

nih record



ABOVE • Adventure in Science needs instructors who enjoy teaching children. See story on p. 2.

features

FDA's Long Campus Tenure Comes To an End 1

NHLBI Inspires Minority Students 3

Credit Union Gets New CEO 5

Pew Charitable Trusts Honor Two NIH Scientists 12

departments

Briefs 2
Digest 9

FDA Exits Campus This Summer After 73 Years

By Rich McManus

Owing to the Food and Drug Administration's decision to consolidate its operations at a sprawling new campus in White Oak, FDA's Center for Biologics Evaluation and Research (CBER) and Center for Drugs Evaluation and Research (CDER)—vestiges of which have lain at the heart of NIH's campus for 73 years—will abandon the Bldg. 29 complex this summer.

The 29 complex consists of three buildings—all of which are interconnected—located just south of the Clinical Center: Bldg. 29, built in 1960; 29A, built in 1968; and 29B, constructed in 1994.

The NIH facilities working group has decided that Bldg. 29 will remain vacant while the Office of Research Facilities studies the cost-effectiveness of renovation. Bldg. 29A will be used as swing space to facilitate ongoing renovations of Bldg. 10. And 29B, the newest wing, will be occupied by NICHD, NIAID and NIMHD.

The exit plans have nothing to do with the discovery in July of some 327 vials of infectious agents in Bldg. 29A; those were found as part of preparations to move out.

SEE FDA EXITS, PAGE 6



Bldg. 29 has long anchored the FDA presence on campus.

NIBIB Welcomes Next Generation of Bioengineering, Bioimaging Researchers

By Tom Johnson and Steven Krosnick

Better, faster, cheaper technologies to improve health was the theme echoed throughout the second annual NIBIB Nagy Symposium, which recognized eight outstanding first-time NIBIB independent investigators who received the Edward C. Nagy New Investigator Award.

The award is named after the late founding executive director of the Academy of Radiology Research. The innovative research presented reflected Nagy's tireless advocacy



Dr. Adam Cohen

SEE NAGY SYMPOSIUM, PAGE 10

'I See Something in You'

Building the Future Today: NIA Summer Internship Program

By Megan Homer

"How do we build the research pipeline?" It's a question critical to NIH's entire scientific enterprise. How do we excite and engage students to commit to a career in biomedical research? NIA's Intramural Research Program takes a "show-don't-tell" approach.

Now in its 22nd summer, NIA hosts an 8- to 10-week, hands-on research experience—the Summer Training in Aging Research Program—during which students from universities around the country experience the life of a scientist. Forty-three students participated this year; program organizers estimate that NIA has mentored more than 1,000 summer interns over the program's history.

"Our program attracts a diverse group of applicants. We have students in high school and col-

SEE SUMMER INTERNS, PAGE 4



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NIH...Turning Discovery Into Health

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'Adventure in Science' Seeks Teachers

Adventure in Science (AIS), a nonprofit science education program for children, is planning its 22nd year at NIH and is looking for volunteer teachers. The program, which meets on Saturday mornings October through March in Bldg. 10, is designed to show 8- to 11-year-olds the fun of science using hands-on activities—from building (and launching) model rockets to dissecting frogs.

AIS teachers are mostly volunteers from the NIH community, from postdocs to institute directors. This is a great opportunity to exercise your teaching skills with an enthusiastic audience. You can volunteer for only one Saturday or for several. More information about teaching in AIS can be found at www.adventureinscience.org in the section "About Us."

If you are interested in volunteering, contact Vathani Arudchandran (Arulvathani.Arudchandran@fda.hhs.gov), Udayan Guha (udayan.guha@nih.gov) or Ed Max (edward.max@fda.hhs.gov). Enrollment is currently full for children in the program beginning in October. Registration for the following year's program will open next spring and will be announced on the web site.



Above, AIS instructor Rebecca Burgess demonstrates the procedure for staining one's own cheek cells. Below, Farhoud Faraji (l) and Kyle Newby examine the DNA Kyle has prepared from his own cells.

PHOTOS: DA ZHAO



NIDDK Program Offers 'Step Up'

Participants from NIDDK's Short-Term Research Experience for Underrepresented Persons (STEP-UP) stand together during the program's annual campus visit. STEP-UP seeks to increase participation of students from backgrounds underrepresented in biomedical research on a national basis. The 2014 cohort includes 11 Native American students—more than any other year.

PHOTO: ERNIE BRANSON

ORWH Offers Online Sex/Gender Science Class

The Office of Research on Women's Health announces its third course in the Science of Sex and Gender in Human Health series. Learn how differences between women and men influence disease manifestation, treatment and outcome. This is the newest CME/CNE/CPE course offering in a series developed by ORWH in collaboration with the Food and Drug Administration's Office of Women's Health. The series, designed primarily for researchers, clinicians, educators and students in medical, pharmaceutical and nursing schools, is offered online at no cost and is open to the public. Learn more at <https://sexandgendercourse.od.nih.gov/>.

International Career Event Scheduled, Sept. 9

The 9th International Opportunities Expo and career event, sponsored by the visiting fellows subcommittee of the NIH fellows committee (FelCom), is scheduled for Tuesday, Sept. 9 in the FAES Education Center, Bldg. 10 from noon to 4:30 p.m. Fellows can meet and network with science and technology representatives to explore research, funding and international careers. Representatives from embassies, funding agencies and globally minded science and health organizations will be on hand to answer questions. For more information, visit https://www.training.nih.gov/international_expo_2014.

Medoff-Cooper To Give NINR Director's Lecture, Sept. 16

Dr. Barbara Medoff-Cooper will deliver the second of two 2014 NINR Director's Lectures on Tuesday, Sept. 16 from 10:30 to 11:30 a.m. in Natcher Bldg., Balcony C. In her talk, "Innovations in High-Risk Infant Care: Creating New Pathways," she will discuss her research on infant development, feeding behaviors in high-risk infants, infant temperament and developmental care of infants with complex congenital heart disease.

