumar, MD

Our catheters can be tracked inside the beating heart with three-dimensional, electro-anatomic images.

numerous toxic side effects. For patients who have not had success with medications in controlling atrial fibrillation, we can perform a catheter ablation to target the regions of the heart where the disorganized, chaotic impulses are initiating. The procedure is more complex than a standard ablation because the arrhythmia itself is more extensive. We access the left side of the heart, where the ablation is performed, creating a small puncture in the wall separating the top compartments of the heart. We are guided by intracardiac echocardiography, a miniaturized probe inserted through the groin allowing us to take live ultrasound images from within the beating heart, as well as a state-of-the-art mapping system used to create three-dimensional (3-D) electro-anatomic images. During procedures, our catheters can be tracked inside the heart using this 3-D information, which is similar to a GPS system. Most recently, we became one of the first centers in the area to have a new technology, cryoablation, allowing us to freeze areas of the heart causing the atrial fibrillation. Cryoablation has the potential to reduce procedural times and improve outcomes. Our Electrophysiology Lab at UH has a success rate of 70 to 95 percent for atrial fibrillation ablation therapy, which is similar to high volume centers nationally.

This procedure takes a lot of training to master. I was fortunate to be trained at the University of Pennsylvania, a large arrhythmia center. Both Dr. Apostolos Voudouris, my partner at UH, and I have done hundreds of complex ablations and we have specific expertise in atrial fibrillation ablations. For many symptomatic patients, cardiac electrophysiological testing and ablation are great options for treating arrhythmias. ●



THE VOTES ARE IN for the best professors, residents and administrators at NJMS as chosen by students in each class. Congratulations!

CLASS OF 2014

Jim Dermody, PhD, Grace Pinhal-Enfled, PhD, and David DeFouw, PhD

CLASS OF 2013

Sangeeta Lamba, MD, Barbara Fadem, PhD, and Lester Sultatos, PhD

RESIDENTS CHOSEN BY CLASS OF 2012

Zaid Al-Qudah, MD, Sarah Hessler, MD'07, Maria Gonzaga, MD'07, and Rajkumar Srinivasan, MD

FACULTY PICKED BY CLASS OF 2012

JoAnn Reteguiz, MD'83, Michael Jaker, MD, Anand Srinivasan, MD, and Lisa Pompeo, MD

RESIDENTS CHOSEN BY CLASS OF 2011

Advaith Bongu, MD, Marisa Earley, MD'10, and Aparna Sridhar, MD

FACULTY CHOSEN BY CLASS OF 2011

Maria Laboy, MD, Christine Gerula, MD'96, Kenneth Swan, MD, and Constancia Uy, MD

AND THE ADMINISTRATOR AWARD GOES TO...

Julie Ferguson, Assistant Dean for Student Affairs; Director, Registrar's Office



SA'IDAH SUDAN

Fearlessly Muslim, Fighting Domestic Violence

She's the only Muslim certified domestic violence specialist in New Jersey and is not afraid to go anywhere...to help save a woman's life.

BY MARYANN BRINLEY

Working in the UMDNJ-University Hospital (UH) Emergency Department for 18 years, Sa'idah Sudan was often shocked by the toll domestic violence took on so many women. "I saw the Muslim women who would come in for medical care," she says. And as a Muslim woman herself, she felt compelled to do something. In fact, her road to becoming the only certified domestic violence specialist in the state of New Jersey last December began when she was asked to help a woman so bruised and battered she didn't recognize her at first.

Sudan, who wears traditional Muslim garb and is now an administrative coordinator at UMDNJ in the UH Ambulatory Care Center, got a call from the hospital's Safe and Sound program for battered women. "A Muslim woman had been admitted and the

mental health specialist wondered if I knew her. Because I was Muslim myself, she felt I could relate better to this poor patient.” And Sudan certainly could. People often have questions about what is acceptable in Islam, according to Sudan, and what is not. She went to see the patient right away. “I walked past and whispered to the mental health specialist, ‘I don’t think I know her.’ I decided to hang around a little and as I walked past the patient again, I heard her say, ‘Sa’idah, is that you?’”

This woman had been so brutally attacked by her husband that her face was battered beyond recognition. “I thought to myself, ‘Oh my God,’ but I didn’t say that out loud. I just asked, ‘Hey, what happened to you?’” at which point, this patient’s story spilled out. She felt safe with Sudan who assured her that the UH team was going to do everything to make her safer. “If she hadn’t been beaten up so badly that time, would she have even come to the hospital? How often had it happened before? What is going on here? And more importantly, what is it that I can do for her and other women?” Sudan found herself waking up in the middle of the night to jot down ways that she might be able to help victims of domestic violence. “It’s funny but when I started this process I thought I would cater to immigrant and Muslim women but now I have Jewish women, Christian women, Baptist women...my only criteria is abuse.” This is a power and control issue for men, she believes, and abuse can come in many forms: physical, mental, financial, sexual and even religious.

“Yes, religious abuse,” she explains. “It exists. For example, some guys don’t want their wives going to the mosque. In Islam, we like to go to classes to keep on learning. An abusive mate won’t want her to go because she’ll learn that men should not

Is she hot under her head scarf? “If anything, I’m cooler. And the garb is protective...even in gruesome neighborhoods.”

mistreat their wives.” When asked about domestic violence in the Muslim-American community, Sudan points out, “People tend to confuse Islam, the religion, with a particular culture. You need to distinguish between the two.”

Her religion doesn’t condone mistreatment of women. “People just don’t understand. They see something and assume it is true of all Islamic families.”

In her workshops and training sessions throughout the metropolitan area, Sudan considers it her job to answer any and every question from the trite to the serious. She’s outspoken, funny, obviously loves what she is doing, and is in demand because she is one of a kind. Is she hot under her head scarf? “If anything, I’m cooler. And the garb is protective. I am respected wherever I go, even in gruesome neighborhoods. I’ll hear men on the street cursing and stop suddenly to say to one another, ‘Don’t you see the sister?’ I want everyone to learn all about being Muslim.”

Someone at the prosecutor’s workshop she ran just last week asked her, “Is it true that you must walk behind your husband?”

She laughed. “We do everything together. If we are in the grocery store, he pushes the cart. I’m too busy putting things in it,” she says with a smile. “I don’t know of very many other Muslim women out there willing to talk about domestic violence but I will. It’s not right.”

Her organization, Baitul Hemayah, Arabic for House of Protection, provides referrals and counseling. “I’ll meet women wherever they want to meet as long as there is no danger for her or for me.” Sudan is also on a call list in welfare offices and police departments. “I also get calls from schools and my name is spread through word of mouth. I’ve gotten out of bed many a night to pick women up, to take them to a shelter and to make sure they are okay.

Unfortunately, sometimes by the time I get to work the next morning, they are back at home.” She can’t get mad at them. Some victims are young, with no self-esteem, no money, no job or resources and afraid to go anywhere. In September, she will travel to Charlotte, NC, for a program she is presenting with two local Imams titled, “What does Islam say about domestic violence?”

Sudan’s road to certification as a specialist wasn’t easy. The first step was a 40-hour domestic violence course offered by the University. From there she worked through the New Jersey Coalition for Battered Women on a journey that would require 2,000 hours of counseling, on hotlines, learning about special populations, reading, researching, running workshops and writing.

Aside from Islam, her biggest inspiration is Evan Stark, PhD, a professor at UMDNJ–School of Public Health. She first met him when she was working part-time for a domestic violence agency in Newark training response team coordinators for the Newark Police Department and the Essex County prosecutor’s office. Stark is the author of *Coercive Control: How Men Entrap Women in Personal Life*, and he is routinely called to testify and consult with police and legal teams. Because Sudan’s certification process had such a long, complicated mix of requirements, Stark eventually took this student on a one-on-one basis. “I wanted to give up at one point—I was down to one last component on prevention—but it was so much work. But Evan wouldn’t let me.”

In 2006, Sudan won a \$50,000 Russ Berrie Award for Making a Difference. There had been 19 finalists and when Steve Adubato, the master of ceremonies at the presentation, described the work of the top recipient, she thought he was talking about someone else. Then, her name was announced. At the table, her father was stunned. Her mother started screaming. Stunned, she could hardly get to the stage. “Not many women do what you do,” Adubato said, “You just kind of stepped out of the box.” To which she replied, “Well, I’m not afraid to get my feet wet.” ●

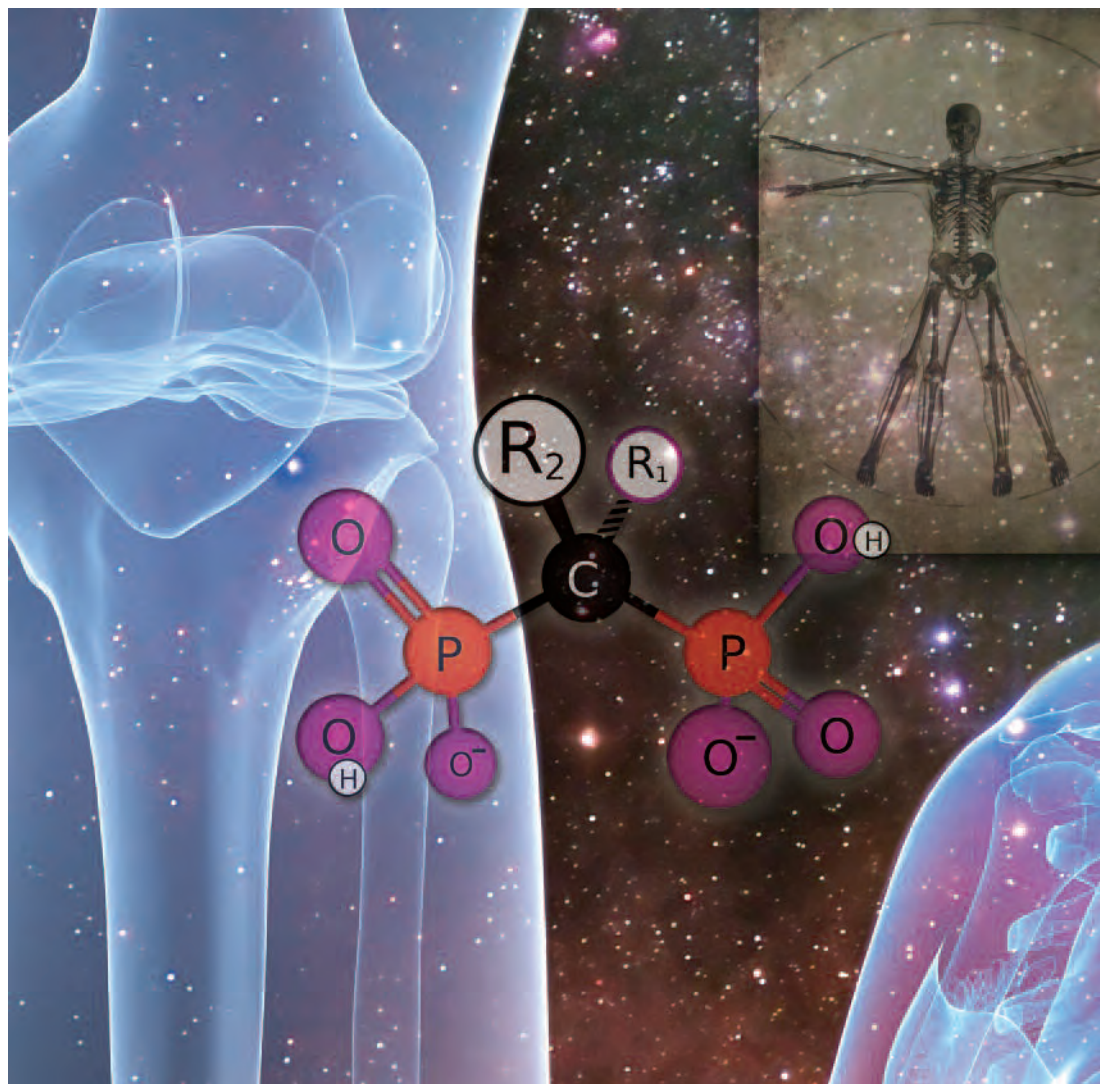
DEVENDRA BAJAJ

From Broken Bones to Outer Space

This researcher's recent success took his background in mechanical engineering and biology, mixed it with a medical crisis for post-menopausal women and added one of the physical dangers of space travel. Here is a tale of scientific creativity at its best. **BY LISA JACOBS**

Devendra Bajaj, PhD, a research associate in the Department of Orthopedics, is one of four young scientists nationally who was recently awarded a two-year NASA–National Space Biomedical Research Institute postdoctoral fellowship. A mechanical engineer whose research, until last year, focused on the characteristics of the hard tissues in human teeth, Bajaj may seem like an unusual choice for the fellowship. Equally unusual is the how Bajaj's interest in space research was sparked: through reports of atypical bone fractures in post-menopausal women taking bisphosphonate drugs.

