

# nih record



ABOVE • Did you know a campus stroll could benefit your heart? See story on p. 9.

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## Research Festival Celebrates 125 Years of Discovery

By Belle Waring

The 26th annual NIH Research Festival, held Oct. 9-12, was a moveable feast. “Find out what is going on in this remarkable community,” NIH director Dr. Francis Collins advised attendees in opening remarks. “Here’s a chance to enlarge your circle.”

Nearly 6,000 scientists conduct research in NIH’s own laboratories, most of them on the Bethesda campus. As the showcase for the Intramural Research Program, the festival brings people together, invites speakers and students and celebrates science for 4 days in October. The effects last a good deal longer.

“I can tell you many stories about how this Research Festival has triggered many collaborations,” said Collins, introducing the quasiquicentennial theme: “NIH at 125: Today’s Discoveries, Tomorrow’s Cures.”

The plenary session in Masur Auditorium opened with 3 “big vision” talks.

SEE FESTIVAL, PAGE 6



Dr. Jennifer Lippincott-Schwartz participates in plenary session at Research Festival 2012.

*‘Options Are Very Wide for You’*

### At Hispanic Heritage Program, Cintrón Encourages a Life in Science

By Carla Garnett

Dr. Nitza Cintrón’s quest for scientific truths began when she was a little girl, growing up in the small district of Santurce in San Juan, Puerto Rico. Eat your vegetables, her mother told her, because they’re good for you. They make you healthy and keep you strong. That



Dr. Nitza Cintrón

made young Nitza wonder. Just how do vegetables work in the body?

“I really wanted to know what made things work—not all things, but living things,” Cintrón said recently at NIH’s 2012 Hispanic Heritage Month observance, explaining her 34-year science

SEE HISPANIC HERITAGE, PAGE 4

*What’s Cooking?*

### Researchers Study Ways to Reduce Indoor Air Pollution

By Cathy Kristiansen

Simply preparing the family meal poses a deadly health hazard in much of the developing world. Household cooking and heating fires contribute to almost 2 million deaths annually, with women and children most affected by breathing in toxic smoke for hours a day.

Solving this age-old problem is surprisingly complicated, requiring many more steps than buying off-the-shelf cookstoves and distributing them. There are numerous new types of stoves that use a variety of fuels, yet little is known about how much they actually improve air quality or benefit health.

To develop more expertise in indoor air pollution research, NIH recently hosted a 3-day training workshop. Faculty experts from academia, non-governmental organizations, NIH and other government agencies gave lectures and hands-on demonstrations of

SEE COOKING, PAGE 8



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NIH...Turning Discovery Into Health



**Informatics Lecture Series Features Cooper**

The National Library of Medicine Informatics Lecture Series will feature "Machine Learning of Patient-Specific Predictive Models from Clinical Data," by Dr. Gregory Cooper on Wednesday, Nov. 14, from 2 to 3 p.m. in Lister Hill Auditorium, Bldg. 38A.

Cooper is a professor of biomedical informatics and of intelligent systems at the University of Pittsburgh, where he has been a faculty member since 1990. He is best known for his research on Bayesian networks, especially work on learning. The talk will demonstrate that patient-specific modeling can improve the prediction of clinical outcomes.

Sign language interpreters will be provided. Individuals who need reasonable accommodation to participate should contact Ebony Hughes, (301) 451-8038, [Ebony.Hughes@nih.gov](mailto:Ebony.Hughes@nih.gov) or the Federal Relay (1-800-877-8339). For more information about the event, contact Dr. Jane Ye, (301) 594-4882, [yej@mail.nih.gov](mailto:yej@mail.nih.gov).

**Workshop on Safety Tests for Pertussis Vaccines, Nov. 28-29**

NIEHS, National Toxicology Program and Food and Drug Administration scientists will join other scientific experts from around the world this fall to consider improved methods and approaches for safety testing of vaccines that protect against pertussis. The "International Workshop on Alternatives to the Murine Histamine Sensitization Test (HIST) for Acellular Pertussis Vaccines: State of the Science and the Path Forward" will take place Nov. 28-29 at the Natcher Conference Center. Register by Nov. 16 for this free workshop at [http://icvnam.niehs.nih.gov/contact/reg\\_form.htm](http://icvnam.niehs.nih.gov/contact/reg_form.htm).

**FAES Announces Spring 2013 Courses**

The FAES Graduate School at NIH announces the schedule of courses for the spring 2013 semester. The majority of the evening classes sponsored by the Foundation for Advanced Education in the Sciences will be given on the NIH campus.

Courses are offered in biochemistry, bioinformatics, biology, biotechnology (daytime courses), chemistry, immunology, languages, medicine, microbiology, pharmacology, statistics, technology transfer, alternative medicine, GRE and courses of general interest. Advance studies in technology transfer and public health are also being offered.

Classes will begin the week of Jan. 28. Online and mail registration is Nov. 13-Dec. 28. An open house, at which registration will be accepted, will be held at the FAES Social and Academic Center on Jan. 9 from 4 to 7 p.m. Walk-in registration will be held Jan.

15-23. Tuition is \$145 per credit hour and courses may be taken for credit or audit.

Catalogs are available in the graduate school office in Bldg. 60, Suite 230; the Foundation Bookstore in Bldg. 10, Rm. B1L101 and the business office in Bldg. 10, Rm. B1C18. To have a catalog sent, call (301) 496-7976 or visit [www.faes.org](http://www.faes.org).

**Conference on 'Sustainable Laboratories'**

The Division of Technical Resources, Office of Research Facilities is sponsoring the international 2012 conference "Sustainable Laboratories: Choosing the Right Equipment" in Natcher Auditorium, Dec. 13-14.