Medoff-Cooper, a professor at the University of Pennsylvania School of Nursing, is inter-



Dr. Barbara Medoff-Cooper

nationally recognized for her research, which she has applied to the development of strategies and technologies to improve outcomes for infants. She co-invented Neonur, a patented feeding device to assess feeding behaviors during infancy that has been used in various funded research projects

both nationally and internationally. Medoff-Cooper partnered with a small technology company to develop a home monitoring program to improve outcomes for neonates with complex congenital heart disease.

At Children's Hospital of Philadelphia, she collaborated with the nursing staff of the cardiac intensive care unit to launch weekly developmental care nursing rounds for families of infants with complex congenital heart disease after neonatal heart surgery.

The lecture is part of the NINR Director's Lecture series, which is designed to bring the nation's top nurse scientists to the NIH campus to share their work and interests with a transdisciplinary audience.

For details, visit www.ninr.nih.gov/directors_lecture.



Tougaloo College students (from l) Courtney Mangum, Rae'Jean Spears and Michael Cleveland meet with Michele Allen, lab manager of NHLBI's Murine Phenotyping Core.

NHLBI Inspires Next Generation of Minority Doctors, Researchers

"In the face of adversity, you must have faith and commitment to succeed," said Dr. Gary Gibbons, director of the National Heart, Lung, and Blood Institute to a group of 12 students from Tougaloo College in Jackson, Miss.

Gibbons welcomed the students, who are part of a Jackson Heart Study training program, at the start of their 2-day visit to NIH. He advised the students to work with passion and to surround themselves with mentors and advisers who can provide guidance.

The students asked Gibbons how he managed to stay committed during times of struggle. He opened up to the group with a story about his mother.

"I was raised by someone who faced all of the adversity you could imagine," he said. "Whenever I got feelings that life had thrown too much at me, I looked at her."

Tougaloo student Breland Crudup said he was inspired by Gibbons' journey and his words of encouragement; one day he hopes to intern at NIH.

"He made a place as large as the NIH seem personable," said sophomore Jessica Torres. "This is where I want to be."

The students' visit included tours of the National Library of Medicine, the Clinical Center and NHLBI's Center for Molecular Medicine. In addition, the visitors heard presentations from leading experts who described current projects underway at NIH. Dr. Danielle Springer also welcomed the students into her lab, the Murine Phenotyping Core, where they were able to see research with mice, talk to lab members and learn about state-of-the-art equipment.

Students also heard from career advisers, alumni and current interns from NIH—all offering advice about preparing for the future.

The Jackson Heart Study is a collaborative effort involving Jackson State University, Tougaloo College and the University of Mississippi Medical Center. The program receives support from NHLBI and NIMHD. The purpose of the program is to train minority students, especially African Americans, to carry out medical research studies such as the Jackson Heart Study.



Washington University, a women's undergraduate college in Washington, D.C., and 2002 NIA summer internship program alumnus.

Moss reflected fondly on her experience at NIA working in Evans' laboratory. She recalled being encouraged to apply to the program as an undergraduate in biology at the University of Maryland, Eastern Shore, by a professor who would become an important mentor in her career. She didn't have much lab experience at the time; the internship, she said, cultivated her love of critical thinking and investigation.

Following her undergraduate degree, Moss received a Ph.D. in biomedical sciences: biochemistry and cancer biology from Meharry Medical College. Now teaching biology and biochemistry at Trinity College, her professorship is designed specifically to keep women in science, technology, engineering and math.

Moss feels a strong responsibility to mentor future women researchers. In that capacity, she guided two of her students to participate in this year's summer program at NIA. She said her favorite thing is to say, "I see something in you and I want to develop it..." If she had to wrap up her advice in one sentence, it would be, "Your future started yesterday."

The NIA summer intern program is beginning to see some exciting indications of success—a second generation of interns. This year, Luis Salcido Holguin, son of 1998 alumnus Elsa Rodriguez-Roth, participated in the program.

"Not only is the NIA internship program building the pipeline of new investigators, but it's developing ambassadors to our program," said Evans. "Our hope is that these interns will continue with aging research and, once established, will begin to pay it forward for other students with an interest in science."

In order to showcase summer program alumni who have gone on to accomplish their professional goals, NIA will be launching an NIA Alumni Summer Student Seminar Series; Moss will return as the first speaker.

Those wishing to participate in the NIA summer internship program may apply beginning in mid-November through Mar. 1; use the central NIH summer internship program site www.training.nih.gov. Applicants who express an interest in aging in their cover letter or select NIA as their institute of choice will be directed to NIA. 

SUMMER INTERNS

CONTINUED FROM PAGE 1

Above:
NIA summer interns gather for a photo.

lege, as well as medical school and graduate programs," said Arlene Jackson, NIA recruitment specialist and co-leader of the NIA summer internship program. "Some of the undergraduates are pre-med, others primarily interested in working at the bench. Many of the students are undecided. Not all have a specific interest in aging, but they all display enthusiasm and an open mind to learning more about the field."

Interns are not just pouring gels and inputting data. They work side-by-side with intramural investigators and postdoctoral fellows to answer original research questions. For many, the ability to move beyond just replicating standard protocols in their school labs reinforces their desire for a career in science. Participants also value the opportunity to establish a close-knit relationship with an NIA senior scientist/mentor. Some interns may even have the chance to co-author a journal article, as has been the case the past several summers.

"We encourage our IRP scientists to have interns develop and test their own research questions, so that they can have a sense of ownership of their work," said Jackson. "We want them to feel that they are an important member of the lab."

The NIA program culminates each August with a day-long poster session, co-hosted with the National Institute on Drug Abuse summer program. During the poster session, interns present their research to NIA and NIDA scientific leadership and their peers. It's an opportunity for the interns to demonstrate their communication skills as well as show their new knowledge in aging research.