What do astronauts and post-menopausal women have in common? Rapid bone loss. According to Bajaj, the approximately 3 percent annual bone loss women routinely experience after menopause provides key insights into the far more rapid bone loss suffered by astronauts during space travel in the absence of gravity and mechanical stress, which occurs at a rate of 1–2 percent per month. “In a year-long mission, that’s 20–25 percent bone loss. And imagine what



happens when you go to Mars on a two-year mission! You’re talking about a 40–50 percent reduction in the bone mass of astronauts. So what NASA is interested in is: how can we slow and reverse this bone loss to reduce fragility and maintain structural integrity?” Bajaj explains.

Bajaj’s former research on mineralized tissues makes him well qualified to help answer this question. Through this work, he developed expertise on how hard, brittle, natural materials respond to the cyclic mechanical stresses placed upon them by the body, elaborating upon conditions that cause these materials to be strengthened or to break. In completing his PhD at the University of Maryland Baltimore County (UMBC), Bajaj examined the mechanics of

why enamel, a material as hard and brittle as glass, does not break or shatter under stress as glass does. “A very interesting tissue that nature has designed smartly, enamel’s microstructure allows it to redirect and internalize cracks to where the material is tougher, so you would have to apply more force for a crack to penetrate and cause fracture. This also prevents teeth from chipping and wearing off,” Bajaj says.

While researching the mechanics of tooth fracture, Bajaj became interested in bone, a more complicated and dynamic living tissue that, unlike a tooth, is able to heal itself. His interest was sparked by reports of atypical femur fractures occurring in women taking bisphosphonates over extended periods to prevent bone loss after menopause. Since



bisphosphonates function by inhibiting osteoclasts, the cells that degrade and eliminate old or damaged bone prior to replacement or remodeling, Bajaj speculated that it was naturally occurring micro-cracks in bone, left unrepaired due to osteoclast inhibition, that were causing these low-impact, atypical bone fractures.

Bajaj's interest led to his participation in experiments, in collaboration with researchers at the City College of New York and Indiana University, to test the structural and mechanical properties of the bones of dogs treated with bisphosphonates. These experiments applied force to the bones in a cyclic manner to mimic natural conditions, and measured the amount of stress and number of cycles necessary to cause fracture.

Devendra Bajaj, PhD



One experiment used a “disuse model” to mimic microgravity in space travel in which one limb of each dog was immobilized for six months, and thereby weakened due to bone loss. Bisphosphonates were administered to half of these animals, which not only prevented rapid bone loss and increased bone strength, but also allowed for more rapid recovery after the animals regained use of their immobilized limbs. The drugs were thereby determined useful for space travel, when administered in short durations. “These drugs are incredible,” Bajaj says, “but we should look at the long term effects. With growing reports of atypical fractures, we want to figure out how long bisphosphonates should be administered.”

Reflecting upon the progression of his career, Bajaj attributes its course to a lifelong interest in engineering and biology, and to luck. Growing up in India and attending

of mineralized tissues. Upon meeting Arola, who passionately described his research and happily spent the Thanksgiving showing his lab, Bajaj was so inspired that he transferred from the University of Dayton to UMBC to complete his PhD.

In choosing to take a position at NJMS as a research fellow after completing his PhD, Bajaj notes that he was “really impressed by the orthopedics department and the research they were building.” Bajaj says that his mentor, J. Christopher Fritton, PhD, assistant professor, Department of Orthopedics, has encouraged him to work independently and actively pursue both grant funding and awards. Recently, he was selected as one of two postdoctoral fellows from NJMS to apply for the NIH Director's Early Independence Award.

Looking forward, Bajaj hopes to continue to translate mechanical engineering princi-

What do astronauts and post-menopausal women have in common?

Rapid bone loss. NASA “is interested in how we can slow and reverse this bone loss to reduce fragility and maintain structural integrity.”

Bhilai Institute of Technology, Bajaj had no opportunities to participate in lab research. “From very early on, I was interested in machines and biology—reading magazines, looking at books—but there were no hands-on opportunities to do research. It wasn't until I came to the U.S. that I had this opportunity,” he explains.

It was a coincidental meeting with his former mentor, Dr. Dwayne Arola of UMBC, on Thanksgiving of 2004 that ultimately steered Bajaj's scientific interests towards the fatigue and fracture properties

of mineralized tissues, and to become more involved with teaching. “I was trained as an engineer, but I want to translate that into biomedical research that will really help further medicine and allow us to make better materials to replace nature's tissues, which expire due to disease or injury,” Bajaj says. Reflecting on the rewards of a career as an academic scientist, he adds, “I learn every day, and I have fun. I look forward to coming to work and that's the best thing about this line of work—if you really love it, you love doing it for your entire career.” ●

IMANI JACKSON-ROSARIO

At Home in a Man's World

Not many female physicians choose urology as a specialty, but for this young surgeon dealing with sensitive male health issues is all in a day's work.

Inspired by her grandmother, she is known for her empathetic approach to everything. **BY MARY ANN LITTELL**



Picture this: a group of little girls gather for a sleepover at the home of eight-year-old Imani Jackson. Curled up in their sleeping bags watching TV, they come across a program graphically depicting a baby undergoing brain surgery. “As the surgeon made that first incision, my friends started to cry,” Jackson recalls, laughing. “But I loved it! I knew even then that I wanted to be a surgeon.”

Fast forward to today. Married to Ramon Rosario, she's a surgeon, all right, but not a brain surgeon. Instead, she chose urology, a specialty few women pursue. “I love my specialty,” she says. “It's interesting and challenging. Our patients are for the most part relatively healthy. They come in with a urological problem and we fix it.”

This young surgeon chose her specialty early. As a medical student doing a rotation, she was mentored by the chief urological resident, a woman. “She had a family and handled her responsibilities so well,” remembers Jackson-Rosario. “I was inspired by her. It showed me that this specialty accommodates family life. It's demanding, but there aren't many life-or-death emergencies.”

Jackson-Rosario's dream was always to work in the inner city. Following graduation from Georgetown Medical School, she did her residency at NJMS and decided to stay here. She's been on staff since September 2009 as an assistant professor of surgery. She typically puts in 12-hour days, dividing her time between the operating room and her practice, treating equal numbers of male and female patients at UMDNJ's Doctors Office Center and the Ambulatory Care Center.

Sensitive health issues—for instance, incontinence, premature ejaculation and erectile dysfunction—are all in a day's work. “Occasionally male patients are surprised when they find that I'm a woman, but I'm always able to put them at ease,” she notes. “I've only had two male patients who refused to see a woman doctor. I didn't take it personally. There's an underlying sentiment that women physicians are different from men, and it's true—we are different. We approach our patients differently. This is

not bad or good, it just is.”

Jackson-Rosario comes from a family that highly values education. Her parents, both school principals, instilled in her a love of reading and learning—a love reinforced by long afternoons on a sofa reading with her grandmother, Ruby Frye. “I have beautiful memories of her reading *Tom Sawyer*, *Little Women*, all the classics,” she recalls. “I wanted to share that experience with children.”

A few years ago, she found the way to do it. She was engaged to be married and her friends planned a wedding shower. “They kept asking me what gifts we wanted, but we didn’t need anything. So I asked everyone to bring one brand-new children’s book.” Her friends arrived at the shower with armfuls of books—nearly 500 in all. “I was overwhelmed by their generosity,” she says. She and her husband, Ramon, donated the books to University Hospital, and in December 2010, the Ruby Frye Mobile Pediatric Library was dedicated. It makes its rounds daily in UH’s pediatric department.

“My grandmother would have loved this idea. She placed tremendous value on education, literacy and community service.” Jackson-Rosario has taken to heart her grandmother’s commitment to helping others. At a recent American Urological Association meeting she attended, there was a call for volunteers to join the male circumcision effort in Africa. “Many people have become complacent about AIDS, but it continues to decimate African countries,” she explains. “I always wanted to become involved with AIDS prevention, but as a urologist there aren’t many opportunities.”

A South African study showed that male circumcision greatly reduces the risk of HIV infection. In fact, researchers stopped the study early because the results were so impressive. The World Health Organization (WHO) has established circumcision clinics in several African countries, including Swaziland, where HIV has infected a staggering 40 percent of the population. The circumcision project is co-sponsored by

Continued on page 19

KRISHNA E. TOBÓN

Jersey Girl

An immigrant from Colombia, this scientist is on her way to becoming an expert in cocaine addiction.

BY GREGORY BEAN

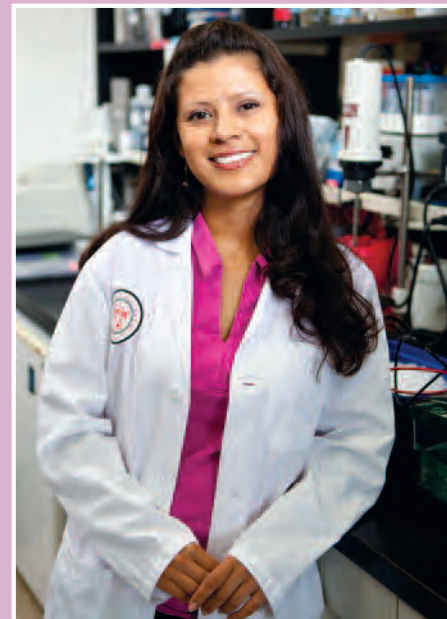
When people make an investment—be it in goods, finances, or people—they expect a return. The odds are good that those who invested in Krishna E. Tobón, a PhD student in the Department of Pharmacology and Physiology at NJMS and GSBS, made a safe bet.

Last January Tobón, 31—an Alfred P. Sloan Foundation Minority Scholar—was one of only ten recipients nationwide of a prestigious two-year, \$40,000 pre-doctoral fellowship from the PhRMA Foundation. The award was made at the 2011 American Society for Pharmacology and Experimental Therapeutics meeting in Washington, D.C. The fellowships are designed to invest in research and ease the financial burden of PhD candidates during the last two years of their studies by providing tuition assistance, a monthly stipend and health insurance.

After completing her course work in the first two years of her PhD studies, Tobón focused on her research project, elements of cocaine addiction.

“We’re working for the regulation of the D1 Dopamine receptor expression, trying to identify the mechanism of regulation in cocaine-induced behavioral sensitization,” she says.

When people become addicted to cocaine, they are sensitized to it, and the environmental stimulations that trigger



addictive responses. “In mice (used in lab research), if you knock out that receptor, you don’t get that response.”

Eventually, that response could be controlled by medication, which has not yet been developed. “This could be something the drug companies could look into, because there are no FDA approved medications for cocaine addiction,” she says. “There’s nothing to give these people. Developing something would be the long-term goal of this project.”

She expects to have her research completed and her thesis written in time to graduate in the spring of 2012. After that, this Jersey girl with a two-year-old daughter, Zara Mia, and an abiding love for her state, would like to enter a post-doctoral program outside New Jersey, then follow with a career in research and teaching right back here.

“I’m passionate about my state,” she says. “I’m grateful for the opportunities I’ve had here, and I see that I can make a difference.”

She would also like to help other New Jersey students tap into some of the

Continued on page 19

SUSAN GOULD-FOGERITE

Practicing Mind-Body Medicine

Want to turn off your stress? The science behind yoga, massage therapy, biofeedback, Tai Chi and other practices like guided imagery is just beginning but results already show a really strong biological effect on the body and the brain.

BY MARYANN BRINLEY

Put a little *om* in your life. “People are hungry for techniques that can help them manage their stress,” according to Susan Gould-Fogerite, PhD, Director of Research at the Institute for Complementary and Alternative Medicine (ICAM), a University-wide initiative, housed within the School of Health Related Professions (SHRP) on the Newark campus. So, once a week, Wednesday at noon in the Rosemary Gellene Room (MSB-515), NJMS and GSBS students, faculty, administrators, as well as University Hospital nurses and physicians slow down for a little mind-body medicine in a yoga class taught by Gould-Fogerite. The hour spent makes good medical sense.

“Medicine needs to shift more towards prevention and health and not simply waiting until things in a body have broken down,” she says. As a basic scientist doing human studies, Gould-Fogerite is researching not just yoga but several mind-body medical practices which can include every-

thing from massage therapy, biofeedback, guided imagery, meditation to Tai Chi, Qigong, and hypnosis. “Breathing practices are central to yoga and all the mind-body therapies. What all of these practices—many are ancient traditions—share is the induction of the relaxation response which can pull people out of their stress with its inflammation and pain, and generate a more relaxed state so the immune and neuro-endocrine systems are in better balance.”