The conference will host experts on a variety of laboratory equipment used in biomedical research, animal facilities and health care facilities. The conference will address energy conservation applications in the laboratory in conjunction with choosing "green" equipment that is compatible with ongoing research and building operation. Participants will learn about energy-efficient technologies and solutions that are available when they purchase new or replacement equipment for their facilities.

Registration is free, but seating is limited. Online registration can be found at [http://orf.od.nih.gov/PoliciesAndGuidelines/Choosing\\_the\\_Right\\_Equipment.htm](http://orf.od.nih.gov/PoliciesAndGuidelines/Choosing_the_Right_Equipment.htm).



**Varmus Addresses NCI Town Hall Meeting**

*NCI director Dr. Harold Varmus (above) appeared at a town hall meeting hosted by the trans-NCI extramural awareness group (TEAG) recently at the Neuroscience Center in Rockville. He spoke on scientific priorities for NCI, the scientific program leadership committee and its role in the grant approval process, the importance of program staff as the second level of review, the need to address diseases at all levels and uncertainties in the budget for fiscal year 2013. Varmus also engaged in a question-and-answer session with the audience about scientific and financial challenges. "The extramural staff greatly appreciated the opportunity to hear from the NCI director on his vision for the institute and to address questions to him in the open forum," said Dr. Sonia Jakowlew, a program officer in the Center for Cancer Training who chairs TEAG.*

## Lecture on Tackling Cataract Blindness in China, Nov. 14 at Stone House

Dr. Dennis Lam will give the Global Health Vision Lecture on Wednesday, Nov. 14, at noon in the main conference room of Stone House (Bldg. 16A). He will present on Project Vision, a charitable program with sustainable development in which local eye doctors are taught to perform cataract surgeries. Project Vision aims to establish 100 charity eye centers in poverty-stricken



*Dr. Dennis Lam*

areas of China by the year 2020. Since 2004, 23 centers in 7 provinces have been established with over 80,000 cataract operations performed.

Lam is director of the Zhongshan Ophthalmic Center (ZOC) of the Sun Yat-sen University (China) and director of ZOC's State Key Laboratory. He

served as chairman of the department of ophthalmology and visual sciences of the Chinese University of Hong Kong (CUHK, 1998-2011) and director of the Joint Shantou International Eye Center of Shantou University and CUHK, Shantou (2003-2011). Lam is a physician-scientist with over 500 published articles.

The Global Health Vision Lecture Series is sponsored by the National Eye Institute, Fogarty International Center and the NIH global health interest group. NEI created the series in 2012 to foster global collaboration and exchange of information among international vision researchers and eye health clinical scientists.

## Overweight Volunteers Needed

NICHD is looking for men and women ages 35-70 who are overweight and have abnormal glucose levels. After an initial screening visit for general health assessment, participants will undergo treatment with a cortisol-blocking medication (mifepristone) or a non-active pill (placebo) for 7 days. Each participant will take both study agents with a gap of 6 to 8 weeks between the two. Testing before and after treatment with the study medications will include blood drawing over 24 hours, urine collection, an oral and an intravenous glucose tolerance test and 1- to 2-day overnight inpatient stay. Compensation will be provided. For more information, call 1-800-411-1222 (TTY 1-866-411-1010) and refer to study 11-CH-0208.

## Pao Honored for Contributions to Child Psychiatry

NIMH clinical director Dr. Maryland Pao has been named the 2012 recipient of the Simon Wile Leadership in Consultation Award by the American Academy of Child & Adolescent Psychiatry (AACAP). The award acknowledges "outstanding leadership and continuous contributions in the field of consultation-liaison child and adolescent psychiatry." Wile, for whom the award is named, was a renowned pediatrician and advocate of child psychiatry.

Pao completed residency training in pediatrics, psychiatry and child and adolescent psychiatry at Johns Hopkins Hospital and is board-certified in these specialties and psychosomatic medicine. In addition to her role as NIMH clinical director, a post she's held since 2008, she is chief of the Clinical Center's Psychiatry Consultation Liaison Service, which offers psychiatric evaluation for participants in CC research studies. She is current chair of the Clinical Center medical executive committee. She is also on the clinical faculties at the schools of medicine at Georgetown University, George Washington University and Johns Hopkins University,

Pao's research has encompassed psychopharmacologic and psychosocial studies of cancer, human immunodeficiency virus and pain management in children. A central theme in her clinical research, exemplified by recent papers, has been a call for attention to the psychological and developmental needs of children and adolescents with serious illness and who experience long hospitalizations. She is a sought-after expert in pediatric psychiatry and psychosomatic medicine, lecturing and consulting widely and serving on numerous national committees.

The Wile Award was presented at the 2012 annual meeting of AACAP in October, at which Pao gave an honors lecture on pediatric psychiatry.



*Dr. Maryland Pao*



## Arthritis Patient-Advocates Tour NIH

NIAMS recently hosted a visit for eight patient-advocates from the International Autoimmune Arthritis Movement. The event provided an opportunity for attendees to learn more about the biomedical research and training supported by NIH prior to their participation in a patient advocacy event sponsored by the American College of Rheumatology in Washington, D.C.

The guests heard presentations from Anita Linde, director of the NIAMS Office of Science Policy, Planning and Communications, NIAMS scientific director Dr. John O'Shea and clinical director Dr. Richard Siegel. They visited two NIAMS labs and toured the Clinical Center, where they learned how the hospital operates and what research is being conducted there.