"The poster session is a chance for us at NIA to witness the exhilaration and wonder of biomedical discovery through the eyes of summer students," said Dr. Michele Evans, NIA deputy scientific director and co-leader of the NIA summer internship program. "It's amazing to see, firsthand, these young adults start to emerge as professional scientists."

This year's poster session featured a keynote talk by Dr. Patrice E. Moss, Clare Boothe Luce assistant professor of biochemistry at Trinity

NIA Interns Excel

Winners of NIA's Barbara A. Hughes Award of Excellence at 2014 poster day are:

Eric D. Sun, a sophomore at Pueblo West (Colo.) High School, who worked in the Laboratory of Genetics under the mentorship of Dr. Ilya Goldberg

Rajiv S. Deshpande, a freshman at Johns Hopkins University who worked in the Laboratory of Clinical Investigation under the mentorship of Drs. David Reiter and Richard Spencer

Abraham D. Killanin, a junior at Yale University who worked in the Laboratory of Epidemiology and Population Sciences under the mentorship of Drs. Alan Zonderman and Michele Evans

Annie Yang, a freshman at Dartmouth College who worked in the Laboratory of Cardiovascular Science under the mentorship of Drs. Li Lin and Yunqian Peng.

Wieczorek Named Credit Union CEO

Rick Wieczorek has joined the NIH Federal Credit Union (NIHFCU) as its newly appointed chief executive officer.

With over 30 years of experience in the credit union industry, Wieczorek (Wiz-OAR-ek) previously held senior leadership positions with Northwest Federal Credit Union in Northern Virginia, the U.S. Naval Research Laboratory Credit Union and the Mid-Atlantic Federal Credit Union.

"I'm very passionate about credit unions because of what they represent," he said. "They

are not-for-profit and were created in 1934 during the Great Depression to make credit available and promote thrift throughout a national system of democratically run cooperatives."

Since 1940, NIHFCU has served NIH employees and their families. With 9 branches and more than 40,000 members, it expanded its

charter in 2010 to offer membership eligibility to employees, contractors and self-employed workers in the biomedical and health care industries in Maryland, Virginia, Washington, D.C. and West Virginia.

Wieczorek joins NIHFCU to spearhead strategy across its portfolio of products and services. On Aug. 22-24, the credit union moved its core system to a new data center with enhanced infrastructure and support. Also in the pipeline are projects to reduce the time it takes to approve loans and enhanced access of accounts using smartphone technology. Earlier in August, NIHFCU opened a new branch at the NIAID Bldg. on Fishers Ln. in Rockville, providing additional banking convenience for the NIH workforce in this location.

"I've always had a natural interest in medicine," Wieczorek says. "And there's a scientific, methodical approach for looking at finance."

There's also a philosophical approach for looking at finance.

"A bank's goal is to increase the wealth of its investors; the shareholders own the bank. A credit union's charter, on the other hand, is

designed to return the bulk (although not all) of its profits to the members." The remaining profits are retained to help weather challenging economic times such as the recent recession.

"When you become an NIHFCU member—with an initial deposit of \$25—you also become an owner," Wieczorek explains. "We want to make sure the NIHFCU is there when our members need us, to be a stronger presence on campus, to make it easier to get loans and other services."

When he first met the NIHFCU board of directors, he says, "I was impressed by how much they care and the amount of time they volunteered to the credit union...It is this type of commitment that has enabled our industry to exist over the past 80 years.

"I want to make sure we create a feeling that this truly is the members' credit union, that they can trust us. This is our social currency. If you haven't used the credit union yet, check it out."

For more information on membership products and services, visit www.nihfcu.org. —Belle Waring



NIHFCU CEO Rick Wieczorek



Pediatric Sibs Go Behind the Scenes

The 7th annual Sibling Day, held at the Clinical Center and the Children's Inn, offered brothers and sisters of pediatric patients a behind-the-scenes look at medical research. Hands-on activities took place in the operating room, mock MRI scanner and in a lab setting, along with therapeutic games and art and music activities at the inn. The event is a collaborative effort and helps to provide siblings of pediatric patients special recognition for the important role they play in their siblings' lives as part of the health care team.

PHOTOS: MARIA MASLENNIKOV



Katz Honored by Austrian Dermatology Society

NIAMS director Dr. Stephen Katz (l) has been awarded the Austrian Society of Dermatology and Venereology Gold Medal, the highest honor given by this society, for "excellent scientific or practical contributions in the field of dermatology or venereology." This award is made only every 2 to 3 years. The society's president, Prof. Erwin Tschachler (r), presented the medal to Katz recently at the Austrian ambassador's home in Washington, D.C. Tschachler said the award honors "a person who has given outstanding contributions to the development of dermatology/venereology and who is seen by our society as a signpost for the younger generation."

From 1:

The CBER mural is “hiding in plain sight” in the lobby of Bldg. 29A, said FDA’s Dr. John Finlayson. It recounts scientific highlights and center leadership.

Finlayson (r) meets with FDA microbiologist Dr. Mike Schmitt in a first-floor laboratory in Bldg. 29. Finlayson occupied the same lab half a century ago.

PHOTOS: ERNIE BRANSON, RICH MCMANUS



FDA EXITS

CONTINUED FROM PAGE 1

Both 29 and 29A, originally referred to as the Center for Biologics Annex, have been determined eligible for listing in the National Register of Historic Places. They not only hosted the research labs of illustrious NIH women scientists such as Dr. Margaret Pittman and Dr. Ruth Kirschstein, but also were the only facilities in the U.S. dedicated to the regulation of biological medicines.

“Presently, the Office of Research Facilities is developing a more detailed housing plan for

29B as well as a list of key repairs to conduct in both 29A and 29B prior to occupancy,” said Dan Wheeland, ORF director.