While the science behind most mind-body therapy is “just beginning,” results so far are encouraging. “We know that these

practices have significant biological effects on the body and the brain in health. They are also wonderful adjunctive practices for someone who is seriously ill.” As an associate professor at SHRP, Gould-Fogerite is a co-investigator on an ICAM clinical trial testing massage therapy for osteoarthritis (OA) of the knee, which showed measurable relief for participants, not only during the 8 weeks of regular massage but for up to 8 and for some, 16 weeks afterward. “We’re applying for an NIH grant to study the physiological, physical and biochemical responses, or biomarkers, of massage in OA.” With



Susan Gould-Fogerite, PhD



funding from the UMDNJ Foundation through a Hugh Evans, MD, donation, her team is also planning a yoga intervention study for people with multiple sclerosis. There is also an ongoing trial of guided imagery to reduce pain and anxiety and increase healing for patients undergoing upper and lower jaw surgery. And another on Gould-Fogerite's drawing board will



Changes brought on by these therapies are measurable in the stress hormones, like cortisol.

assess the stress of physical therapists and teach them ways to cope that will benefit both their patients and themselves. The changes brought on by these therapies are measurable in the stress hormones, like cortisol. "We also look at inflammation, which can interfere with wound healing, studying the cytokines (interleukin 6 and TNF alpha) and high sensitivity C-reactive protein, which go up under stress."

Everyone is welcome to participate in the weekly yoga class. No experience needed. Small donations (usually \$1 to \$5) to help support the research are appreciated and mats are provided. Wear comfortable clothes and just bring your stress. Gould-Fogerite, who earned her PhD in microbiology and immunology, has been practicing yoga for 30 years and teaching in the Himalayan tradition for 10 years. "My introduction to yoga was a first semester gym class at SUNY-Albany and I've absolutely loved it ever since." ●

A Man's World

Continued from page 16

WHO and PEPFAR (President's Emergency Plan for AIDS Relief), a U.S. government initiative to help save lives.

In April 2011, Jackson-Rosario spent 17 days in Swaziland. She worked in a clinic, first educating men about the importance of circumcision in HIV prevention, then performing approximately 50 circumcisions. "Typically, male newborns are circumcised by the new mother's obstetrician," she says. "Circumcising an adult is a much more complex procedure." All patients were tested for HIV. Those who tested positive were not excluded if their level of infection was with-

in certain parameters. "I felt so good about helping this effort, and I hope to do it again someday." She also traveled to Haiti this past spring to help victims of that country's devastating earthquake.

Outside the office, Jackson-Rosario spreads her empathy far and wide—even to her own pet, a French bulldog named Oliver. He went through training as a therapy dog at the Harvard of pet therapy programs: St. Hubert's in Madison, NJ. "When I found out Oliver had a perfect score, I actually got teary-eyed," she laughs. As a pet therapy team, Oliver and his mistress can share their love by visiting hospitals, schools and nursing homes. "I plan to do this in what little free time I have," says Jackson-Rosario. Grandma Ruby would be proud. ●

Jersey Girl

Continued from page 17

resources that have helped her along. "I'd like to promote to other in-state students that they can go into academia," she says. "There are a lot of international applicants for assistance like the PhRMA fellowship, but there's not a lot of New Jersey students, because we're not always told about it."

Financial help is certainly important, but succeeding in this stressful and highly technical field also takes drive, motivation and plenty of hard work.

Tobón immigrated to America from Medellin, Colombia, with her parents when she was a toddler. She grew up in Englewood, where she still lives, and graduated from Bergen Technical High School in 1998. She graduated from William Paterson College with a BS in biology and bio-physiology honors, but didn't go into graduate school right away. "I wasn't really prepared for it. I didn't even know that I wanted to have a career in research," she says.

She worked for about a year as a

researcher for Hoffman-LaRoche, and then took a job as a researcher for UMDNJ in 2004, with the idea that she'd work in that capacity until she entered graduate school. That didn't happen for three years, but she stayed in touch with her undergraduate mentor, Dr. Martin Hahn, who kept pushing her to apply to the graduate program. She eventually took his advice, and started the graduate program in August 2007.

When she graduates next spring, she might get a bit of a breather. Currently, she spends at least 40 hours a week in the lab completing research for her project—and more time trying to craft the results into the thesis which she has started. In her "spare" time, she takes her daughter to music classes, gymnastics, soccer and all the other things a young child requires. She manages to keep her priorities in order.

"I don't know where the energy comes from," she said. "Being a student is very time demanding, but being a good parent is also important. It helps that I have a good support system in my family."

It's likely that their investment will pay remarkable dividends as well. ●

STROKE

She thought she knew all about strokes. After all, she's an expert.

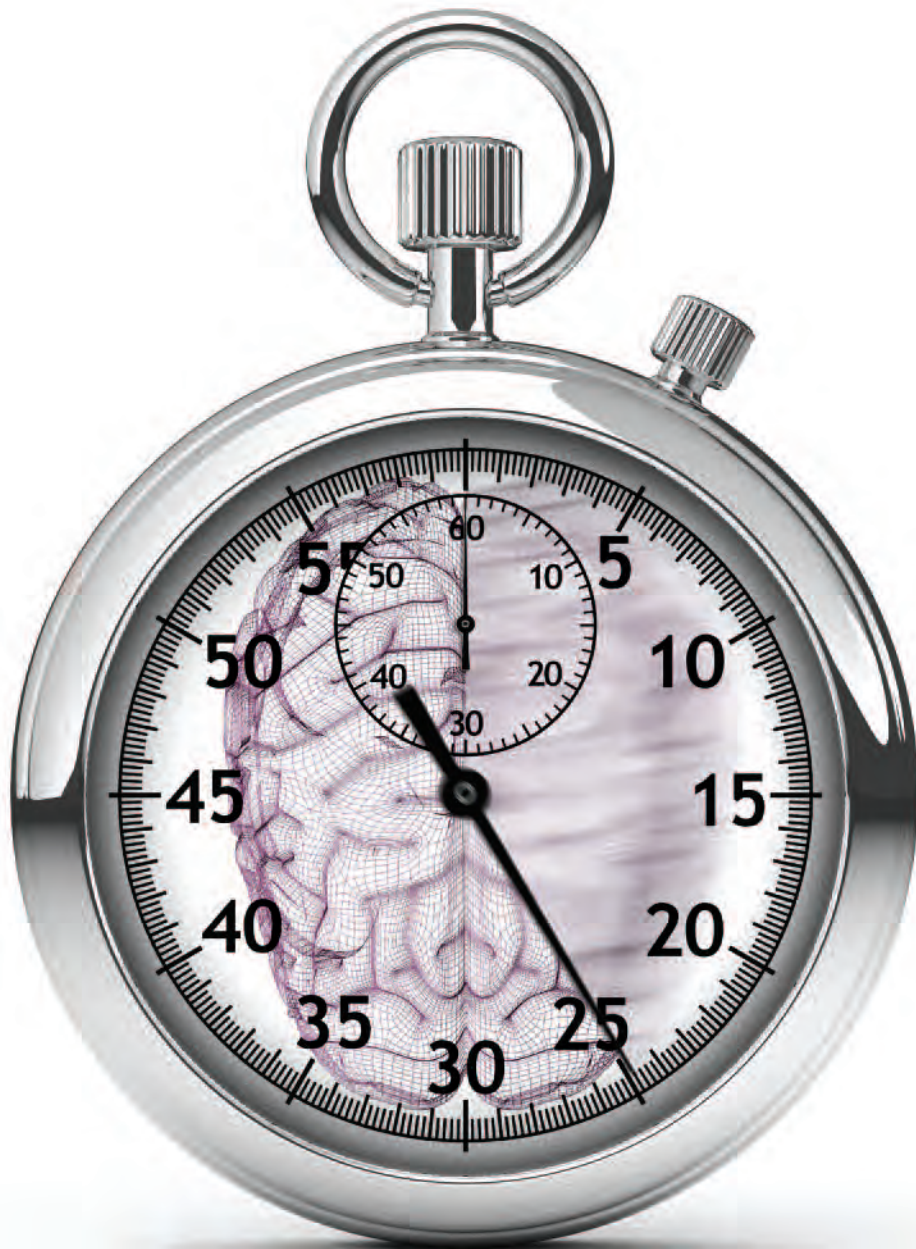
But what happens when a doctor suddenly becomes a patient?

BY MARYANN BRINLEY

“I REMEMBER THINKING, ‘I’m in bed in a neurosurgical intensive care unit and I’m not the doctor doing the rounds. I’m a patient and the other patients around me look pretty crummy.’”

A stroke expert in the UMDNJ–New Jersey Medical School Department of Neurosurgery, Oriana Cornett, MD, was two months from completing her two year-long endovascular neurosurgical fellowship in April 2010. She was 37, had normal blood pressure, no personal or genetic history of heart disease or diabetes and no warning signs of the catastrophe that would alter the course of her life.

SHOCK





Oriana Cornett, MD

Cornett had been so healthy that in Manhattan, where she lived with her husband, they would often run six and a half miles in Central Park. Yet, there she was in a neurosurgical ICU on a Friday evening – after a day in which time had stood nearly still while a cryptogenic stroke played weird, wild havoc in the right side of her brain. Cryptogenic? That means a “big I-don’t-know” kind of stroke, Cornett explains. “It was an M1 occlusion. Sixty to seventy percent of the time, an M1 occlusion in someone as young as I am is a killer.”

Looking back on the experience during an interview in her office in the Doctors’ Office Center, Cornett is upbeat. An optimist, she laughs at the irony of a stroke doctor having a stroke. She has spent the last year working hard to regain movement on her left side and doing stroke research back at work. “I’ve learned a whole lot about having a stroke but I don’t recommend having one.” She props up her left leg on the desk. She wears a brace to stabilize her left ankle while walking. Her left hand is a work in progress. “I’ve recovered my face, which gives me a lot of hope because my face was severely affected. My patients used to ask, ‘Am I going to be okay, Doc?’ I would say, ‘I hope so but I don’t really know.’ The stroke has given me a whole different perspective.”

Here’s what happened on that Friday. Cornett had been scheduled to attend a conference in the angiography suite at UMDNJ–University Hospital at 7 am. “I wake up and see that it’s 8:08 a.m. I’m late. I’m never late, especially for this regular conference which was the favorite part of my week. The fellows can ask all the questions we normally couldn’t cover in a busy week.” Routinely run by NJMS associate professor and program director Charles J. Prestigiacomo, MD, and assistant professor Chirag Gandhi, MD, the Friday morning meetings were “something I loved.” At home, she hops out of bed and hurries to the bathroom. Reaching for toilet paper, her left hand doesn’t work. Then it’s her leg. In the mirror, “my face is all snarly and I think, ‘This can’t be good.’” She falls to the bathroom floor. This stroke doctor isn’t thinking stroke.

She tells her husband, “Something is wrong with me. I can’t walk.” Yet, she refuses to let him call for help, insisting, “I’m the doctor here. I know what I’ve got and it’s not a stroke. Go to work.” He helps her back to bed and she recalls, “I made him leave saying, ‘You know, honey, I think I’ve got this thing called GBS. I’ll be fine.’” She’s not fine.

Meanwhile, she explains, “There is a feature of some strokes called neglect. This is a right brain event. You don’t realize you have a problem at all. I’ve had patients with right side strokes who became totally psychotic.” Cornett doesn’t believe that she had complete “neglect” because she was aware that something was wrong but she kept thinking, “I’m just too young and healthy to be having a stroke. It’s got to be something else.” She was convinced it wasn’t life-threatening. Perhaps it was from her dinner at a Greenwich Village restaurant the night before. “I wouldn’t know what cocaine looked like. You could have told me it was parmesan cheese. Even some rare or uncommon side effect to a common vaccination was more likely than a stroke for someone as healthy as me.” Her sense of time slows to a crawl. Hours feel like minutes. “My perception of time was way off.”

Two days earlier, she had received a vaccine booster for tetanus, diphtheria and pertussis. Her blood pressure had been low, 104 over 40, but, “Low is normal for me. I got the shot in my left deltoid and by Thursday, there was a little swelling and pain at the injection site so I looked it up and discovered that in rare instances, Guillain-Barre syndrome (GBS) can result.” GBS, which can be life-threatening, will cause slow, ascending paralysis in a pattern totally different from stroke. “I was slurring my words and it had happened fast. A stroke is sudden so my symptoms were completely wrong for GBS.”

For hours that day, while Oriana Cornett was in bed and later on the floor—after falling on the way to get a drink of water—the stroke in her brain destroyed brain cells. As Charles Prestigiacomo explains, with any stroke, “Within minutes, decisions must be made about what needs to happen. Any stop or pause in the chain results in a waste of time and precious brain cells.” At UH, a Brain Attack Team (BAT) is always a pager away from immediate action. The window of time between the onset of a stroke and receiving treatment has opened wider for some patients but when Cornett passed the three, six and

then eight hour mark, she lost her chance to receive intravenous tissue plasminogen activator (tPA), intra-arterial medication to break up the blockage, or to undergo an intervention where a surgeon uses probes inside the vascular system to mechanically dislodge a clot.

When she heard her husband's key at the front door, she was relieved. "What are you doing on the floor?" he asks. "I've fallen and I can't get up," she answers, adding "don't make any wisecracks." So confused about time, Cornett asked for the phone in her purse to let them know she wouldn't be at work. "I thought it might be 9 in the morning. It was 7 in the evening." He telephoned UH, described her situation and was told to call 911 immediately. "My husband was mad at me, scared to death and angry with himself, especially there in the beginning when he wasn't sure if I was going to make it," she admits.