"I was very impressed with the Clinical Center and how beautiful the facility is," one of the guests commented. "It shows that the NIH cares about the general well-being of the patients," she added. The visitors also shared positive feedback about their visit to NIH via Twitter.



## HISPANIC HERITAGE

CONTINUED FROM PAGE 1

### **Above, from 1:**

*At a lunch briefing, students from Wheaton High School network with NIH'ers.*

*NIDCR deputy director Dr. Isabel Garcia introduces the guest speaker.*

*NIMH's Dr. Carlos Zarate gives opening remarks.*

### **Below:**

*Young people visiting from Wheaton High School's Bioscience Academy—a program adopted by NIAMS's Career Development and Outreach Branch—pose for a photo with program participants.*

PHOTOS: ERNIE BRANSON

career.

"I had no clue how to go about pursuing this vision I had that I was going to be a mad scientist somewhere," she continued, describing her upbringing by a mom and dad who never received schooling themselves beyond high school and 8th grade, respectively. "I didn't come from a family of scientists...but what my parents did give me and my two sisters was the sense that education was really, really important—not so much because they didn't have it, but because they knew that the future was going to be that of choices if we had an education."

Cintrón addressed the entire Masur Auditorium audience, but she spoke specifically to the two dozen or so young people visiting from Wheaton High School's Bioscience Academy, a program adopted by NIAMS's Career Development and Outreach Branch and invited to NIH for a Clinical Center tour.

"I was very lucky—much like you all here today—that people got interested in what I was trying to do," Cintrón told the students, pointing out the benefit of mentors and professors who were encouraging.

Despite apparent hurdles—limited financial resources, for example, and the fact that Puerto Rico had no biochemistry department on the island—by 1978, Cintrón realized the dream of young Nitza: She was a bona fide scientist, at NASA Johnson Space Center no less, where she would spend 26 years leading astronauts through

their training and directing their medical treatments while they were in space. She had earned an undergraduate degree at Universidad de Puerto Rico and a Ph.D.—in biochemistry and molecular biology—at Johns Hopkins University School of Medicine under an NIH predoctoral training grant.

Her remarkable story didn't end there, however. As NIDCR deputy director Dr. Isabel Garcia had hinted when she introduced the keynote speaker, Cintrón proved throughout her life to be "someone who was very hardworking, studious and courageous, but also... someone who didn't hesitate to change career paths, particularly later in her life."

In 1991, NASA offered Cintrón a fellowship to study for an M.D. degree at the University of Texas Medical Branch. She took it, although she'd never wanted to be a physician. For the last several years she has served as an associate professor of internal medicine and medical director of the Harborside Medical Group at UTMB. She also practices there as a primary care physician.

"Being in an academic center, I also work very closely with the residents and students in our school of medicine," she said. "We are there to teach them not only the medical knowledge and clinical skills they'll need to be really strong physicians, but also importantly and more difficult nowadays with all the technology we have, is to show them the professionalism, the respect and the compassion that is so much needed in deliv-





*"I was very lucky that people got interested in what I was trying to do," Cintrón told the students.*

ery of health care to our patients."

As the young people sat rapt, Cintrón used the balance of her lecture to discuss health care in space and on Earth.

"A lot is similar and a lot is challenging when you go into this environment," she said, explaining how her own career took off in unexpected and rewarding directions. "What I'm going to show you is a very basic awareness that science and math and a host of other careers can be applied to so many areas. [Science] abounds. Don't limit yourself. The options are very, very wide for you."

NIH principal deputy director Dr. Lawrence Tabak, in welcoming remarks, had warned the audience—particularly the young guests of honor—that the observance had an ulterior motive: to fascinate them into pursuing science careers themselves.

"It's so important to cultivate and nourish a diverse scientific workforce," he said. "Different people will approach a scientific problem in different ways. We're all looking for new information, for new revelations, for any and all clues about health, disease and the various stages of life, but the more different vantage points we get to look at those problems, the more varied perspectives we get to tackle the issues, the better and richer will be our body of knowledge and understanding."

The program, themed "Diversity United, Building America's Future Today," was sponsored by the NIH Office of Equal Opportunity and Diversity Management and the Hispanic employment committee. 📍

#### STEP Forum on HIV/AIDS, Nov. 20

The staff training in extramural programs (STEP) committee will present a Science in the Public Health forum on the topic "HIV/AIDS: Have We Conquered the Demon?" on Tuesday, Nov. 20, from 9 a.m. to noon in Natcher Conference Center, Rms. E1-E2.

Optimization of HIV prevention strategies remains one of our greatest scientific challenges. This forum will present an update on HIV prevention and control as we continue toward realization of an AIDS-free generation.



*Dr. Denis Mitchison (second from right and pictured below), 93, participates in workshop on tuberculosis, a field in which he is renowned.*

#### Renowned British Researcher Addresses TB Workshop

Distinguished tuberculosis researcher Dr. Denis Mitchison provided a historical and current view of pyrazinamide, a key TB treatment drug, during his keynote address at a recent NIH-sponsored workshop—Demystifying Pyrazinamide (PZA): Challenges and Opportunities—at Johns Hopkins University.

Mitchison, who turned 93 on Sept. 3, pioneered combination tuberculosis treatment clinical trials in the 1950s that formed the basis for current standard therapy, an approach that is credited with saving millions of lives. In 1956, he was appointed director of the Medical Research Council unit for research on drug sensitivity in tuberculosis at the Royal Postgraduate Medical School in Hammersmith, London (now called Imperial College), a position he held until retirement in 1985. Post-retirement, Mitchison has remained active in TB research, continuing his work at Hammersmith for 4 years before moving to St. George's University of London, where he is an emeritus professor.