There may be no one better qualified to comment on FDA’s exit than Dr. John Finlayson, who arrived at NIH in October 1958 as a biochemist, before ground for Bldg. 29 was broken, and spent his entire 56-year career on campus.

“It really looked like a college campus,” he said. It was taboo back then to use such a word: “This

What Makes a Building Historic?

Built in 1960 for NIH on grounds formerly belonging to the original Woodmont Country Club, Bldg. 29—first called the Biologic Standards Laboratory Bldg.—is nationally significant to the history of science, according to Phillip Neuberg, NIH historic preservation officer.

“Some of the nation’s most illustrious scientists worked in this building’s laboratories, first for NIH and later for the Food and Drug Administration,” said Neuberg. “[The roster] reads like a who’s who of 20th century science—Margaret Pittman, Ruth Kirschstein, Harry Meyer, Jr. and Paul Parkman.” This legacy has made the building eligible for the National Register of Historic Places.

Kirschstein, the first female director of an NIH institute (NIGMS) and later both NIH deputy director and acting NIH director, spent her early scientific career working in 29. She tested the safety of viral vaccines for polio, measles and rubella. From 1957 until 1972, she was a researcher in experimental pathology at what was then NIH’s Division of Biologics Standards.

Pittman, NIH’s first female lab chief, was noted



On hand at the dedication of Bldg. 29 were the King (seated, l) and Queen (seated, r) of Thailand, Surgeon General Leroy Burney (seated, c) and, at the podium, DBS director Dr. Roderick Murray. King Bhumibol had been invited because of his active role in health measures in his own country and his interest in the South East Asia Treaty Organization-NIH Cholera Research Project.

PHOTO: ROBERT PUMPHREY

for having first identified the cause of whooping cough. She was considered an expert in the development and standardization of bacterial vaccines. She worked on improved vaccines for pertussis, typhoid and cholera, among others.

is *not* a campus, but a government reservation!” Finlayson mock-thundered. He recalled a more pastoral day when lunch-time walks near a willow-lined brook that ran by Bldg. 21 “restored your soul if your experiments failed. Of course nowadays the campus resembles something between Manhattan and an armed camp.”

Finlayson, who considered his PHS posting to NIH tantamount to being ordered “you will report to duty in heaven—for a biochemist, there was no better place in the world,” spent 14 years in the Division of Biologics Standards (DBS) before becoming, overnight, an FDA employee on July 1, 1972, when DBS joined FDA. Although he retired in 2004, he has volunteered part-time at FDA ever since.

“FDA is so [culturally] intertwined with NIH that it’s almost like Greek mythology, where the son gives birth to the father and vice versa,” he observed. Collaborations between scientists at both agencies have been robust, he said, some even pre-dating scientists’ arrival at either NIH or FDA.

Finlayson’s most enduring cross-agency partnerships included those with NCI’s Dr. Michael Potter—the two worked together from 1960 to 1975—and NHLBI’s Dr. John J. Pisano, whom he knew in graduate school; the two collaborated from 1968 to 1978.

Parkman worked with Meyer on the problem of rubella. In 1967, they developed the first easy-to-use test for rubella antibodies. In 1969, the first rubella vaccine (based on their weakened virus strains) was licensed for commercial production, ending large rubella epidemics in the U.S. It later became part of the combined measles, mumps and rubella vaccine that essentially eradicated indigenous rubella in the U.S.

Bldg. 29’s architect was Ted Englehardt, who is perhaps best known for designing buildings on the University of Maryland College Park campus and Montgomery County fire stations, in which he relied heavily on a traditional Colonial revival style, Neuberg said.

“Unlike the aforementioned designs, Englehardt’s design for [Bldg. 29] employs a chaste, practically detail-devoid aesthetic that clearly reflects an economy of both purpose and budget which was likely to have been a requirement of both the client...and the users.”

The principal occupants of Bldg. 29A since its opening in the late 1960s have been the Division of Virology and the Division of Control Activities (known in later years as the Divi-



Finlayson said the “mass transfer” of about 300 DBS employees from NIH to FDA in 1972, accomplished with the stroke of a pen, required a modification of mindset.

“There was a time of suspicion,” he recalls. “The NIH people thought of FDA as just badge-and-gun people. People at FDA considered NIH a bunch of longhairs and consultants to industry. There was a gradual development of mutual respect.”

Finlayson still remembers the dedication of Bldg. 29 on June 30, 1960, when King Bhumibol of Thailand and his wife the Queen presided over a ceremony that also included the surgeon

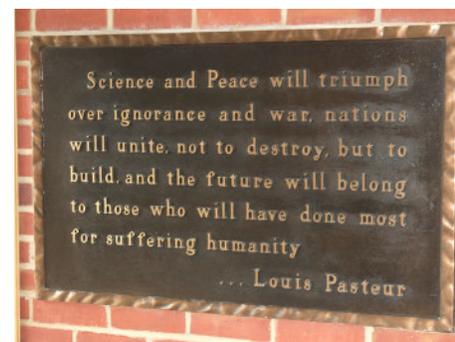
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sion of Product Quality). Dr. Lewellys F. Barker conducted notable research into vaccinia and hepatitis B in 29A. Dr. Gerald Quinnan’s research in the same building contributed significantly to our understanding of varicella (chicken pox virus), influenza, RSV (respiratory syncytial virus, a cause of bronchitis in children) and CMV (cytomegalovirus, a herpes virus that can be serious in certain patient populations). Dr. Paul Albrecht’s work also led to a much greater understanding of measles and its treatment. Dr. Kathryn Zoon, now with NIAID, studied interferons in her laboratory in 29A and later became director of the Center for Biologics Evaluation and Research.

Bldg. 29A also represented a new approach of modular flexible laboratories. The design provided larger structural bays, with multiple lab modules, which could be reconfigured easily as research studies change. Utilities such as heating, ventilation and air conditioning, gases and filtering were located in a way allowing easy access for alterations and maintenance.