When the emergency medical team arrived, she told them, "I know it looks bad but I'm a stroke doctor and this can't be a stroke. Trust me." At Mount Sinai Medical Center in Manhattan in the ICU, Cornett maintained that disbelief. When a CAT scan came back normal, she said, "I told you so." Yet, she points out, with any stroke, a

"I have all the beautiful vessels of a young, healthy woman except for one. Everything, my heart, my lungs, my carotids are fine... except for that one, which was occluded."

CAT scan can look normal for hours afterward. It's only when swelling develops that the picture changes.

An MRI, more sensitive to strokes, told a different story. "I didn't know if I trusted what the doctor was telling me. I looked at her thinking, 'Holy moly, I've had more experience than you do. I spent three years studying and looking at strokes.'"

What also ran through her mind was a question quite contrary for an expert in endovascular neurosurgical procedures who was highly skilled at threading catheters into blood vessels. She found herself wondering, "If I really did have a stroke, would I want that tPA? It can cause bleeding. Do I really want someone going into my brain to yank out a clot? Some people die as a result." This physician who had offered these treatments to patients all the time was thinking like a patient. "Overall I know that people do much better with treatment than without. I even kept telling my husband, 'Don't let them stick a needle in my back for the GBS spinal test. I really don't want that needle.'"

Early the next morning, when Chirag Gandhi sat by her bedside at Mount Sinai, she got it. Her husband had slept on the floor beside her bed.

"How bad is it?" she asked Gandhi. Prestigiacomo, who was away on business at the time and contacted by phone, "couldn't believe it."

"You have a sizable infarct, an M1," Gandhi explained. "The good news is that you probably won't need a hemi-crani"—the surgical pro-

cedure to remove a quarter of the skull.

"A hemi-crani? Chirag, what did you say?"

An artery in Cornett's otherwise healthy brain had been completely blocked. "I have all the beautiful vessels of a young, healthy woman except for one. Everything, my heart, my lungs, my carotids are fine...except for that one, which was occluded." It had caused a massive stroke and when the swollen brain has no place to go but down, it can compress the brain stem which controls breathing and cardiac function. She was still in danger.

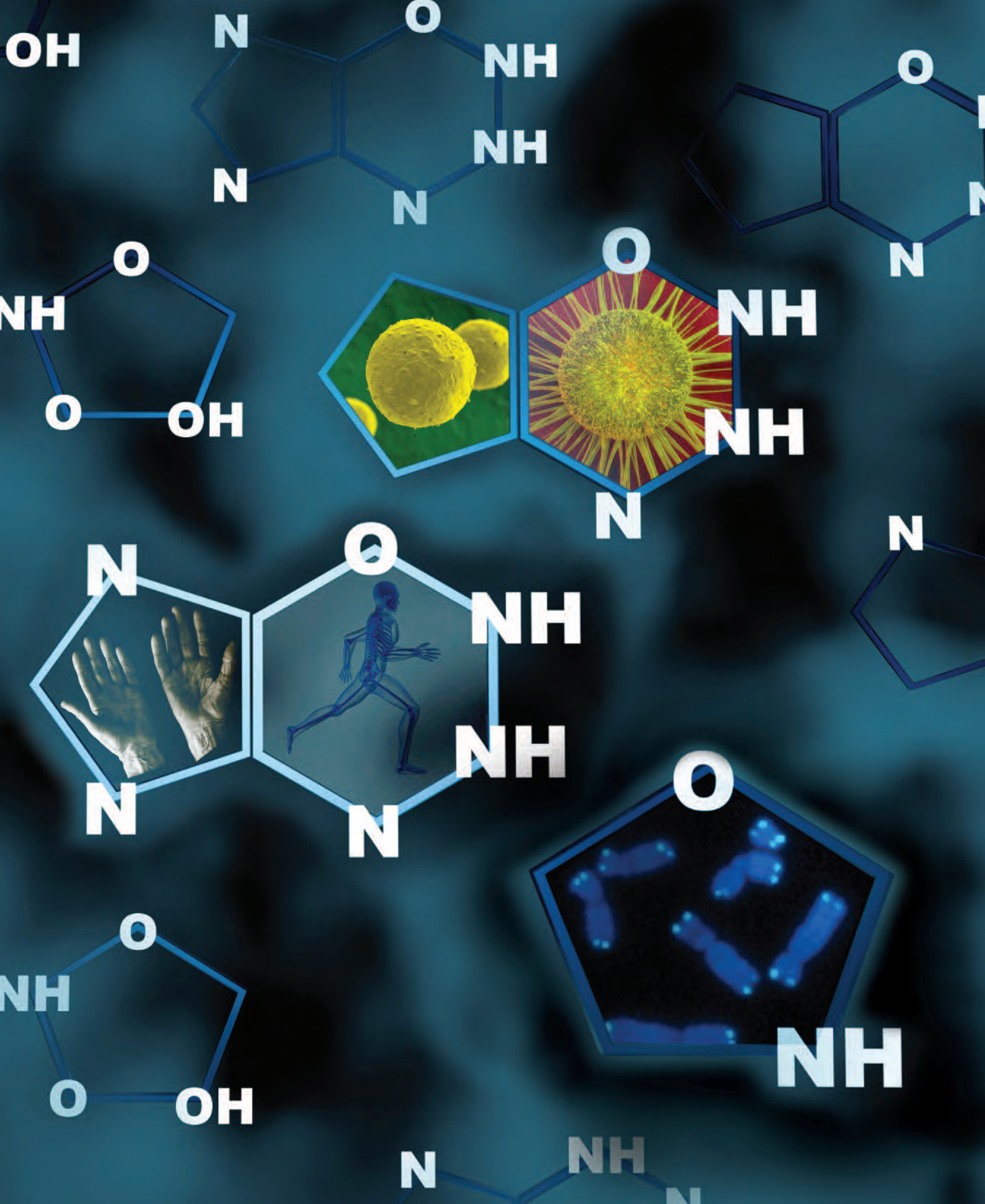
"Brain herniation can result. You become so lethargic that you can't keep your eyes open so you slip into a coma and die." That explained why she had been on neuro-check every 15 minutes. "We had often talked about patients in this way but now we were talking about me. It was so shocking and it was only then that it started to sink in: I can't move my face. I can't move my arm. I can't move my leg. And my husband has tried pinching me and all I can feel is this weird sense of nebulous pain coming from I-don't-know-where-exactly."

When the hospital's medical team arrived in her room, she was mapping her own stroke. "I was registering everything. Sitting there in bed, I thought, this is pretty big. I am experiencing it right here and now." When asked by the team if she had neglect, she told them she realized she had a problem with her left side. She passed several other neurological tests. Asked to draw a clock, right-sided stroke victims may only draw half the face, trying to squeeze all the numbers onto that side. In a test known as A cancellation, the patient crosses out all the A's on a page of letters. Someone with neglect can only cross out A's on the right. Yet, Cornett showed some signs of neglect. She couldn't move her eyes left and recalls thinking, "I have to remember this because it is fascinating. I had always wondered what neglect felt like. You don't know your left side."

When one doctor expressed concern about her morning sleepiness, she responded, "I'm not herniation-tired. I can wake up. I just didn't sleep well." Surprised, someone remarked, "Did you hear what she said? She's not herniation-tired!"

Oriana Cornett was still the doctor. Ten days in acute hospital care and then months of physical therapy in rehab followed. "I loved therapy and walked the very first week after the stroke...with a lot of help." She recovered her facial muscles and some left arm strength using mirrors. "My left eye had been wide open. My smile was crooked. In the mirror, I would move my right arm and then stare at the left arm to make it move. It was wild." Describing her deficits in computer circuitry terms, "I liken my problems to software issues. With time passing, I also have hardware problems because my muscles are weak."

To return to working in the angiography suite, her arm would have to be back to full function. "I loved the work we did but I'm hopeful now about getting back to seeing patients soon. I have a lot to give, especially understanding what they have gone through. Stroke recovery is complicated and we have different levels of problems. Just let me tell you what I've learned." ●



THE LONG AND THE SHORT:

The Telomere Story

A RESEARCH TEAM TURNS OUT SOME TANTALIZING FINDINGS ON HUMAN AGING.

BY EVE JACOBS

One of the world's foremost telomere researchers comes to work each day at NJMS under cover of relative anonymity, and has done so for years. His international renown in this young field is indisputable, but on UMDNJ's Newark campus, Abraham Aviv, MD, goes quietly about his daily routine. His long string of publications is cited frequently by fellow telomere scientists and his discoveries have piqued the interest of the popular press. This professor of pediatrics, whose specialty is nephrology, first made his mark in hypertension studies, but has since evolved into an authority in this new field of sudden scientific scrutiny. Everyone wants to know more about his research focus: the relationship of telomere length to chronic disease, aging and ultimately longevity and death.

Feed his name and the word "telomeres" into your Google browser and you'll get almost 15,000 hits in .20 seconds. Even the headlines—stacked year upon year—are intriguing: "Chronology Versus Biology: Telomeres, Essential Hypertension, and Vascular Aging" [2002]; "Growth, telomere dynamics and successful and unsuccessful human aging" [2003]; "Telomeres and Human Aging: Facts and Fib" [2004]; "The Longevity Gender Gap: Are Telomeres the Explanation?" [2005]; "Higher serum vitamin D concentrations are associated with longer leukocyte telomere length in women" [2007]; "Leukocyte telomere length is associated with HDL cholesterol levels: The Bogalusa heart study" [2009]; "Telomere length and mortality: a study of leukocytes in elderly Danish twins" [2009]. These are just a few of his papers on telomeres since 1998—researched and written with collaborators at UMDNJ and from laboratories across the world.

Telomeres have been in the scientific spotlight for more than a decade but they didn't jump into the popular lexicon until fairly recently. Often described as resembling the plastic tips on the ends of shoelaces, they keep the "laces" functional by stopping the DNA strands from unraveling. How significant the role of telomeres is to human health and well-being is somewhat controversial, but there is no doubt they are important players in the mechanics of the human body. The 2009 Nobel Prize in Physiology or Medicine went to three American scientists for the discovery of "how chromosomes are protected by telomeres and the enzyme telomerase."

A quick take on telomere basics: They are located at each end of linear chromosomes and seem to serve as their protectors. Each time a cell divides, the telomeres (they can be up to 15,000 base pairs long)

become shorter. When the telomeres reach a critically shortened state, the cell stops dividing and eventually dies by a process called apoptosis. The aging of cells is called senescence and that process is thought to underlie the aging of the human body.

The enzyme telomerase, discovered by the Nobel team, serves to elongate the telomere, keeping it viable to do its job. But telomerase is manufactured only in fetal tissue and by adult stem cells and tumor cells. The flip side of the "good telomerase," which keeps cells perking along for years, is that this same enzyme is kicked into high gear in cancer, and seems to be pivotal in keeping cells endlessly dividing (called immortal cells) to form malignant tumors.

The telomere unknowns are many; and scientists in this field are tackling an array of tantalizing questions: Can telomere shortening be halted or maybe even reversed? If so, can the aging process and chronic conditions associated with aging, such as diabetes, cardiovascular disease, and dementia, be stopped or reversed by generating increased amounts of the enzyme telomerase to elongate critically shortened telomeres? Can telomerase production be activated in the body? How? Do long-term stress and repeated infections shorten telomeres, thereby inducing premature aging and even death? What is the relationship of telomeres and telomerase to cancerous tumors, and might the process that makes cells immortal be turned off?

Aviv has wrestled with many of these questions. He cautions against jumping to any conclusions about a cause and effect relationship between shortened telomeres and the body's ultimate decline. However, he does believe that "telomeres play a central role in human cancer, cardiovascular aging and possibly longevity." While Aviv has studied telomere length in relation to osteoporosis in women, obesity and smoking, vitamin D levels in women, cardiovascular disease, osteoarthritis, essential hypertension, the longevity gender gap, mortality in elderly twins, rheumatoid arthritis, vascular aging, and inflammation, it was the research paper titled "The Association Between Physical Activity in Leisure Time and Leukocyte Telomere Length," [2008] that particularly captured the public's attention. The paper was published in the *Archives of Internal Medicine*.

Americans firmly believe in the benefits of exercise, even though many choose the couch potato route or simply spend too much time at sedentary jobs. Despite that conviction, even kids in the U.S. are moving less and becoming more prone to obesity and early-onset diabetes. So, how important is exercise anyway? Aviv and collaborators in



Is there a causal relationship between vigorous exercise, longer telomeres and slower aging?

Great Britain examined the telomeres from the white blood cells of 2,400 twins, looking for a relationship between reported exercise levels over a 10-year period and telomere length.

What the researchers found was striking. Telomere length and time spent exercising had a direct correlation. About 100 minutes a week of what was determined to be “moderate to vigorous exercise,” such as swimming, tennis or running, translated into telomere-length that looked five to six years younger than telomeres of individuals whose exercise was minimal—about 16 minutes a week. Three hours a week of moderate to vigorous exercise translated into telomeres that looked about nine years younger than those who barely moved. Comparing the least and most active twins with each other, the researchers found about four years difference in telomere length regardless of other factors that are thought to affect it, such as smoking and obesity.