The NIH workshop focused on learning more about pyrazinamide's mechanism of action, resistance patterns, as well as the toxicities associated with its use. Roughly 100 representatives from government agencies, the pharmaceutical industry, academia and non-profit organizations from Africa, China, Europe and the United States attended the event. The workshop was co-sponsored by NIAID, the Bill and Melinda Gates Foundation and Johns Hopkins University.

and Melinda Gates Foundation and Johns Hopkins University.

Although Mitchison seldom travels anymore, he was thrilled to fly across the Atlantic Ocean to attend the TB workshop. Full of wisdom, experience and innovative ideas, his talk on the "History and Current Status of PZA" was well-received. Fellow attendees wished him a happy birthday and many more years of health and continued success in his efforts to develop improved treatments for TB.

When asked why Mitchison is still so active and energetic, his colleague and fellow workshop attendee, 75-year-old Dr. Amina Jindani of St. George's University, said, "It is his passion for TB research that keeps him young."

"Most TB survivors may not realize that they owe their lives to the research Mitchison spearheaded, but to those of us who work in the TB field, he is an inspiration and a hero," said Dr. Richard Hafner, acting chief of the TB Clinical Research Branch in NIAID's Division of AIDS. "NIH was truly honored by his attendance at our workshop."—Jing Bao



## FESTIVAL

CONTINUED FROM PAGE 1

### Top, from 1:

Opening day of Research Festival 2012 included a panel of longtime intramural scientists including (from l) NIAMS director Dr. Stephen Katz, NIAID's Dr. William Paul, Dr. Judith Rapoport of NIMH and moderator Dr. Michael Gottesman, NIH deputy director for intramural research.

NHLBI director Dr. Gary Gibbons addresses the plenary session.

NEI's Dr. David Robinson played the part of Dr. Joseph J. Kinyoun during an "interview" with NIH's founder.

### Below:

Rep. Andy Harris (R-Md., second from l) participates in a panel discussion with (from l) Dr. Constantine Stratakis, NIH director Dr. Francis Collins and Dr. Anto Bonci.

PHOTOS: ERNIE BRANSON

NHLBI director Dr. Gary Gibbons spoke on a systems approach to health inequities. Dr. Jennifer Lippincott-Schwartz of NICHD addressed advances in technology and imaging and NIAID's Dr. Ron Germain took the audience on a journey through the immune system.

Then Dr. Joseph J. Kinyoun (really NEI's Dr. David Robinson) walked onstage, looking dapper and fit for a 152-year-old.

One of the fathers of modern bacteriology, Kinyoun (1860-1919) was the founder and first director of the Hygienic Laboratory, the predecessor of NIH. In a historical sketch, NIH deputy director for intramural research Dr. Michael Gottesman updated the founder on advances in immunization, the eradication of smallpox and organ transplantation.

"This is part of your legacy," he told Kinyoun/Robinson. "We are the fruit of your labor, and you are not forgotten."

Concluding the session was a panel discussion with NIAMS director Dr. Stephen Katz, Dr. William Paul of NIAID and NIMH's Dr. Judith Rapoport, moderated by Gottesman in the manner of public television's Charlie Rose.



Why did they join the intramural program? Why did they stay?

"Over and over," said Rapoport, "it's been the sense of an imaginative, flexible and very empathic [intramural] administration—together with other things easing the road for clinical research—that has made it very hard to consider moving anywhere else."

The action then moved to Natcher Bldg. for poster sessions, concurrent symposia and a talk by Rep. Andy Harris (R-Md.), a former NIH extramural grantee and principal investigator (see sidebar).

The festival also hosted the National Graduate Student Research Conference and the 2013 Fellows Award for Research Excellence (FARE) award ceremony. This year, 224 FARE winners received travel awards to present their research at scientific meetings in the next fiscal year.

Also featured were exhibits on resources for intramural research ("Get your mercury-free thermometer!") and the Technical Sales Association tent show, pitched under a bright autumn sky.

Other treats included the Bioviz exhibit with a



Collins said *Research Festival has a history of enabling fresh scientific collaborations.*

theater screening short videos and a booth highlighting "Games4Science," an IRP product created in response to a White House initiative.

The festival's signature image was a mustard-

colored MRSA—methicillin-resistant *Staphylococcus aureus*—bursting out of a neutrophil.

The neutrophil, one of the body's white blood cells, is a phagocyte—literally, an "eater cell"—that chases bacteria and then engulfs them. The typical neutrophil eats germs for breakfast. But MRSA, a difficult and dangerous bug, had left the defender in tatters.

Bacterial threats, as in Kinyoun's era, are still with us today, but they arrive in new forms. Smallpox is gone, but challenging work lies before us.

"With the exception of what happens here day to day, this is the most important event at NIH," said audience member Dr. Lena Diaw, an NHLBI contractor working on sickle cell disease. "The Research Festival: excellent science, excellent findings. I love it!"

For more information on the festival or to download *The Indispensable Forgotten Man: Joseph James Kinyoun and the Founding of the National Institutes of Health*, visit <http://researchfestival.nih.gov/2012/index.shtml>.

## Congressman/Researcher Visits Research Festival

Rep. Andy Harris (R-Md.), the only member of Congress who has been a principal investigator on an NIH grant, visited Research Festival on Oct. 9 to offer his perspectives on science, politics and the current budget climate on Capitol Hill. His sobering advice to the audience, and to his host, NIH director Dr. Francis Collins, is that evidence, so crucial to claims in science, is not nearly as esteemed in the world of lawmaking.