Above:
Bldgs. 29A (l) and 29B—these newer wings will be occupied by NIH’ers soon.

Below:
This quote from Louis Pasteur adorns the entryway to Bldg. 29.



CONTINUED FROM PAGE 7

Right:

Finlayson considered his PHS posting to NIH tantamount to being ordered “you will report to duty in heaven—for a biochemist, there was no better place in the world.” He spent 14 years in the Division of Biologics Standards before becoming an FDA employee on July 1, 1972, when DBS joined FDA. Although retired since 2004, he has volunteered part-time at FDA ever since.

general. Finlayson, who had been in Bldg. 8, moved into a first-floor laboratory in Bldg. 29 and remained in the building for more than 45 years, retiring as associate director for science, Office of Blood Research and Review.

Although Finlayson will not transfer to White Oak—he made July 4 his exit date—he said his fellow FDA scientists “will miss the NIH culture. My colleagues are only at the beginning stage of realizing how much they will miss it...The lab people would just as soon never move, but they’re good soldiers and they’ll go.”

Finlayson taught biochemistry for 25 years at NIH’s Foundation for Advanced Education in the Sciences and noted that other FDA faculty may have to sever ties with FAES.

His long tenure on campus has given him a “worm’s eye view” of multiple reorganizations and upheavals at both FDA and NIH over the years—he can spin fascinating tales of personnel crises and knows where many a body is buried. “There’s an old proverb,” he says. “Reorganization is a way of life in government.” This is simply the latest iteration.



FDA Colleagues Unite One Last Time On Campus

Hundreds of colleagues from FDA’s Center for Biologics Evaluation and Research and Center for Drugs Evaluation and Research gathered at a June 27 picnic to celebrate their many years of collaboration on the NIH campus before their impending move to new FDA buildings in White Oak.

Many are excited about the move. They’re looking forward to working in a new building where the labs have windows. Soon, they’ll be consolidated with other FDA colleagues and form new partnerships. But they also admit they’ll miss their NIH colleagues.

“It was the best of all possible worlds here,” said Dr. Amy Rosenberg, director of FDA’s Division of Therapeutic Proteins. At NIH, she said, her team could focus on the science and not be burdened with politics, which let them efficiently carry out their regulatory work. She hopes her team carries that experience to White Oak.

“NIH offered great accessibility for cutting-edge science, technology and collaboration,” she said. “We hope to maintain contacts with interest groups here.”

Jean Manirarora, a postdoc contractor, said he’ll miss the NIH immunology working group but hopes to keep in touch and continue to share research.



FDA employees gather on the lawn of the Bldg. 29 complex to enjoy a last-hurrah picnic on June 27. A new campus awaits them in White Oak, Md.

Some lamented having to adjust to a new commute. Dr. Mark Weinstein, associate deputy director, Office of Blood Research, worked on campus for 12 of his 21 years at FDA. He lives just across the street from campus and said the biggest thing he’ll miss is walking to work.

Dr. Marian Major, an FDA lab chief who worked on campus for 18 years, said she’ll also have a much longer commute. She’ll miss her campus colleagues, she said, but hopes NIH and FDA connections continue. “Maybe if people are apart, they’ll make even more of an effort to connect with each other.”

On a sunny afternoon, colleagues chat-

ted and reminisced on the Bldg. 29 lawn, while banjoist Jim Rice (formerly of FDA) and guitarist/singer Wayne Lininger played bluegrass music. Rice was a key member of the now dispersed musical group The Bldg. 6 Boys, who played at many an NIH holiday party.

“I’ll miss everything,” said Dr. Karen Elkins, an FDA lab principal investigator. “This is a premier scientific environment; it’s impossible not to miss that and the luxury of great collaborations and support. This was a great facility for us for 73 years and that’s a tough act to follow.”—Dana Steinberg

Bioengineers Create Functional 3D Brain-Like Tissue

Bioengineers have created three-dimensional brain-like tissue that functions like and has structural features similar to tissue in the rat brain and that can be kept alive in the lab for more than 2 months.

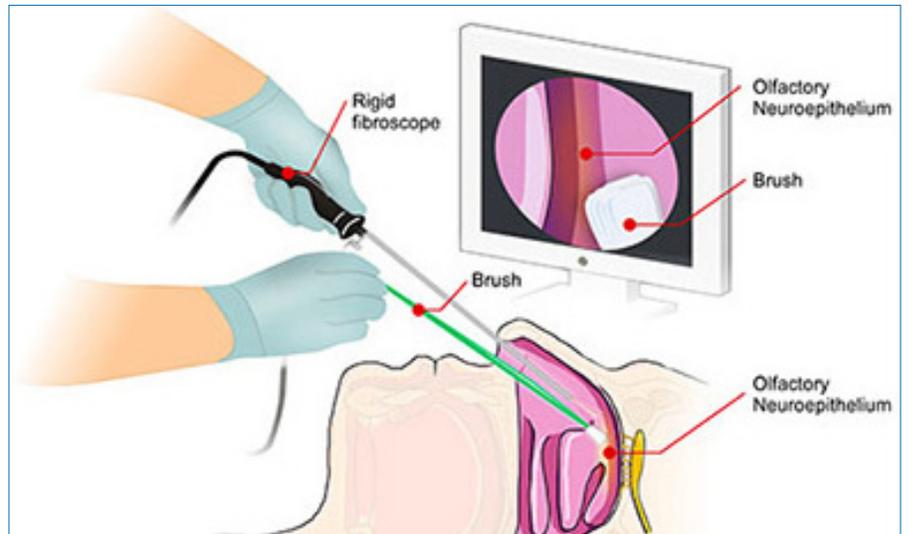
As a first demonstration of its potential, researchers used the brain-like tissue to study chemical and electrical changes that occur immediately following traumatic brain injury and, in a separate experiment, changes that occur in response to a drug. The tissue could provide a superior model for studying normal brain function as well as injury and disease and could assist in the development of new treatments for brain dysfunction.