Is there a causal relationship between vigorous exercise, longer telomeres and slower aging? Far more research is needed to actually establish cause and effect, but the study certainly points to an intriguing association. So, telomere science suggests: Take lots of giant steps every day—in whatever sport or exercise is most palatable to you. Those steps may very well translate into you becoming a winner in the longevity sweepstakes.

THE NEXT STEP: IT TAKES A TEAM

What happens when you put together two highly talented telomere researchers and a plastic surgeon? At NJMS, you get a brand new take on an age old problem and a patent for an idea of great promise.

Wounds—whether from accidental injury or surgical incisions—do not always heal neatly. Scars can be large, ugly and uncomfortable, despite the good work of a skillful surgeon. Sometimes, a tough, pinkish-purple, irregularly shaped scar forms, which continues growing—

both up and out—long after the time of skin trauma. While scars are generally not dangerous or life-threatening, keloids (the term for this type of scar) can cause a lot of distress, particularly when they appear on the face, head, ears and hands, are large and protuberant. They tend to come right back if the scar is removed and sometimes cover large areas of the body.

“Wound healing gone awry is my area of interest,” says Mark Granick, MD, professor of surgery and chief of plastic surgery at NJMS and UMDNJ–University Hospital, “but usually I deal with wounds that don’t heal.”

“A scar is mending-tissue,” he explains. “When the wound is healed, the scar growth is generally turned off. But with keloids, the body doesn’t turn off the healing process and the tissue keeps growing. Keloids act like tumors.”

Granick says these overgrown scars are often hard to the touch, can be painful and itchy, and can get really big. They frequently appear as nodules on the ears, on the skin under the beards of men, and on the back of the head at the site of ingrown hairs, but they can appear almost anywhere. They are more common in African Americans than Caucasians.

“There are some people whose bodies are covered with keloids—from bee stings, mosquito bites, cuts and scratches. We don’t have a lot to offer them in the way of effective therapies,” he says. “Sometimes these people become desperate. They’ve tried a variety of therapies and nothing has worked.”

In a study undertaken by telomere researcher Aviv and plastic surgeon Granick, pencil-tip sized samples of keloids from 16 individuals who had consented to participate were removed for assessment. The patient group consisted of 13 African Americans, 2 Hispanics and 1 Asian (8 males and 8 females, ranging in age from 14 to 58).

“We wanted to know: ‘Are telomeres different in keloids than in adjacent normal skin? Are the telomeres acting abnormally because keloid cells don’t undergo normal cellular death, called apoptosis?’” asks Granick.

The researchers targeted telomeres in the area of the keloid closest to the skin. “At the periphery of the keloid, the cells are supercharged and that’s where the growth occurs. We found that the telomeres are generally longer here than in normal skin. There is only one enzyme known to do that—telomerase.”

Based on their findings, the team theorizes that telomerase production goes into high gear, but just for a limited time period immediately following a skin injury, affecting telomeres near the edges of the scar. (Their findings were published in *ePlasty*, the online, open access *Journal of Plastic Surgery*, March 16, 2011.)

If keloids form as a result of supercharged telomeres, then the team theorizes that recurrence could be headed-off by applying an anti-telomerase to the affected area. The team will test an enzyme that interferes with telomerase in their next study.

Patents for new knowledge are not easy to come by, especially in a field as hot as telomeres. But the team of Aviv, Granick and telomere

researcher Masayuki Kimura, MD/PhD, an associate professor in the NJMS Department of Pediatrics, was awarded a patent entitled “Use of anti-telomerase therapy against nonmalignant afflictions” on January 13.

In a clinical trial, the group will test their patented approach on 100 to 200 patients who form keloids. Granick will surgically remove keloids appearing on their ears (the only site to be used for this trial) and will then treat the surgical site with the anti-telomerase medication over a period of two years, the cycle of recurrence for keloids. “Most appear in those between the ages of 12 and 25, the growth phase years,” comments Granick. “It’s rare for an older person to form a keloid.”

The patent holders are hoping to prove that their new therapy stops these bulky scars from reappearing if it’s started directly after the surgery. Granick foresees no downside to the treatment, but “we’ll research that thoroughly.”

Of course, a good idea often has legs. This invention could conceivably have very long legs. If the therapy works for keloids, then why not try to head off the formation of any thick unsightly scar, whether it’s a keloid or not? A next step, and one that would have widespread ramifications, is testing this treatment to prevent the often disfiguring scarring from burns.

“If burn scars also have an abnormality in telomere length, then maybe the anti-telomerase therapy could be useful in treating these scars, too,” muses Granick. When the members of a world-class team put their heads together, the trajectory of their ideas may go way beyond our most hoped-for projection.



Utz Herbig, PhD

TELOMERES AND CANCER: WHAT’S THE CONNECTION?

The telomere-cancer connection has intrigued scientist Utz Herbig, PhD, for more than a decade. In 2000, he began working on a post doc at Brown University and that same year started researching cellular senescence or growth arrest. He developed an assay capable of detecting aging cells in skin tissue of baboons, whose lifespan is 25 to 30 years and who age similarly to humans. The study had striking results that were published in *Science* (Vol 311, March 3, 2006) with Herbig as first author.

The researcher determined that aging cells with telomere damage (a biomarker of cellular growth arrest) increase exponentially as human beings get older. Using small samples from the baboons’ forearms, he found that these old cells make up “about 4 percent of the connective tissue cell population in 5-year-olds. In 30-year-olds, that number rises as high as 20 percent. These senescent cells are the likely culprits behind skin thinning and wrinkling, and slower wound healing, in our later years,” he states.

A recently awarded NIH grant for \$1.61 million for a study entitled, “Tumor Suppression by Telomere Dysfunction Induced Senescence,” will allow this assistant professor of microbiology and molecular genetics at the NJMS–UH Cancer Center to pursue his interest in the telomere-cancer connection. “Formation of aggressive forms of cancer is a multi-step process that usually proceeds over decades,” Herbig explains. “Cancer arises when a single cell within the human body acquires one or more mutations in its DNA allowing it to grow and duplicate in an altered and accelerated manner. The vast majority of these abnormal growing cells will suddenly cease growth after dividing a number of times, giving rise to small tumors that do not invade and grow into the neighboring tissue.” At this non-invasive stage, the tumor is called benign.

Some scientists believe that humans accumulate many of these small, benign tumors within their bodies as they age, he continues. These growths usually remain inactive for years and often go unnoticed. Occasionally, cells escape this growth arrest and continue to multiply, sometimes giving rise to malignant, metastatic tumors.

“My team’s preliminary studies on several benign human tumors indicate that a primary reason for tumor cell growth arrest is malfunction of telomeres, the physical tips of chromosomes,” he explains. “We don’t know how widespread this phenomenon is, why telomeres malfunction, or what impact this growth arrest has on preventing tumor progression in humans.” The grant will allow Herbig’s team to further their telomere studies, eventually leading to a better understanding of tumor progression—essential for developing more effective anti-cancer therapies. They hope their research will also reveal a novel biomarker for tumor stage, which will facilitate decision-making regarding individual cancer treatment. ●

A New Liver, A New Life

At the end of a long odyssey through recurring waves of illness, his eyes once a deep yellow and his gall bladder distended like a balloon, Woody Thelusma is now healthy and happy, thanks to the University Hospital Liver Transplant Program. He is also working toward his dream of becoming a doctor.

BY MARY ANN LITTELL

Among all of Woody Thelusma's strange symptoms, his eyes provided the strongest clue to his serious illness. They had turned a deep yellow. It was 2002, and he was in high school at the time—a typical 16-year-old who ran track at Newark's Science High School, hung out with friends and lived on junk food. But lately he'd been feeling sick. His stomach was distended and he itched everywhere. But strangest of all were the yellow eyes.

Woody's dad Jean took him to the doctor, who initially focused on the itching, prescribing a topical cream. It didn't help. They returned to the doctor a few months later. When Jean said, "Check out my son's eyes," the doctor did a double-take and sent the teen for tests. A few days later, Woody was in class when the guidance counselor called him to the office. Jean was on the phone. "He'd just gotten the results of my test. I had primary sclerosing cholangitis, a serious liver disease," recalls Woody.

Thus began Woody's long odyssey through recurring waves of illness and seeming recovery—an odyssey that took the teen to the point of liver failure in the fall of 2004. His life was saved by a liver transplant in January 2005. Throughout his ordeal, he lived his life with teenage single-mindedness, going to school, shooting hoops and

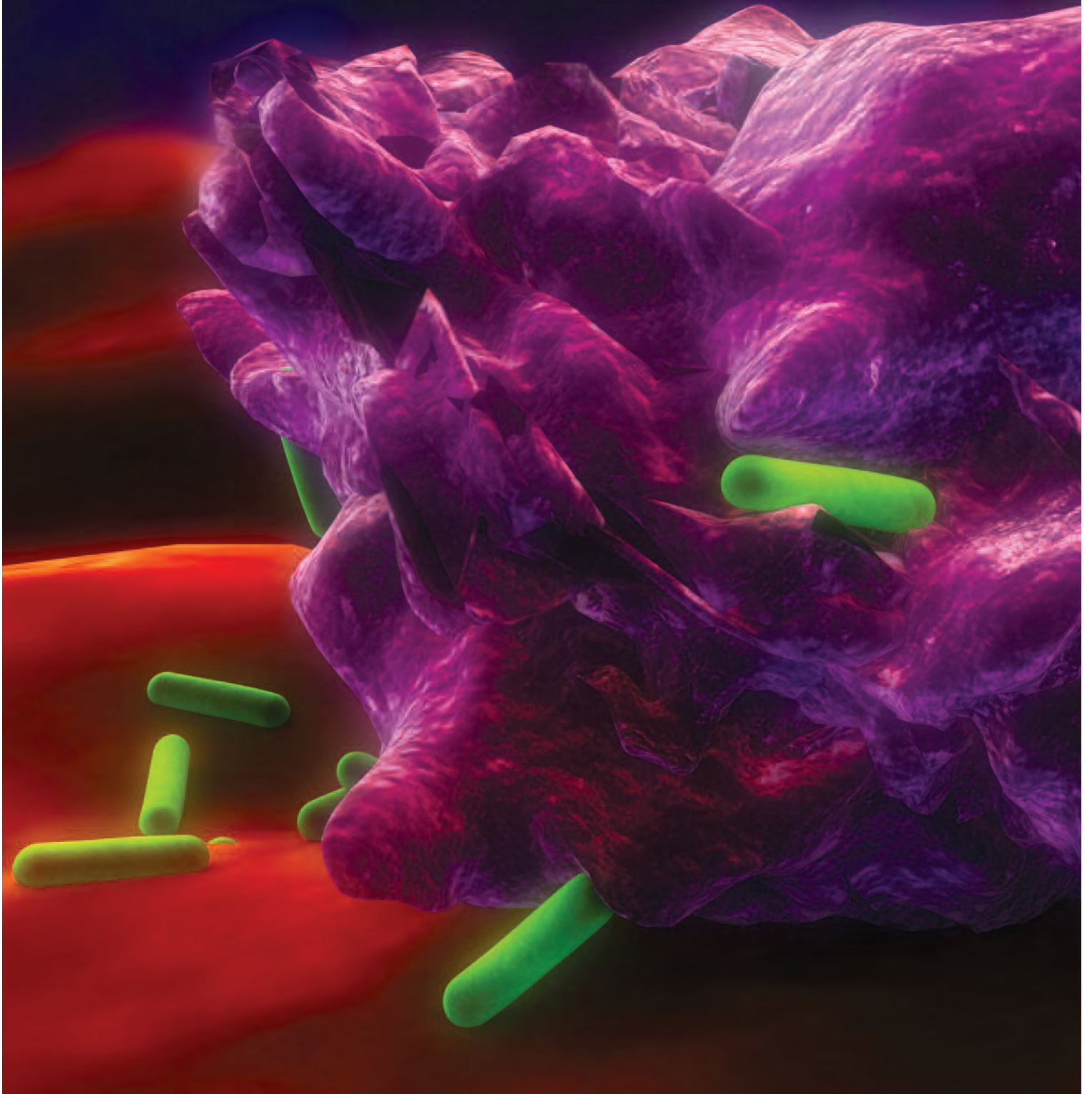
Continued on page 33





Woody Thelusma and Dorian Wilson, MD

Look at this macrophage living up to its reputation of being a “big eater” scavenging foreign invaders, like bacteria, in your body.



THE MIGHTY MACROPHAGE

What's really happening
inside a wound as it heals?
Could this versatile cell
unlock mysteries and
open doors to many diseases?

By James Netterwald, PhD

It is 6 pm at a busy city hospital where a 32-year-old guy quietly waits in the emergency room to be treated for the dog bite he suffered an hour earlier. He was cautious enough to bandage the wound to prevent infection but the site of the puncture hurts and it's still bleeding a little. The triage nurse enters his name into the system as an emergency case, and seconds later a registered nurse begins treating the wound.