"I was a natural scientist," said Harris, who is on leave from Johns Hopkins University, where he trained in surgery and anesthesia. "In my world, two plus two equals four. But that's not the way it is in a legislative body." Early in his career as a state senator, after witnessing a vote go completely counter to both his expectations and the evidence, Harris was counseled by an older peer, "There are 47 senators. Whatever 24 of them say on a given day is what's right."

The hour-long session was conducted as a panel moderated by festival chairs Dr. Constantine Stratakis of NICHD and Dr. Anto Bonci of NIDA, who asked both their own questions and those submitted by the audience. Asked to assess the attitude of his peers in Congress about the NIH budget, Harris was blunt: "To some people, it's just another budget item. There are those who think maybe we're spending too much now."

Harris said many of his fellow lawmak-



Rep. Andy Harris (R-Md.)

ers recall that NIH's budget has more than doubled since the 1980s and feel no sense of urgency about a situation Collins summarized as 10 years of flat budgets, a 20 percent reduction in purchasing power and the dwindling of the success rate in winning NIH grants from 30 percent to 17 percent.

Urging NIH to be innovative in such an unreceptive budget climate, Harris touted an idea proposed by Newt Gingrich that has become part of a bill he co-sponsors: "Float separate Alzheimer's disease bonds" to raise money specifically for AD research. "If we're successful, it would be a huge savings to Medicare." He compared the effort to the war bonds sold during World War II.

Harris described NIH as a model of effi-

ciency and fairness in distributing funding. "When the government wants to work at how research should be done, you better look at NIH," he said. The peer-review process used to award grants rinses politics out of decision-making, he argued. "NIH's work is largely devoid of politics, but that's not what you see in other government agencies." Political appointees at the top of some agencies drive their science agenda, he said.

Harris said Congress must deal seriously with a \$1.1 trillion budget deficit, but warned that sequestration, which Collins said would trim 8.2 percent from the NIH budget if it takes effect in January, is not the solution. "If that ever comes to pass," Harris stated, "you better fire Congress for not doing the job we were elected to do."

Harris said level funding, rather than a cut, represents a new goal for federal agencies. "That would be a victory," he said. NIH has three strong advantages in reaching that goal, he added: Health is important to everyone, NIH has an appropriate federal role as the central authority in research-funding decisions and its method for making awards is apolitical.

Asked what parting advice he had for NIH, Harris responded, "Hang in there. The work you do represents the future, and it's exciting." He said he still looks forward to the arrival of new medical journals every month, with new findings. "You all are the best people in the world for doing that. Let us [politicians] worry about the nuts and bolts of the budget."—

Rich McManus



## COOKING

CONTINUED FROM PAGE 1

**Above:** NIH director Dr. Francis Collins (c, rear) discusses indoor air pollution with Dr. Bill Martin of NICHD, while FIC director Dr. Roger Glass (r) observes a cookstove demo with workshop participants and other guests.

PHOTO: MICHAEL SPENCER

cookstoves and emissions testing to about 20 trainee scientists from the U.S. and seven developing countries.

“Most people are still unaware of what an important issue this is,” NIH director Dr. Francis Collins said at the workshop’s opening session. “Yet here is a situation that we can do something about, not that it’s going to be easy. We clearly have a path going forward to make a difference and save many lives.”

Traditional cookstoves and open fires used in cooking food, boiling water and heating homes burn dung, wood, charcoal, rice husks or other cheap fuels. The resulting smoke, often intensified by poorly ventilated rooms, can cause the same risk for disease as a lifetime of smoking and is blamed for lung cancer, acute pneumonia and chronic obstructive pulmonary disease. Scientists suspect exposure plays a role in many other health problems, ranging from low birth weight and asthma to cataracts and burns, but more research is needed on linkages. Women and children can also face physical threats while out alone gathering fuel.

The workshop’s sessions examined technical issues such as combustion efficiency, proper ventilation and accurate emissions measurement as well as behavioral aspects involved in encouraging households to adopt clean-burning stoves. The appliance must be easy to use and reliable or it might be abandoned in frustration. The design must also incorporate cultural preferences, for instance if the stove is to be used for rice or tortillas, or for cooking one dish at a time or several. People need to be educated about the health benefits and trained in cor-

rect operation. The fuel choice is also important since it must be inexpensive and readily accessible. Chimneys, fans, location of the stove and safety issues also require evaluation.

“Research is going to be essential and this is where NIH has a critical role to play,” Collins told the workshop. “You have to understand the whole host of issues that relate to the acceptability of new kinds of cookstoves in place of the open fires. And that means we have to understand communities and cultures and we have to be able to understand engineering. We need to measure a reduction in exposures so we have confidence that it’s going to result in a better health outcome.”

Clean cookstoves not only offer health benefits but can also free up women and children’s time for education and other activities, improve the environment with reduced emissions and bring economic benefit through local industry involvement.

Workshop participants were able to study 20 types of stoves on display and observe a number of them in operation. Sessions included discussions of research design approaches, data needs and the challenges posed by intervention studies. Participants then applied the information by working in small groups with faculty mentors to develop study designs that could help fill existing research gaps.

NIH has supported studies on the health risks of indoor air pollution for several decades. In 2010, it joined the Global Alliance for Clean Cookstoves, a public-private partnership launched by Secretary of State Hillary Clinton.



*Workshop attendees, including from developing countries, learn about clean stove and fuel options that could help avert nearly 2 million deaths annually from toxic indoor smoke. Research is essential to identify how best to replace traditional stoves and measure the health impact.*

PHOTO: JEFF GRAY



Workshop attendees use scientific tools to measure combustion efficiency and emissions in a new cookstove. Toxic smoke causes lung cancer, pneumonia, asthma and many other ailments.