The brain-like tissue was developed at the Tissue Engineering Resource Center at Tufts University, which is funded by the National Institute of Biomedical Imaging and Bioengineering. Study results were reported in the Aug. 11 online edition of the *Proceedings of the National Academy of Sciences*.

“This work is an exceptional feat,” said Dr. Rosemarie Hunziker, program director of tissue engineering at NIBIB. “It combines a deep understanding of brain physiology with a large and growing suite of bioengineering tools to create an environment that is both necessary and sufficient to mimic brain function.”

The key to generating the brain-like tissue was creation of a novel composite structure that consisted of two biomaterials with different physical properties: a spongy scaffold made out of silk protein and a softer, collagen-based gel. The scaffold served as a structure onto which neurons could anchor themselves and the gel encouraged axons to grow through it.

“With the system we have, you can essentially track the tissue response to traumatic brain injury in real time,” said a Tufts scientist. “Most importantly, you can also start to track repair and what happens over longer periods of time.” Hunziker added, “Good models enable solid hypotheses that can be thoroughly tested. The hope is that use of this model could lead to an acceleration of therapies for brain dysfunction as well as offer a better way to study normal brain physiology.”



Nasal brushing procedure quickly diagnoses CJD.

NIH, Italian Scientists Develop Nasal Test for Human Prion Disease

A nasal brush test can rapidly and accurately diagnose Creutzfeldt-Jakob disease (CJD), an incurable and ultimately fatal neurodegenerative disorder, according to a study by NIH scientists and their Italian colleagues.

Up to now, a definitive CJD diagnosis required testing brain tissue obtained after death or by biopsy in living patients. The study describing the less invasive nasal test appeared in the Aug. 7 issue of the *New England Journal of Medicine*.

CJD is a prion disease. These diseases originate when, for reasons not fully understood, normally harmless prion protein molecules become abnormal and gather in clusters. Prion diseases affect animals and people. Human prion diseases include variant, familial and sporadic CJD. The most common form, sporadic CJD, affects an estimated 1 in 1 million people annually worldwide. Other prion diseases include scrapie in sheep; chronic wasting disease in deer, elk and moose; and bovine spongiform encephalopathy, or mad cow disease, in cattle. Scientists have associated the accumulation of these clusters with tissue damage that leaves sponge-like holes in the brain.

“This exciting advance, the culmination of decades of studies on prion diseases, markedly improves on available diagnostic tests for CJD that are less reliable, more difficult for patients to tolerate and require more time to obtain results,” said NIAID director Dr. Anthony Fauci. “With additional validation, this test has potential for use in clinical and agricultural settings.”

Year-Round Preventive Treatment Reduces Malaria Risk in Young Children

A year-round preventive drug treatment substantially reduces young children’s risk of contracting malaria and poses no serious risk of adverse events, according to a study by researchers funded by NIH.

The findings demonstrate that prolonged treatment given from 6 to 24 months of age is safe and effective for young children, according to the study authors. Year-round preventive measures are badly needed in locations like Uganda, where the study took place, and where malaria rates remain high throughout the year.

Most previous studies using drug treatment to prevent malaria have been limited to areas where there is only a seasonal risk of the disease, during the rainy season, when most malaria episodes in children occur. In those studies, preventive drug treatment was given for only a few months at most. The current study demonstrated that continuous preventive treatment can substantially reduce malaria transmission to infants, who are at greatest risk of severe malaria and death. The researchers published their findings online in *PLOS Medicine*. 🔗



NAGY SYMPOSIUM

CONTINUED FROM PAGE 1

Above, l:

Seated are Nagy awardees (from l) Shaochen Chen, Peter Kuchunov, Quyen Nguyen and Jan Grimm. Standing are Nagy awardees (from l) Omid Farokhzad, Paul LaBarre and Adam Cohen; NIBIB director Dr. Roderic Pettigrew; Nagy awardee Thomas Royston; NIBIB division director Dr. Christine Kelley; and NIBIB program director Steven Krosnick.

Above, r:

Dr. Bruce Tromberg of the University of California, Irvine, gave a keynote address at the Nagy symposium on *Engineering Medical Optics from Benchtop to Bedside*.

PHOTOS: ERNIE BRANSON

and vision for the creation of NIBIB, an institute to foster the development of state-of-the-art medical technologies that would support biomedical research across NIH.

The investigators described a range of cutting-edge technologies that included fluorescent imaging to guide nerve-sparing surgical procedures, optical imaging of neurological networks to develop treatments for neurodegenerative disorders and 3D printing of artificial organs for cheaper, faster and more accurate drug toxicity screening.

NIBIB director Dr. Roderic Pettigrew and Dr. Christine A. Kelley, director of NIBIB's Division of Discovery Science and Technology, presented the Nagy investigators with their awards at the recent symposium in Lister Hill Auditorium. All supported by NIBIB, they include Shaochen Chen, University of California, San Diego; Adam Cohen, Harvard University; Omid Farokhzad, Brigham and Women's Hospital; Jan Grimm, Memorial Sloan-Kettering Cancer Center; Peter Kochunov, University of Maryland; Paul LaBarre, PATH, Seattle; Quyen Nguyen, University of California, San Diego; and Thomas Royston, University of Illinois at Chicago.

A number of presentations described novel yet diverse technologies to directly address clinical needs with the potential to significantly improve clinical care and outcomes.

One awardee is working on a method for complete removal of a tumor without damaging surrounding tissues—a formidable challenge for cancer surgeons.