Processes that occur inside that wound, from initial insult to healing, have been a mystery for most of recorded medicine and science. Physicians and scientists have only just begun to understand these inner workings.

"The study of wound healing is very important because it turns out to be the fundamental process that takes place in response to every type of injury," says Joseph Leibovich, PhD, professor, Department of Cell Biology and Molecular Medicine, and not just at the site of something as straightforward as a dog's bite. Look closely at all disease processes and what experts like Leibovich are now seeing is that the route to healing inside a wound is the basis of the body's reaction to many other onslaughts.

There are lots of biological players involved but a major one is the macrophage, a specialized white blood cell (WBC) Leibovich began studying back in 1975 while working as a postdoctoral fellow at the University of Washington in Seattle. One of several types of phagocytes, cells that surround an invader and eat it up, macrophages go for pathogens that have antibodies bound to them and then send alerts to other macrophages to come help destroy the aliens. Leibovich arrived here at NJMS in 1992 and has steadfastly maintained this professional fascination with the role of the macrophage...for good reason. Think cancer, heart disease, HIV infection, tuberculosis, and

macrophages—multitalented cells that take on many tasks—will be pivotal as the immune system gets pushed into high gear.

In response to an injury, macrophages leave the blood vessels and enter the surrounding tissue. Out there, they are well-equipped with cell surface receptors that sense foreign particles, like bacteria, in the body's tissues. They act like scavenger cells. And the word macrophage itself makes perfect sense in translation from the Greek: makros means "big" and phagein is "eater." A macrophage will live up to this "big eater" namesake, continuing to engulf and digest more than 100 bacteria before it dies from too much of its own digestive compounds.

Here's how it works: on the macrophage surface are cell sensors known as Toll-like receptors (TLRs) which are key to this cell's ability to surround and kill pathogens. "TLRs recognize patterns on foreign organisms, enabling them to activate a gene expression profile that will make mediators of inflammation called cytokines," says Leibovich. During this inflammatory phase of wound healing, those cytokines actually turn on that inflammation. "The cytokines make it possible for these macrophages (known as the M1s) to kill the foreign organisms," says Leibovich.

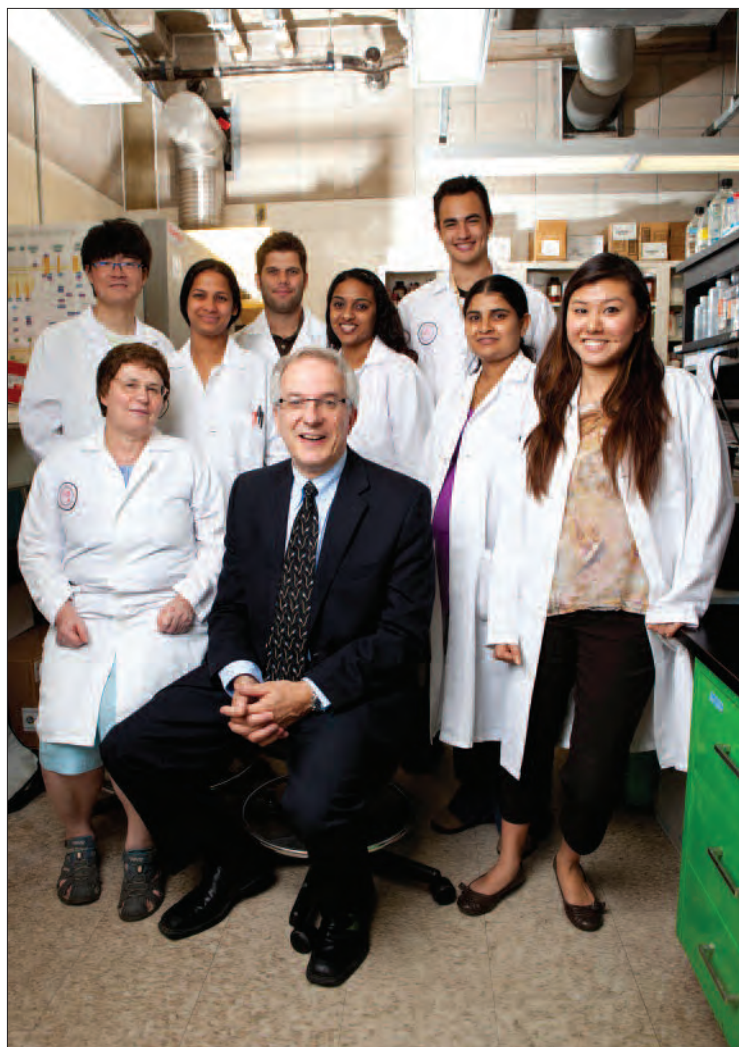
At the same time this is all happening, another type of macrophage called M2 is forming at the injury site. Unlike M1s, M2s don't cause inflammation, however. Instead, M2s generate the formation of new blood vessels in a process known as angiogenesis. "These angiogenic factors stimulate the connective tissue cells to make extracellular matrix required for wound healing..." says Leibovich. Extracellular matrix is actually the mixture of proteins found between cells which provides structure and support for tissues like blood vessels or skin. In the case of blood vessels, these proteins in the matrix help the healing. "Growth of new blood vessels is required for supplying nutrition and

supporting other functions for the cells that are going to make the extracellular matrix and thus heal the wound. So if you don't have those macrophages, or if the macrophages are incorrectly activated, then the wounds don't heal properly.”

The first evidence for the role of the macrophage in wound healing was published by Leibovich and his colleagues in 1975. Since then, they have been trying to unlock more of the mysteries behind the mechanisms of macrophage function. In particular, he is interested in which macrophage genes are turned on or off during this cascade of biological events. An understanding of these steps could lead to a better understanding of diseases that occur when wound healing goes off track.

In recent years, the researchers have discovered the molecular switch regulating the production of M1 versus M2 macrophages. M2s can be activated for wound healing in several different ways. One,

Starting front center: Joseph Leibovich, and clockwise: Genie Elson, Chifei Kang, Smita Shukla, Christopher Ferrante, Shalini Outram, Michael Kahnowitz, Savitha Gounder and Diana Huang



called alternative macrophage activation, is dependent on the cytokines, interleukin 4 (IL-4) and interleukin 13 (IL-13). Leibovich's research has also defined a very novel M2 activation mechanism which relies on adenosine receptors. Adenosine is a metabolic breakdown product of ATP (adenosine triphosphate), the cell's energy currency. ATP is usually contained at very high concentrations within living cells, but under stress, ATP gets broken down to adenosine. When adenosine exits the cell, it binds to the adenosine receptors on the macrophage surface. "What those receptors do when they are bound by adenosine is to switch macrophages from M1 to M2, making the wound move essentially from an inflammatory state to a healing environment," says Leibovich. This research has become the current belief behind how wound healing works.

"By understanding what happens in the normal response to injury, we can get a handle on how to approach and tackle many different disease processes, which take that normal response, subvert it and make it go awry," explains Leibovich. Take rheumatoid arthritis for example. This disease is characterized by the high growth rate of the cells lining the joints. It's a reaction to an unknown injury and a typical wound healing response, except that the process gets way out of control. Eventually, the cells growing wildly make so much extracellular matrix that it degrades the surrounding cartilage and bone. Interestingly, the tissue formed by all the overgrowth resembles repair tissue that can be found in a wound healing normally.

Leibovich hasn't reached these important conclusions alone. A longstanding collaboration with fellow NJMS researcher George Hasko, MD, PhD, Department of Surgery, has been critical to his success. Hasko, an expert in the field of adenosine receptors, has worked with Leibovich's research group since 2004. "Initially, we were interested in how this switch was taking place," says Leibovich. That role of adenosine wasn't clearly understood until they linked up with Bruce Neil Cronstein, MD, a professor in the Department of Clinical Pharmacology at New York University. Cronstein had been researching adenosine but in a different context.

Leibovich recalls his excitement about discovering Cronstein. "I described my results to Dr. Cronstein and he described his results to us. We brainstormed and hypothesized that adenosine may be playing a role in stimulating the macrophages. After we did a few experiments, we found that this was the case. We felt very excited." The teamwork has led to a continuous stream of published papers and successful grants. In fact, Leibovich's research has been consistently funded by the National Institutes of Health since 1980.

Life as we know it would not be possible without our body's natural ability to heal its own wounds, a fundamental process that keeps pro-inflammatory and pro-angiogenic mechanisms perfectly in balance in a masterful work of nature. As our patient with the unlucky experience of that bad dog bite leaves the hospital, his wound is no longer painful and there are no signs of infection. He's happy, of course, but what he doesn't know is that he should thank his mighty macrophages as well as the ER healthcare team. ●

New Liver, New Life

Continued from page 28

dreaming of a future, perhaps as a physician. Looking back on his experience during a recent interview, he said, “I never let my illness hold me back or keep me from doing what I wanted to do.”

Primary sclerosing cholangitis (PSC) is a progressive disease of the bile ducts, which become inflamed and scarred. Bile backs up into the liver and causes serious damage. A liver transplant is the only cure. Blockage of the flow of bile through the liver can result in a build-up of bile acids and bilirubin in the blood, causing itching and jaundice. “In Woody’s case, being young helped him function fairly well in spite of his symptoms,” comments liver transplant surgeon Dorian Wilson, MD, one of the NJMS physicians involved in Woody’s care.

Woody’s life changed once he received his diagnosis. “My parents restricted my activities,” he says. “I couldn’t play sports and my mom put me on a low-fat diet. No more pizza and cheese steaks—now it was brown rice. But nothing made me feel better. My dad constantly told me to stop itching. Sometimes I would scratch my skin off.”

Ironically, Woody’s father also had PSC, and several years ago had been diagnosed with ulcerative colitis as well. “My dad was frequently sick, but he kept it under wraps and we didn’t talk about it,” recalls Woody. “I think perhaps he was in denial about my illness.” In March 2003, Jean had a liver transplant at University Hospital, performed by NJMS liver transplant surgeon Adrian Fisher, MD. Following his surgery, he had severe problems with organ rejection, followed by another serious setback: a brain aneurysm. He has recovered, but was unable to return to his work driving a cab. It was a rough road—and all he could do now was watch his son struggle with the same agonizing symptoms.

Woody enrolled at Rutgers in the fall of 2003. He went off to live in a dorm and do all the things college students do. Studying was a priority, because he hoped to attend medical school. But his PSC kept getting in the way. “I was in denial,” he says. “I tried to take care of myself, but when I didn’t eat right or got overtired, my gall bladder swelled like a balloon.” During these episodes he recalls having a high pain threshold. “If the pain didn’t go away in three hours, I’d go to the emergency room, get a shot of morphine, come back and sleep for a few hours, and then go to class.” However, he missed many classes and his schoolwork suffered as a result of his illness.

Woody’s life was a cycle of school and doctor’s visits as his health continued to deteriorate. In September 2004, he saw Dorian Wilson. At this point, his liver function was so poor that he was placed on the liver transplant list. “I was devastated,” he says. “I’m not one to cry, but I’d seen all the suffering my dad went through. I felt God was testing me to see if I could get through this.”

Woody tried to keep up with his classes, but his course load was particularly difficult. “I had a huge paper due on the same day as a doctor’s appointment. I blew off the doctor and stayed at school to



Woody Thelusma

write my paper.” His liver transplant coordinator called and told him to come to Newark immediately. “She said, ‘If you die, you won’t finish your papers anyway.’” That was a turning point. Woody made the difficult decision to withdraw from school and went home to wait for a donor liver. “My dad and I hung out together, but I felt he was avoiding me. If I walked into a room, he walked out. It was understandable—he was sad.”

Late the night of January 24, 2005 the call came. A liver was finally available. “It was the best thing that could’ve happened to me, but I didn’t want it,” he says. His father drove him to the hospital, so anxious that he drove through every red light and stopped at every green one. “At one point, my dad said to me, ‘If you don’t want to do this, it’s ok.’ But it wasn’t ok at all. I knew I’d die without this liver.”

Woody’s transplant was performed by Baburao Koneru, MD, chief of the Division of Transplantation in the Department of Surgery. His donor was a 39-year-old woman with two sons, one of them his age. “She saved my life,” he says soberly. Fortunately, his recovery was uneventful. “The first time I looked in the mirror after my surgery, I almost didn’t recognize myself,” says Woody. “My eyes weren’t yellow, and I wasn’t a puffy-faced kid anymore. I’d gone from looking like a boy to a man in three days.”

Woody returned to Rutgers and graduated with honors in spring 2008, going on to get his Master’s in Public Health in a program run jointly by UMDNJ and Rutgers. Now, he’s prepping for the MCATs and plans to apply to NJMS and other medical schools. “I’d like to stay in Newark near my family,” he says. “I have a strong feeling about being here. It’s where my life was saved.”