PHOTO: JEFF GRAY

The alliance plans to have 100 million homes adopt clean and efficient stoves and fuels by 2020. The U.S. government has committed more than \$50 million to the effort, including about \$25 million in NIH-funded research projects.

The workshop was organized and hosted by FIC's Center for Global Health Studies, a trans-NIH incubator for cross-cutting global health projects located in Bldg. 16A, adjacent to Stone House. The event's partners included NIEHS, NICHD, NHLBI, USAID, EPA and the Global Alliance for Clean Cookstoves.

For more information, visit [http://bit.ly/NIH\\_indoorairpollution](http://bit.ly/NIH_indoorairpollution).

## Introducing HeartWalk at NIH

April Lewis, R&W fitness and wellness intern, stretches in front of one of the HeartWalk logos before she starts her run. Bright red HeartWalk logo stencils have been placed in 1/10-mile increments all over the NIH campus on our most traveled sidewalks. Count 10 logos and you have traveled approximately 1 mile. Whether you use the marked routes for walking, running, jogging or rolling, remember that wellness at NIH means "Taking Our Own Best Advice!" The program is sponsored by the Office of Research Services' Division of Amenities and Transportation Services. For more details, updates, a map of the HeartWalk and information on all things wellness, go to [www.ors.od.nih.gov/pes/dats/wellness/Pages/index.aspx](http://www.ors.od.nih.gov/pes/dats/wellness/Pages/index.aspx).



## NIAID Discovery May Help Eliminate River Blindness

Public health officials in Africa and Latin America are working to eradicate onchocerciasis, commonly known as river blindness. The disease, which affects an estimated 37 million people worldwide, is caused by *Onchocerca volvulus*, a parasitic worm transmitted from person to person by the bite of infected blackflies. People with onchocerciasis can have itchy skin rashes and nodules under the skin. In severe cases, lesions develop in the eye that impair vision and may lead to blindness.

Although a treatment exists that kills the microfilariae (larval offspring) of *O. volvulus*, adult worms can remain alive in nodules that form under the skin for approximately 15 years. Because of the lifecycle of the worm, it usually takes 1 year before microfilariae can be detected in skin biopsies. As a result, people can unwittingly harbor the parasite and help spread it to others. Eliminating onchocerciasis in affected areas not only requires an effective treatment but also a rapid test that identifies infected people as early as possible.

In the late 1980s, a research team led by Dr. Thomas Nutman in NIAID's Laboratory of Parasitic Diseases began searching for a better marker of onchocerciasis. He studies neglected tropical diseases to find ways to better prevent and treat them. He also works with people referred to NIH with infections caused by parasitic worms like *O. volvulus*. Although the parasite is not endemic to the United States, immigrants and people who travel to affected areas are vulnerable to infection.

"The gold-standard test is a skin snip that does not detect the worm until long after infection is initiated," said Nutman. "We wanted to develop a rapid, less-invasive diagnostic that could be used here and in the countries affected by the parasite."

In 1991, led by the efforts of Dr. Edgar Lobos, a postdoctoral fellow in Nutman's lab, the team identified OV-16, an immune-stimulating protein, or antigen, found in the parasite. The team used the marker to develop a simple test that could accurately detect antibodies to OV-16 in the blood. Antibodies to the worm could be detected within 3 months after infection. Nutman shared OV-16 with other labs that independently verified the marker's specificity for *O. volvulus*. Armed with the research evidence, NIAID patented OV-16 in hopes of partnering with a company that could develop and manufacture a diagnostic test for use in people.

In the late 1990s, an Australian company developed a prototype rapid diagnostic test based on OV-16. Although the test was promising in clinical studies, further development of the diagnostic stalled in the early 2000s. "Because there is not much, if any, profit in manufacturing something for a disease rampant in poor countries, companies sometimes let these projects go, which is what happened with OV-16," said Nutman.

Nutman continued to share OV-16 with the research community, but faced with little interest from potential commercial partners, NIAID eventually let the patent expire. In 2011, with increasing evidence that river blindness could be eradicated in Africa, there was renewed interest in a rapid point-of-care OV-16 test. PATH, a nonprofit global health organization, collaborated with Nutman's lab to develop a commercially viable OV-16 diagnostic. In October 2012, PATH identified a company, Standard Diagnostics, Inc., interested in manufacturing and distributing the test to countries in need.

"We are excited that the test, developed from a discovery made in NIAID labs, could be available within the next few years," says Nutman. "For people living in remote areas who may need to travel days or weeks to get tested, getting test results and the appropriate medicine within minutes will significantly improve their quality of life."

### Bacterial Protein in House Dust Spurs Asthma, NIH Study Shows

A bacterial protein in common house dust may worsen allergic responses to indoor allergens, according to research conducted by NIH and Duke University. The finding is the first to document the presence of the protein flagellin in house dust, bolstering the link between allergic asthma and the environment.

Scientists from the National Institute of Environmental Health Sciences and Duke Medical Center published their findings in people and mice online Oct. 14 in the journal *Nature Medicine*.

“Most people with asthma have allergic asthma, resulting largely from allergic responses to inhaled substances,” said the paper’s corresponding author Dr. Donald Cook, an NIEHS scientist. His research team began the study to identify environmental factors that amplify the allergic responses. “Although flagellin is not an allergen, it can boost allergic responses to true allergens.”