Nguyen described her work using fluorescently labeled probes for imaging nerves during surgery. In particular, nerves and their branches that course through or near the parotid and prostate glands can be particularly difficult for surgeons to separate from tumors in these glands. Labeling these nerves with

fluorescent probes will allow surgeons to perform intricate dissections and more adroitly separate tumor from critical nerve connections. The technology may also be applicable to guiding the repair of peripheral nerves damaged by trauma. For this work, Nguyen received a Presidential Early Career Award for Scientists and Engineers from President Obama in 2013.

Learning to listen to and understand chest sounds is extremely challenging for clinicians early in training; appreciation of subtle sounds can be subjective. As part of the Audible Human Project, Royston is developing better methods to characterize, record and stimulate the type of lung sounds clinicians hear through a stethoscope. He is attempting to improve the stethoscope from a qualitative, skill-dependent tool to a quantitative, automated device that could be used as part of mHealth and home monitoring, as well as by health professionals.

Adapting modern technologies for use in low-resource settings is important to NIBIB. LaBarre, a bioengineer at the international non-profit Program for Appropriate Technology in Health, is leading a project to develop a DNA amplification point-of-care device that does not require electricity or a battery pack. His group has developed an inexpensive device for use in low-resource settings to detect HIV in the early stages of infection so treatment and preventive measures can begin immediately. A prototype is currently being tested in India, Kenya and Zambia. An offshoot of this molecular diagnostics technology is a rapid low-cost method to detect *Salmonella enterica* in agricultural settings.

Several of the Nagy awardees featured sophisticated technological developments designed to allow the study of complex biological systems with the potential for eventual application to difficult biomedical challenges and major health problems.

Cohen, a theoretical physicist, exemplifies the cross-disciplinary nature of NIBIB research needed to solve complex problems. He described his work that uses fluorescent proteins found in nature to study neuronal signaling. Known as the optopatch,



Nagy awardee Farokhzad speaks at NIH.

the technology changes electrical impulses into light, allowing the visualization of complete neural networks in real time. He is using the system to study what goes wrong to cause neural diseases with the goal of testing potential treatments to correct the defect. He described recent work studying neural cells of patients with ALS, or Lou Gehrig's disease, in which motor neurons progressively degenerate. In early experimental results, the laboratory has identified compounds that inhibit the degeneration of the ALS neurons in cell culture, which could ultimately lead to treatments for ALS.

NIBIB's support of young investigators willing to test the limits of technological innovation was evident in the work of Chen, who described his methods for 3D printing of functional tissues. His laboratory has developed printing systems capable of building novel, biological scaffolds with the desired chemical, biological and mechanical properties to successfully mimic tissues of interest. The fabricated tissues are printed with a combination of man-made materials such as polymers and biologics including cells and chemicals, resulting in functional tissues. Such artificial organs are being used for a number of applications including screening drugs for toxicity and encapsulation of cardiomyocytes in a vascularized artificial environment to analyze vascular function.

A common characteristic of Nagy awardees was their enthusiasm and drive to push the envelope of technological innovation in order to more precisely detect, characterize or treat disease at lower cost or burden to patients and the health care delivery system. Richard Conroy, director of NIBIB's Division of Applied Science and Technology and co-organizer of the meeting, said, "It was truly inspiring to host these Nagy investigators who are incredibly passionate about their technologies and improving health care in the U.S. and across the globe. These first-time R01 awardees will no doubt soon become the scientific leaders of tomorrow." 📍

Free Flu Vaccine Begins Sept. 15

The Office of Research Services and the Clinical Center will provide free flu shots to staff with a valid NIH identification badge.

The best way to reduce the risk of getting sick with the flu and exposing patients and others is to get the flu shot every year. All staff who have patient contact, including both employees and contractors, are required to get the flu vaccine each year. For all other NIH staff, immunizations are available but not required.

This year, the flu immunization will begin Monday, Sept. 15. Opening at 6 a.m. each day during the first week of operation, the Flu Clinic will be located on the east side of the 7th floor of the Clinical Research Center. Employees intending to receive a flu shot must wear clothing that does not restrict access to the upper arm. Changing areas will not be available. Following immunization, the Occupational Medical Service will send an email with a questionnaire and certificate of immunization.

Off-campus sites will be providing free flu shots starting Sept. 29. Shady Grove, Poolersville, Neuroscience Center and Fishers Ln. locations are included on the schedule.

Due to the increased risk of severe illness from influenza and the weakened immune system, staff who are age 65 and older are offered a high-dose flu shot. According to the CDC, the clinical trials data comparing a high-dose vaccine to a regular strength one administered to persons 65 years or older resulted in a stronger immune response (i.e., higher antibody levels).

To learn more about the high-dose flu shot, visit <http://go.usa.gov/PAUY>. For more information on the flu vaccine, visit foitheflu.nih.gov or call (301) 496-2209.