“Woody has been through so much,” says Wilson. “He is very smart, and I have no doubt he will achieve great things in medicine. I’ll look forward to calling him a fellow physician one day.” ●



ROBIN S. SCHROEDER, MD'86
ALUMNI ASSOCIATION PRESIDENT

Get in touch!

It is with great pride and pleasure that I embark on my term as president of the New Jersey Medical School Alumni Association. I have been on the faculty here at NJMS in the Department of Family Medicine for almost 15 years. In many ways, this has made it easy for me to be active with the Alumni Association. I realize that being involved with NJMS is much more difficult for most of you who are out there in the “real world” with challenges that are different from those of us in academia. A major part of our mission is “to support the needs of NJMS medical students with scholarship support and sponsorship of appropriate programs.” I am so grateful that I have been able to stay connected to the school because working with the NJMS students is the most rewarding part of what I do each day. They are truly remarkable, even for medical students! I will be asking you to get to know a student or two as we work to revitalize our alumni mentorship program.

Another aspect of the mission of the alumni association is “to further the interests of its members; to encourage closer relations between the alumni, the students, the faculty, and the administration of the medical

school.” This is one of my major goals for the next three years. Whether you graduated in the 60’s when we were Seton Hall, the 70’s when we were part of CMDNJ, in more recent years when some folks still did not know that UMDNJ–New Jersey Medical School is the medical school in Newark, or if you are still a student here, I want to know what we can do to help you feel connected to this school; the one that helped you get to where you are today. Sure, there were many hurdles through the years, but the bottom line is that the faculty at NJMS provides an outstanding medical education. I really want to know how to increase the pride and connection you feel toward your alma mater. I believe that I am well-suited for this task as I have had many roles here on campus that have allowed me to get to know basic science and clinical faculty, NJMS staff and administration as well as the UMDNJ leaders.

Recently, at the Alumni Reunion

Weekend, and particularly at the Gala on Saturday evening, I had a chance to reconnect with some of my classmates as we celebrated our 25th reunion. I wish that more of our class could have come because it felt so good to catch up with those that were there. It was also heartwarming to see graduates from other years, especially those from the 50th reunion class of 1961, come together as if no time at all had passed. They really know how to celebrate! Each of these classes has created an endowed scholarship and the competition to reach our goal is on!

I look forward to hearing from you. Tell me how we can build closer relationships with you. What has worked for you with other organizations/schools? Please, send me an e-mail schroers@umdnj.edu, call me (973-972-8219) or Dianne Mink in the Alumni Office (973-972-6864) or post a message on our Facebook page (Alumni Association –NJMS). Have a wonderful summer! ●



Clockwise top right: James Parisi, MD'61 dancing with Christine D'Aguillo, '14; Holly Buechel, daughter of Frederick Buechel, MD'72; Mr. and Mrs. Edward Reilly, MD'61



ANTHONY BERLET, MD'86

An Artist with a Scalpel

From rhinoplasties and complex construction to medical illustrations and art exhibits, this plastic surgeon creates beauty in and out of the operating room.

BY MARY ANN LITTELL

If Anthony Berlet, MD'86, approaches his specialty—plastic surgery—with the passion of an artist, it's because that's what he is. A trained architect, he specializes in the structure of the human body rather than a building. His creations are the planes of the face, the contour of a nose, the reconstruction of a breast following cancer surgery. His

materials are skin, bone and tissue; his tools are scalpels, clamps, lasers and probes.

Berlet talked about his work during a recent interview in his office. "I designed this space myself," he says, looking around the beautifully paneled room with satisfaction. Furnished with comfortable sofas and chairs, it's located in the heart of Cedar Grove, but looks like a cozy library in an English manor house.

His love of art goes back to early childhood. "At age 2, my mother said I drew a perfect Popeye," he laughs. However, coming from a long line of physicians, there was never much doubt that he'd become one too. He cites his maternal grandfather's influence: "He was raised in Boston, the son of immigrants. As a kid, he caddied for doctors and decided he'd rather be on the other side of the golf bag. Becoming a doctor was his way out of the depression."

His grandfather was "the typical general surgeon who took out a gall bladder, stitched up a cut and set a broken bone, all before lunchtime. His love of medicine influenced our entire family. He believed it was the only career worth pursuing." Berlet's father practiced urology in Hackensack.

As an undergraduate at the University of Pennsylvania, Berlet majored in architecture and took all the necessary pre-med courses as well. He and his twin brother Matthew, now an interventional radiologist in Florida, attended NJMS together, commuting daily from their home in Westwood. Following a general surgery residency at Philadelphia's Albert Einstein Medical Center and a fellowship in plastic surgery at NJMS, Berlet established his practice, specializing in a wide range of cosmetic and reconstructive procedures. He performs surgery at four New Jersey hospitals, including Hackensack, St. Barnabas, St. Joseph's and Chilton, where he does most of his cosmetic procedures, which he estimates as "90 percent of my practice, and getting higher. I also do many procedures right here in my office under local anesthesia."

The physician classifies plastic surgery into two types of procedures: those that can

be taught, which include the basics, like breast augmentation and tummy tuck; and the more creative three-dimensional ones, such as rhinoplasty and breast reconstruction and reduction. "My favorite procedures are rhinoplasty and cosmetic eye surgery, because there are many variations," he explains. "As the surgeon, you're shaping and molding a 3-D structure. It's like sculpting."

His creative juices continue to flow outside the operating room. He takes an orthopedic textbook from a paneled shelf and flips through the pages. It's full of medical illustrations he did himself. He's illustrated and written other medical books as well.

So well established are his artistic credentials that in 2009, Berlet was asked to curate an exhibition of plastic surgery: "I Am Art—An Expression of the Visual and Artistic Process of Plastic Surgery." The location was Apexart, a nonprofit New York gallery showcasing experimental art. As curator, Berlet selected his own work and that of three colleagues, including photos and videos taken before, during and after surgery. The exhibit was favorably reviewed in the *New York Times* by famed art critic Holland Carter, who won a Pulitzer the day the review ran in the newspaper. About the exhibit, Carter wrote: "I have no problem with accepting the work in 'I Am Art' as art. A thing of beauty is a joy, whether forever or for a day, and if a doctor-artist can turn you into one, that's art to me. And if he can rescue a body from serious ruin and a soul from despair, God bless him; he's as good as Michelangelo."

"I had no idea what I was getting into in curating this exhibit," says Berlet. "I had to develop the concept, do a lot of writing and organize it in an instructive way." Still, the experience proved to be a "great journey. Certain principles hold true for all design, whether you're making a dress, designing a house or doing a rhinoplasty."

When asked how he manages to achieve at such a high level in so many areas, the physician smiles. "I don't know," he says. "I wake up every morning with so many great ideas. I just want to make it all happen." ●

ROBERT L. JOHNSON, MD, FAAP '72

A New Dean, A New Beginning

BY JILL SPOTZ



How do you teach teenagers the critical skills necessary to become successful, thriving adults? This is a question parents can find themselves asking as they nurture a brooding, hormonal teenager through what can be difficult, volatile times. But what about inner-city, African-American teens, particularly boys, who face extraordinary challenges and obstacles to success? How do you convince them to make the right decisions? Robert L. Johnson, MD, FAAP, recently appointed The Sharon and Joseph L. Muscarelle Endowed Dean of New Jersey Medical School (NJMS), has the answers.

Johnson, who has been interim dean since 2005 and is a 1972 graduate of NJMS, loves teenagers. For more than four decades he has been treating and mentoring teens enabling them to navigate the labyrinth of obstacles presented by the inner city with its drugs, sexually-transmitted diseases, emotional pressures and influences. Board-certified in pediatrics, Johnson has focused on adolescent medicine from the beginning of his career. "The point at which I knew I wanted to go into pediatrics is one of my favorite memories from medical school," he recalls. A longtime associate, Elena Perez, MD, was pivotal. "At the end of my second year I went to work at Saint Michael's Medical Center as a clinical clerk. I was prepared to be assigned to an internal medicine floor but Elena, who worked at Saint Michael's at the time, said, 'I think you should go to pediatrics!' I loved it. Elena is still a close friend and colleague and at many points in my career we have worked together to build programs for adolescents and those with HIV."

The decision to focus on adolescents in particular was made over the kind of meal teens love: pizza. He recalls the moment as if it were yesterday, "I was having lunch with classmates at Tingerlings Pizza on Bloomfield Avenue when all of a sudden it hit me. I wanted a career in adolescent medicine. In retrospect, I think I always enjoyed working with teens. But while in medical school I was preparing to train in pediatric cardiology. I had already signed an agree-

ment with New York University (NYU) to pursue a fellowship in it.” Johnson immediately contacted NYU, informed them of his change of heart, and inquired about adolescent medicine, a new field where fellowships were few and far between. Luckily, one of these programs was also being offered at NYU.

Two years later, in 1976, after completing his fellowship, Johnson returned to NJMS as director of adolescent medicine at Martland Hospital, now University Hospital. “In those days, pediatrics ended at age 12 and teenagers were treated by internists,” he explains. “My charge was to expand pediatrics to include adolescents but I had to convince the hospital president and board of directors to transfer all the teen patients from the internal medicine floors to the pediatrics unit. Looking back, I don’t know how I was able to accomplish that task. The teenagers were getting into all sorts of trouble and we had to provide special training for the nursing staff just to handle them.” In the end, he was successful. Over the years, the Division of Adolescent and Young Adult Medicine (DAYAM) has grown tremendously. He is credited with bringing in millions of grant dollars to support its programs and services.

Johnson may be busy in his role as the eighth dean of the medical school but he still sees patients—lots of them. Four days-a-week, you’ll find him in clinics at University Hospital and the Doctor’s Office Center. Even adults in their 20’s and 30’s wait to be treated by him. Loyalty runs deep for these patients who were taken under his wing when they may have needed more than a physician to care for them physically. Johnson is the kind of doctor who takes the time to listen, to counsel and to mentor teenagers. As adults, these young people even have Johnson’s personal cell phone number and would never think of switching to another physician. They go only to “Doc.”

Colleague Paulette Stanford, MD, associate director of DAYAM, calls Johnson’s adult patients a “phenomenon,” and attributes this to his “always give 100 percent” attitude. She

Exciting Options for Researchers

Are you a faculty member ready to commercialize your discovery? Or would you like to explore opportunities you might have? If so, consider contacting Vince Smeraglia, Director of Patents and Licensing at UMDNJ, to talk about how to advance your goals.

Smeraglia might suggest introducing you to Reza Razavi, PhD, the Director of New Ventures and Strategic Initiatives at New Jersey Health Foundation’s affiliate Foundation Venture Capital Group, LLC, which invests in companies founded by or affiliated with UMDNJ faculty members. Since 2006, Foundation Venture has invested in seven companies, with commitments of up to \$500,000 each. Not only does Foundation Venture invest in companies, but it helps them advance their science as well as set up and initially manage their businesses.

Today, it holds investments in six of those companies. Interest in one company was sold after only 18 months to an international biotech company that is providing the researcher with additional funding needed by the company to bring its science closer to commercialization.

“The sale of Longevica Pharmaceuticals validated our initial premise...the value of forming and developing companies around the scientific activities of researchers at UMDNJ,” explained George F. Heinrich, MD, vice chair and CEO of Foundation Venture Capital Group.

For more information, contact Vince Smeraglia at (732) 235-9356 or smeragva@umdnj.edu or Reza Razavi at (908) 315-5868 or rrazavi@njhf.org to explore options. Or visit www.foundationventure.com to learn more.

has known the dean for more than 30 years and was the first fellow in the division hired by Johnson. “His dedication is one of the reasons why those adults continue to see him and why the division is as large and successful as it is today,” Stanford explains. In 2002, they co-authored a book titled *Strength for their Journey—Five Essential Disciplines African-American Parents Must Teach their Children and Teens*. Forty years of experience provided the backdrop for this anecdotal guide outlining the skills African-American children need to become competent, successful adults.

Johnson always practices the principles in his book. Going above and beyond treating a patient’s medical problem is only natural for him. When he answers that cell phone and it’s one of his patients in need of guidance, the caller will get the best of this “Doc.” He will learn critical skills for success in life about resisting peer pressure, setting boundaries, and maintaining positive physi-

cal and emotional health. Above all, Johnson will listen. In fact, what Johnson enjoys most is their sincere appreciation. “Teenagers are so appreciative when they finally have a chance to talk to someone who is really going to listen to them.”

One thing is certain: he is enthusiastically ready to lead the medical school in his new official role, a position he never anticipated when he first arrived at school in 1968. In a celebratory speech to the University community in May, Johnson called this point in his life, “a new beginning.” He believes, “All 128 medical schools in the United States are excellent and prepare students to become successful physicians. But NJMS has a stellar support system for students, offering both psycho-social and emotional support. Every faculty member is dedicated to the success of our students. Our clinical education is strong and students can transition to residency easily because they have experienced a wide range of clinical issues.” ●



GERARD FRANCISCO

Meet Gabby Giffords' Doctor

BY TRYON BALDWIN

His internship at NJMS–University Hospital prepared this brain injury specialist for almost anything but especially helping U.S. Congresswoman Gabby Giffords recover.