### Researchers Identify Novel Genes That May Drive Rare, Aggressive Uterine Cancer

Researchers have identified several genes that are linked to one of the most lethal forms of uterine cancer, serous endometrial cancer. The researchers describe how three of the genes found in the study are frequently altered in the disease, suggesting that the genes drive the development of tumors. The findings appeared in the Oct. 28 advance online issue of *Nature Genetics*. The team was led by researchers from the National Human Genome Research Institute.

Cancer of the uterine lining, or endometrium, is the most commonly diagnosed gynecological malignancy in the United States. Also called endometrial cancer, it is diagnosed in about 47,000 American women and leads to about 8,000 deaths each year.

Each of its three major subtypes—endometrioid, serous and clear-cell—is caused by a different constellation of genetic alterations and has a different prognosis. Endometrioid tumors make up about 80 percent of diagnosed tumors. Surgery often is a complete cure for women with the endometrioid subtype, since doctors

usually diagnose these cases at an early stage.

Compared to other subtypes, the 2 to 10 percent of uterine cancers that comprise the serous subtype do not respond well to therapies. The 5-year survival rate for serous endometrial cancer is 45 percent, compared to 65 percent for clear-cell and 91 percent for endometrioid subtypes. Serous and clear-cell endometrial tumor subtypes are clinically aggressive and quickly advance beyond the uterus.

“Serous endometrial tumors can account for as much as 39 percent of deaths from endometrial cancer,” said Dr. Daphne Bell, an NHGRI investigator and the paper’s senior author. She said the discovery “really changes our understanding of some of the genetic alterations that may contribute to this disease.” She noted that it is too early to make a direct connection between their findings and prospects for treatments for this aggressive form of uterine cancer.

### Weight Loss Does Not Lower Heart Disease Risk From Type 2 Diabetes

An intensive diet and exercise program resulting in weight loss does not reduce cardiovascular events such as heart attack and stroke in people with long-standing type 2 diabetes, according to a study supported by NIH.

The Look AHEAD (Action for Health in Diabetes) study tested whether a lifestyle intervention resulting in weight loss would reduce rates of heart disease, stroke and cardiovascular-related deaths in overweight and obese people with type 2 diabetes, a group at increased risk for these events.

Researchers at 16 centers across the United States worked with 5,145 people, with half randomly assigned to receive an intensive lifestyle intervention and the other half to a general program of diabetes support and education. Both groups received routine medical care from their own health care providers.

Although the intervention did not reduce cardiovascular events, Look AHEAD has shown other important health benefits of the lifestyle intervention, including decreasing sleep apnea, reducing the need for diabetes medications, helping to maintain physical mobility and improving quality of life.

“Look AHEAD found that people who are obese and have type 2 diabetes can lose weight and maintain their weight loss with a lifestyle intervention,” said Dr. Rena Wing, chair of the Look AHEAD study and professor of psychiatry and human behavior at Brown University. “Although the study found weight loss had many positive health benefits for people with type 2 diabetes, the weight loss did not reduce the number of cardiovascular events.”



*A bacterial protein in common house dust may worsen allergic responses to indoor allergens, according to research conducted by NIH and Duke University.*

# milestones

## Alumnus Bill Gay Mourned

Dr. William I. "Bill" Gay, who retired in 1988 after 34 years of involvement with animal issues at NIH, died on Oct. 11 at age 86 after a long illness. He finished his NIH career as director of the Division of Research Resources' Animal Resources Program (ARP) and later served as president of the NIH Alumni Association.



Gay earned his veterinary degree at Cornell University in 1950 and came to NIH in 1954 after 2 years at Walter Reed Army Medical Center, where he worked in experimental surgery. He was chief of the NIH Animal Hospital until 1963, when he joined the Animal Resources Branch of the Division of Research Facilities and Resources, DRR's predecessor.

In 1966, he moved to NIGMS as program director for comparative medicine, a position he held concurrently with program administrator for the radiology and physiology training programs. In 1967, he became chief of the NIGMS Research Grants Branch and also was involved in developing a special research program on trauma and injury. After a stint as acting associate director of NIGMS, he moved to NIAID in 1971 as associate director of extramural programs, a position he held until returning to DRR in 1980.

Gay was national president of the American Association for Laboratory Animal Science in 1968 and served on many NIH committees. He was most proud of overseeing the evolution and growth of ARP's involvement in AIDS research by developing animal models and animal resources in all seven DRR-supported regional Primate Research Centers. The first major conference on AIDS in non-human primates was organized by Gay and others at NIH in March 1983.

"Bill was a remarkable man who during the course of his life and career made many important seminal contributions to our field," said Dr. Robert Weichbrod, chief of NEI's animal program administration. "He was a strong advocate for the humane care and use of animals in

research, testing and teaching. He was a colleague, mentor and friend to many and will be remembered fondly by all who knew him."

After retiring from NIH, Gay worked for a number of years as a veterinary consultant on animal care and use policies and procedures at R.O.W. Sciences, Inc., in Rockville.

He is survived by his wife Millicent C. Gay of 64 years and many relatives and friends. A memorial service will be held at a later date to be announced by the Maryland State Anatomy Board.

## NCCAM's Batten To Retire After 42+ Years

Willer "Dean" Batten, who has served at NIH for more than 42 years, will retire from the federal government on Jan. 3, 2013.

She began her federal career in April 1972 in Bldg. 31's housekeeping department, where she worked for 6 months. It was obvious to others that she was destined for other things, so she moved to the Division of Research Grants. At DRG, she organized enormous amounts of incoming grant applications.

In 1990, Batten was hired as a clerk at the National Institute of Arthritis and Musculoskeletal and Skin Diseases. She was there for nearly 10 years and is remembered for her willingness to assist in times when the institute was short-staffed.