ON CAMPUS SITE				
Day	Date	Location	Morning	Afternoon/Evening
Monday	9/15/14	10-CRC ¹	6 - Noon	Noon - 3:30
Tuesday	9/16/14	10-CRC	6 - Noon	Noon - 3:30
Wednesday	9/17/14	10-CRC	6 - Noon	Noon - 3:30
Thursday	9/18/14	10-CRC	6 - Noon	Noon - 7:00
Friday	9/19/14	10-CRC	6 - Noon	Noon - 3:30
Monday	9/22/14	10-CRC	8 - 11:30	12:30 - 3:30
Tuesday	9/23/14	10-CRC	8 - 11:30	12:30 - 3:30
Wednesday	9/24/14	10-CRC	6 - 11:30	12:30 - 7:00
Thursday	9/25/14	10-CRC	8 - 11:30	12:30 - 3:30
Friday	9/26/14	10-CRC	8 - 11:30	12:30 - 3:30
Monday	10/06/14	10-CRC	8 - 11:30	12:30 - 3:30
Friday	10/10/14	10-CRC	8 - 11:30	12:30 - 3:30
Monday	10/13/14	HOLIDAY	CLOSED	CLOSED
Tuesday	10/14/14	10-CRC	8 - 11:30	12:30 - 3:30
Wednesday	10/15/14	10-CRC	8 - 11:30	12:30 - 3:30
Thursday	10/16/14	10-CRC	8 - 11:30	12:30 - 3:30
Friday	10/17/14	10-CRC	8 - 11:30	12:30 - 3:30
Monday	10/20/14	10-CRC	8 - Noon	Noon - 3:30
Tuesday	10/21/14	10-CRC	8 - Noon	Noon - 3:30
Wednesday	10/22/14	10-CRC	8 - Noon	Noon - 3:30
Thursday	10/23/14	10-CRC	6 - Noon	Noon - 7:00
Friday	10/24/14	10-CRC	8 - Noon	Noon - 3:30
WEEKEND HOURS (10-CRC)- SATURDAY 9/27/14 and 10/25/14				
Open to All Employees • 6:00a - 8:30a and 6:00p - 8:30p				
OFF CAMPUS SITES				
Day	Date	Location	Morning	Afternoon
Monday	9/29/14	Shady Grove ²	8:30 - 11:30	12:30 - 3:30
Tuesday	9/30/14	Shady Grove	8:30 - 11:30	12:30 - 3:30
Wednesday	10/01/14	Poolesville ³	8:30 - 11:00	11:30 - 2:30
Thursday	10/02/14	NSC ⁴	8:00 - 11:30	12:30 - 3:30
Friday	10/03/14	NSC	8:00 - 11:30	12:30 - 3:30
Tuesday	10/07/14	Fishers Lane ⁵	8:30 - 11:30	1:00 - 3:00
Wednesday	10/08/14	Fishers Lane	8:30 - 11:30	1:00 - 3:00
Thursday	10/09/14	Fishers Lane	8:30 - 11:30	1:00 - 3:00
For questions, please contact OMS at 301-496-4411.				

¹Main Campus: Building 10 CRC, 7th Floor Atrium, East Side

²Shady Grove: 9609 Medical Center Dr., Rockville - Rooms TE408/TE410

³Poolesville: Building 103 am / Building 110 pm

⁴Neuroscience Center: 6001 Executive Blvd - 1st Floor Room C

⁵Fishers Lane: 5601 Fishers Lane Rockville - Rooms LD20 A&B

Maps for Influenza immunizations sites available at: foitheflu.nih.gov

OPEN TO ALL

NO ALPHABET RESTRICTIONS

NINDS's Briggman Named 2014 Pew Scholar

By Shannon E. Garnett

Dr. Kevin Briggman, an investigator in the circuit dynamics and connectivity unit of the NINDS Division of Intramural Research, was recently named a Pew Scholar in the Biomedical



Sciences. The scholarship, sponsored by the Pew Charitable Trusts, provides flexible funding to early career scientists who demonstrate excellence and creativity in their research.

"I am very excited to have been selected," said Briggman. "The Pew scholars come from all areas of the biomedical sciences and I am looking forward to interacting with my fellow scholars. I am particularly eager to attend the yearly meeting that brings together recent scholars to help foster collaborations across research fields."

The Pew scholars program, launched in 1985, has granted more than \$130 million in funding to more than 500 scientists at the beginning of their independent careers. The rigorously competitive program awards recipients \$240,000 over 4 years to pursue innovative, independent projects. This year, Pew awarded 22 scholarships

to scientists whose fields of study range from genetics to neuroscience to biophysics.

Briggman earned his doctorate in computational neurobiology in 2005 from the University of California, San Diego. He then moved to Germany, where he undertook postdoctoral studies at the Max Planck Institute for Medical Research. He joined NINDS in 2011 as a tenure-track investigator.

"I knew NIH would be an environment in which I could pursue ambitious experiments and I am trying my best to take advantage of this opportunity," he said.

Briggman's laboratory focuses on understanding the neural circuits in the brain by mapping the function of individual neurons and how they are anatomically connected to each other. Each of his experiments contains both functional and structural components. For the functional component, his team uses fluorescence imaging to study large populations of neurons while animals perform behavioral tasks. In the structural component, the team uses electron microscopy to reconstruct brain maps at nanometer resolution.

With the help of 3D printers, the group also develops many of their own instruments, which allows them to customize microscopes to fit the particular needs of a given experiment. It also allows them to fix anything that breaks.

The lab is currently studying the circuits responsible for the representation of odors in mice brains and discovering how zebrafish process visual information. Specifically the team is investigating the circuits that allow newly born zebrafish to locate, track and capture their prey—all within a virtual reality environment.

"The zebrafish is a particularly attractive species because we can record from every single neuron in the fish brain noninvasively," said Briggman. "The Pew scholarship will accelerate our studies of the zebrafish nervous system. It will allow us to add personnel to the lab to focus on analyzing the large-scale electron microscopy datasets we generate."

The goal of Briggman's lab is to produce whole-brain activity and connectivity maps that will provide a template for studying behavior at the cellular level and could pave the way toward the treatment of disorders in which sensory processing goes awry. 📌

NIAID Hosts 2014 Pew Latin American Fellow

In addition to its scholars program, the Pew Charitable Trusts also funds the Pew Latin American Fellows (PLAF) Program in the Biomedical Sciences, which provides support for young scientists from Latin America to receive postdoctoral training in the U.S. Dr. Juan David Ramírez Gonzalez, a native of Colombia and a 2014 Pew Latin American fellow, is conducting postdoctoral research in molecular parasitology in the laboratory of Dr. Michael Grigg, chief of the molecular parasitology section in NIAID's Division of Intramural Research.



Dr. Juan David Ramirez Gonzalez

The PLAF program gives the scientists an opportunity to further their knowledge, promotes exchange and collaboration between U.S. and Latin American investigators and advances research in Latin America. PLAF provides a \$30,000 salary stipend for 2 years and an additional \$35,000 for supplies and equipment to help establish the scientist's independent laboratory upon his/her return to Latin America.