When Gerard Francisco, MD, learned that he'd be treating Representative Gabrielle Giffords (wounded by a mentally unstable gunman last January in a shooting at an Arizona grocery store), he was surprised, but not overwhelmed. "I've had high-profile patients before," he says, "but I thought her family would seek treatment closer to home." Perhaps Francisco, chairman and clinical professor of Physical Medicine and Rehabilitation at the University of Texas Medical School, and chief medical officer of the Brain Injury and Stroke Program at TIRR Memorial Hospital, in Houston (one of the premier brain-injury treatment centers in the country), is just too modest to admit the obvious: Giffords' family sought

the absolute best medical care they could get, and that fact made Francisco, and TIRR Memorial Hermann, a natural choice.

Francisco grew up in Quezon City, just outside of Manila, as one of three sons born to a lawyer mother and a father in politics. "He's kind of like a state senator," Francisco says. One of his brothers, a banker, lives in California; the other trained as a pilot before going into business in the Philippines. Francisco, however, knew from an early age that he wanted to be a doctor.

"I was very fortunate to be part of the first group of students admitted into the Integrated Arts and Medicine program at the University of the Philippines," he says. A combined undergraduate and medical curriculum, the program allowed Francisco to complete both his undergraduate and his medical education in seven years.

After receiving his MD in 1989, Francisco moved to Chicago in order to begin an internship at Michael Reese Hospital. At the time, Michael Reese was a major research and teaching hospital. It has since closed, due to financial difficulties. Francisco had planned to complete his internship there and then continue his studies in hematology and oncology at the University of Chicago, which was affiliated with Michael Reese then.

Six months into his internship, however, Francisco discovered that he was more interested in physical medicine and rehabilitation. "Luckily, there was an open spot at UMDNJ," he says. "And Dr. Delisa took me in." Joel DeLisa, MD, MS, NJMS professor, Department of Physical Medicine and Rehabilitation, is the founding director of the Kessler Foundation Research Center.

Francisco remembers his excitement on coming to UMDNJ. "I was very impressed with the University Hospital," he says. "Here was a Level 1 trauma center. They were treating traumatic brain and spinal cord injuries, and yet it was still a lively academic environment. The doctors were doing an excellent job in treating their patients, but they were just as committed to education and research.

"The breadth of the patients—the range and severity and chronicity of their conditions—was astounding," he adds. "That was my first exposure to patients with traumatic brain injury, and it really hit home for me that there was definitely a big role for physical and medical rehabilitation in helping these people recover. With proper treatment their complications decreased and their function improved. In a sense, it was taking the disabled and making them abled."

Francisco completed the residency program at UMDNJ–NJMS in 1994, and, after a postdoctoral fellowship at Baylor College of Medicine, he returned to New Jersey to take up the position of Director of the Brain Injury Program at Kessler Institute for Rehabilitation. After a year and a half at Kessler, he was recruited to TIRR Hermann, in 1997. "They lured me back to Texas," he says, though he's quick to add that Houston has its charms. "It's a big city with a small town feel. It's more laidback and the cost of living is a lot lower. It grows on you." The only thing he doesn't like is the heat. "But that's okay," he says, laughing, "because I don't work outdoors."

Francisco admits that treating Representative Giffords has come with its own set of challenges, though, of course, he can't discuss them due to doctor-patient confidentiality. When it comes to dealing with the media, however, he's a practiced hand: "I just try to be as truthful as possible, but I'm careful not to divulge too much information. It's a fine line you have to tread to be able to provide the appropriate information without violating privacy rules." Francisco will say, however, that Giffords is doing very well, and that he's proud of the work that he and his colleagues have done to enable her to attend the launch of her husband's space shuttle mission, last May.

"I'm very confident in what I do now because I feel like I've been well prepared for the responsibility," Francisco says. "Every day I'm grateful for the training I received at UMDNJ. Dr. DeLisa was a great mentor. And, he's remained my mentor, but he's also become a good personal friend." ●

1960'S

Daniel D. Cowell, MD'60 and his wife Diana are enjoying retirement as of July 2009, traveling, boating, beaching, relaxing and seeing family. They reside in South Bethany Beach, DE.

Joseph DeGross, MD'67 is still working 16 hours a week, as he cannot separate from this wonderful profession. Retired from teaching and full-time clinical practice, he enjoys golfing, bird hunting and fly fishing. He would like to hear from his classmates.

Charles R. Egoville, MD'66 has retired from practice and as chief of pulmonary medicine at Underwood Memorial Hospital, Woodbury, NJ.

Gerald S. Levey, MD'61 has "semi-retired" after almost 16 memorable years as Dean of UCLA's renowned School of Medicine and Vice Chancellor for Medical Science. He is using the time to write and recently completed his first work on leadership which will be published this year.

James (Jay) Phelan, MD'68 is still working part-time as a flight surgeon for NASA. He lives in Birmingham, AL, but splits work 95% to 5% between Russia and Houston.

Frank A. Mitros, MD'69 has begun phased retirement. He and his wife Monica have a daughter Therese who is researching plant genetics in Berkeley, CA; son Joe is finishing a residency in pathology, while son Chris is in a residency in emergency medicine. They recently welcomed their first

grandchild, Olivia, and reside in Iowa City, IA.

James P. Murphy, MD'66, MPH, has been practicing in Tamale, Ghana, West Africa, for the past four years.

1970'S

Thomas Dayspring, MD'72 received the Outstanding Speaker Award for 2010 from the American Association of Clinical Chemistry for a lecture on lipoproteins in Anaheim, CA.

Audrey Kriegman-Lintz, MD'76 is a senior medical director at Novartis Pharmaceutical Company in NJ.

Albert Ray, MD'70 is the owner and medical director of The Lite Center, Miami, FL.

1980'S

Allan Anderson, MD'83 is the new President of the American Association for Geriatric Psychiatry. He is Medical Director, The Samuel and Alexia Bratton Memory Clinic, Easton, MD.

Francine Peters Atterberry, MD'89 is practicing pediatrics in Los Angeles, CA.

Anthony J. Gagliardi, MD'81 has been appointed Chairman of the Department of Medicine at Saint Barnabas Medical Center, Livingston, NJ. He is responsible for more than 600 physicians in addition to practicing pulmonary medicine and will over-

In Memoriam...

The Alumni Association and the NJMS community extend deepest sympathies to the families and friends of:

Andre Louis Laz, MD'62, a resident of Naples, FL, died in December 2010 at the age of 74. He practiced internal medicine in Oxen Hill, MD, from 1969 to 1979 and continued his medical career at Naples Community Hospital in 1980 where he served as president of the hospital medical staff from 1990–1992; was the Florida governor of the American College of Physicians from 1998–1999, and appointed a member of the emeritus staff in 2004 for his many years of service. He is survived by his wife Peggy, sons Andre, Jr. and Vincent; daughters Melanie Wolz and Jeannine Hall; 7 grandchildren; 2 stepchildren and their 5 children.

Maurice Meyers, MD'60 passed away on May 6, 2011 at the age of 85. Dr. Meyers resided in Watchung, NJ, and was an attending physician at Muhlenberg Hospital in Plainfield for more than 40 years. He served during World War II and was awarded the American Theater Ribbon, European-African-Middle Eastern Ribbon, the Good Conduct Medal the Purple Heart and the Silver and Bronze Stars. In 2010, he was awarded the Insignia of the Legion of Honor, France's highest honor for his contributions to the liberation of France during World War II. He also authored Reflections on My War. He is survived by his wife, Ruth; son Marc, daughter Charna, and one grandson.

George Perez, MD'81, died on June 14, 2011, at Bayonne Medical Center after a long battle with cancer. He is survived by his wife, Dr. Lina Cambria and their two children, George Manuel and Maria Victoria, as well as a brother, Manuel.

see the Internal Medicine Residency Program. Dr. Gagliardi was senior vice president and chief medical officer at Saint Vincent's Catholic Medical Center of NY for 30 years.

Allan R. Tunkel, MD'84, PhD, has been elected Governor of the Southern New Jersey Chapter of the American College of Physicians.

1990'S

Louis LaLuna, MD'92 is the 2011 President of the Pennsylvania Society of Gastroenterology.

Stacey Longo, MD'93 is Chairman of the Department of Pathology and Laboratory Medicine for Raritan Bay Medical Center, Old Bridge and Perth Amboy Divisions in NJ.

Mohnish Ramani, MD'96 and wife Kruti welcomed their daughter Riya on May 22, 2010. Dr. Ramani practices orthopaedics in Edison, NJ.

2000'S

Wesley Liao, MD'07 finished an anesthesiology residency at Johns Hopkins in May 2010 and is now at Valley Hospital, Ridgewood, NJ.

Monifa Seawell, MD'08 was appointed Associate Editor for the 2011–2011 academic year for the *American Journal of Psychiatry's Residents' Journal* at Wayne State University in Detroit MI. Dr. Seawell is a resident in the Wayne State University School of Medicine Department of Psychiatry and Neurosciences.

Sindhu Srinivas, MD'00 is an assistant professor of obstetrics and gynecology at the University of Pennsylvania, Division of Maternal Fetal Medicine and is the High Risk Clinic Director.

Ricardo Verdiner, MD'02 writes that he is practicing in Suffern, NY. He and his wife were expecting their second son this past June.

Join the Alumni Association of New Jersey Medical School

General Dues	\$65.00
Resident in Training	\$15.00
Lifetime Membership	\$1,000.00

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The Lifetime Membership is being offered to our alumni as a means to perpetuate the goals of the Alumni Association and enable its members to sustain their support in a more meaningful way. All categories of membership will afford you the opportunity to keep connected with us. You will continue to receive all membership benefits, including NJMS *Pulse* magazine, information about upcoming events and reunions, and library privileges.

Alumni Association of NJMS, 185 South Orange Avenue, MSB-B504, Newark, NJ 07101–1709. Photos are welcome. You can also send your news via e-mail to: njmsalum@umdnj.edu or fax us at (973)972-2251.

Leaving a Mark Behind

How one family is giving back to their son's alma mater

BY DORIS CORTES-DELGADO

Attending medical school may be hard academically but paying for it may be even more challenging. Scholarships can keep students afloat.

Imagine being such a proud parent that you give back to your child's alma mater right away. Meet Joseph and Rita Weiner, parents of Joseph Paul, class of 2011. Joe is doing his preliminary internship year in internal medicine at Hahnemann Hospital in Philadelphia now but will move to a residency in radiation oncology at downstate SUNY in Brooklyn.

"Rita and I talked about what we could do to thank NJMS for giving our son the opportunity to become a doctor," says Joseph. "We have the means at the present time and what better cause than helping to make a difference?"

Rita has always said, "Let's give to something that we can see," so we decided to create a scholarship in the name of the Weiner family to give other students a chance," he continues. They started the scholarship in 2010 with a \$25,000 gift and have increased that amount to \$50,000.

Rita, a very spiritual person, says, "We have trained all four of our children to give back to the community. 'I believe when you cast your bread upon the waters it comes back to you.'"

The Weiners have been married for 40 years, reside in Franklin Lakes, and have three other children: Amy, a vice principal, Michele, a teacher, and Michael, a dentist. Joseph is a successful lawyer and Rita, a for-



mer art teacher. Their financial success makes it possible for them to donate money to many different causes. "There is a time in your life when you reap the benefit and you want to share it," says Rita.

Joseph arrived in this country in 1955 from Austria with his parents, who spoke only German. "I remember getting off the boat with one wooden suitcase my father made. It carried all of our worldly possessions," he recalls. "I still have that suitcase in my law office to remind me how I came to this country. I vowed that my children would have a better life and my grandchildren a much better life," he says.

Rita was the first in her family to graduate from college and taught art before leaving to raise her family. "Once the children were on their own, I was able to do my own things," she says. And she loves to volunteer. She recalls the September 11 tragedy and how angry she was. Her father, a World War II veteran, told her to join the Salvation Army because they had once given him a blanket and hope. "He told me, 'Stop having a pity party and go over there and do something about it.' And so with 'heart to God and hand to man,' she volunteered her

services by feeding and cooking for the workers. Rita realized that her volunteering in New York City has been cathartic for her spirit and soul.

Now, she is a volunteer guide for Tribute World Trade Center Visitor Center, doing four tours a month at the World Trade Center at Ground Zero.

The Weiners have both worked for Habitat for Humanity. They helped out there in New Orleans after Hurricane Katrina. "Our son Joe went down too when he got some free time and he worked really hard," Rita says. "Joe is not afraid to show compassion. He has seen me being affectionate with strangers ever since he was young so that is something he will do as a doctor."

"We would like to donate yearly to build up the scholarship fund, and once Joe becomes successful, then he can continue it," adds Joseph. "Rita often quotes a song, saying, 'Your greatest contributions are the ones you leave behind.'" ●

For information about contributing to a UMDNJ project, contact Elizabeth Ketterlinus at 973-679-4684, toll-free at 866-44-UMDNJ or email eketterlinus@njhf.org.



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