In 1999, she moved to the National Cancer Institute as a grants technical assistant. She reviewed all applications and summary statements prior to processing the Notice of Grants Awards, among other duties, in the Grants Management Office. She juggled the requests of many individuals in her office, always with a cheerful smile.

In 2000, Batten moved to the National Center for Complementary and Alternative Medicine, which had recently been established. She performed general office support duties there for the last 12½ years.

Batten looks forward to retiring to North Carolina to be with family and friends. She plans to travel to places she always wanted to see but could not because of work obligations.

"That's one good thing about retirement," she said. "I can travel!" Batten also plans to work at her church and get more exercise. "Maybe even walking the long beaches!"



## Stokes Earns Two Charter Certifications

*NIEHS veterinarian Dr. William Stokes is among the first groups of scientists awarded diplomates in new specialties created by the American Academy of Environmental Engineers and the American Veterinary Medical Association. He is the only NIH scientist to earn certifications in the specialties. AAEE selected Stokes as one of its inaugural 21-member group of board-certified environmental scientists. AVMA named him to its group of 27 charter diplomates of the American College of Animal Welfare. He is the sole federal scientist in the group. Stokes is a career officer and assistant surgeon general in the Public Health Service Commissioned Corps.*

PHOTO: STEVE MCCAUGHY



## Mingling with Nature May Help the Depressed

By Jan Ehrman

Can a walk in the park help alleviate your trip “in the dark?” Your depression, that is? Recent NIH-supported findings suggest that interacting with nature may indeed be therapeutic.



Dr. Marc Berman

Depression is a global burden, a condition that affects persons of all genders, races and ethnicities. According to the National Institute of Mental Health, clinical depression strikes about 20-25 percent of all adults at some point in their lives, while 9 percent of people are depressed at any one time.

A leading cause of disability and morbidity, the long-lasting malady can impair one’s ability to eat, sleep, work, think clearly, socialize and enjoy activities that would normally give pleasure.

While the disorder is often treatable through medication and most often, behavioral therapy, even the best treatments are not always fully effective. In some instances, patients may benefit from an additional measure to help regulate affected brain chemicals and chase away the blues. This is known as adjunct therapy.

NIMH-funded scientists led by Dr. Marc Berman at the Rotman Research Institute at Baycrest, in Toronto, compared the cognitive effects of walking through a park versus strolling through an urban setting for a small group of individuals diagnosed with major depressive disorder. During one session, each subject was asked to take a 50-minute nature walk through a park. In another instance, the same volunteer was asked to walk for 50 minutes down a traffic-heavy, urban street. After each activity, short-term memory and mood assessments were taken by the researchers.

Most people agree that walking is healthy—but even the experts aren’t entirely certain how much or where to walk, or why walking offers health benefits—which makes the current study even more provocative, as it applies to severely depressed adults.

“What we found was that interacting with nature [walking in a park] provided cognitive benefits to our subjects,” said Berman. “We noted about a 20 percent improvement in memory following walks in the park. Mood improved after both the nature and urban walk, but the mood improvements were larger after the nature walk.” The results were published in the *Journal of Affective Disorders* earlier this year.

Interestingly, the mood and memory effects were not correlated, suggesting that the memory improvements are not driven simply by putting individuals in better moods. Two separate effects seem to be taking place.

“Quite frankly, I was surprised that a fairly brief interaction

with nature could produce such large improvements in memory,” noted Berman. At the start, he and his colleagues were uncertain as to whether the nature walk or any type of walking would benefit depressed patients, since walking alone could produce a constant preoccupation with negative thoughts (rumination), thereby worsening memory and mood. However, this did not occur. “In fact, the beneficial cognitive effects of walking in the park were 5 times greater for this population than in our previous studies with non-depressed individuals.”

The memory tests involved examination of working memory—a process that involves such mental manipulations as trying to remember a 7-digit number. The subjects heard digit sequences and were prompted to repeat them backwards. Berman explained that adequate working memory correlates largely with intelligence and self-control.

So, why would a stroll through the park confer some psychological, antidepressant effects while an urban walk did not? Berman explained that a walk in a quiet, tranquil setting such as a park is restorative. “But in the city, you have noise, traffic and you always have to be vigilant. That’s not to say that cities are bad. Instead, it suggests that we might enhance cities to make them less taxing and more restorative.”

Next in line for the investigators? Studies with a focus on such issues as uncovering the neural and physiological changes that accompany interacting with nature and exploring how prolonged exposure to neighborhoods that are rich in nature or lack nature relate to both mental and physical health. Doing so may enable the researchers to design environments in ways that will optimize their restorative quality and benefit those who need them most. ●



## Kastner Elected to Institute of Medicine

Dr. Daniel Kastner, scientific director of the National Human Genome Research Institute, is one of 70 new members elected to the Institute of Medicine. Election to the IOM is considered one of the highest honors in the fields of health and medicine and recognizes individuals who have demonstrated outstanding professional achievement and commitment to service.

“The Institute of Medicine is greatly enriched by the addition of our newly elected colleagues, each of whom has significantly advanced health and medicine,” said IOM president Dr. Harvey Fineberg. “Through their research, teaching, clinical work and other contributions, these distinguished individuals have inspired and served as role models to others. We look forward to drawing on their knowledge and skills to improve health through the work of the IOM.”

New members are elected by current active members through a process that recognizes individuals who have made major contributions to the advancement of the medical sciences, health care and public health.

Established in 1970 by the National Academy of Sciences, IOM has become recognized as a national resource for independent, scientifically informed analysis and recommendations on health issues.