

# nih record



**ABOVE** • Bicycle commuting can be a family affair. See story below.

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## 10th Anniversary of Human Genome Project Celebrated

By Raymond MacDougall

Setting aside the project at her bench in the Silvio O. Conte Bldg., Hadley Bloomhardt, a National Human Genome Research Institute post-baccalaureate research trainee, ventured across campus to Natcher Conference Center on Apr. 25. She joined attendees of a day-long symposium at Kirschstein Auditorium organized by NHGRI to commemorate the 10th anniversary of completion of the Human Genome Project (HGP).

“The Genomics Landscape a Decade after the Human Genome Project” symposium featured a roster of speakers from various scientific disciplines, each of whom spoke about the impact of genomics since the sequence of the human genome was completed 10 years ago.

“I am only aware of where the field is now, but not necessarily where it started and how much it has changed,” said Bloomhardt, a member of the human development section of the Genetic Disease Research Branch. “I heard talks at the symposium on subjects ranging from newborn exome sequencing and the role of genomics in cancer



NHGRI director Dr. Eric Green

SEE GENOME ANNIVERSARY, PAGE 8

## NIH’ers Enjoy Bike to Work Day, Maintain Top Ranking as Bike Commuters

By Jeff Kopp

If you’ve never participated in Bike to Work Day, you’re missing out on a lot of fun.

On Friday, May 17, commuters across the D.C. area celebrated BTWD, ditching their cars, traffic and gasoline in place of bicycles, open trails and fresh air on the way to work.

On campus, the event was organized by the NIH Bicycle Com-muter Club (NIHBCC), which set up three “pit stops”—areas where bikers can grab a bite to eat, win prizes and socialize with other bicy-clists. The Washington Area Bicyclist Associa-



NIH director Dr. Francis Collins welcomes BTWD participants.

SEE BIKE TO WORK DAY, PAGE 6

## NIMH, Community Partners Discuss Violence, Mental Illness

By Keri Chiodo

“We have to think about how to make sure the research we do at NIMH really brings an impact to where it matters—in communities,” NIMH director Dr. Thomas Insel told more than 100 representatives of state and national mental health organizations gathered in Natcher Conference Center. The group convened recently for the 14th annual meeting of the NIMH Outreach Partnership Program (OPP), a nationwide initiative to increase the public’s access to mental health research through partnerships with 55 organizations



Kate Mattias, executive director of the National Alliance on Mental Illness Connecticut, addresses the OPP meeting.

SEE NIMH OUTREACH, PAGE 4



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NIH Record Office Bldg. 31, Rm. 5B41  
Phone (301) 496-2125 Fax (301) 402-1485

Web address <http://nihrecord.od.nih.gov>

**Editor**  
Richard McManus  
[Rich.McManus@nih.gov](mailto:Rich.McManus@nih.gov)

**Associate Editor**  
Carla Garnett  
[Carla.Garnett@nih.gov](mailto:Carla.Garnett@nih.gov)

**Staff Writers**  
Jan Ehrman  
[Jan.Ehrman@nih.gov](mailto:Jan.Ehrman@nih.gov)

Dana Steinberg  
[Dana.Steinberg@nih.gov](mailto:Dana.Steinberg@nih.gov)

Belle Waring  
[Belle.Waring@nih.gov](mailto:Belle.Waring@nih.gov)

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NIH...Turning Discovery Into Health



## briefs

### Author Goman To Present at DDM Seminar

The Deputy Director for Management (DDM) announces the final DDM seminar of the 2012-2013 series "Management and Science: Partnering for Excellence." The event on Thursday, June 20 from 11 a.m. to 12:30 p.m. in Masur Auditorium, Bldg. 10, will feature Carol Kinsey Goman, who will discuss "Collaborative Leadership." She will focus on how body language can affect a leader's ability to negotiate, manage change, build trust and promote collaboration.

Videocasting and sign language will be provided. Individuals who need reasonable accommodation to attend should call (301) 496-6211 or the Federal Relay Service at 1-800-877-8339.

For more information about the series, visit [www.ddmseries.od.nih.gov](http://www.ddmseries.od.nih.gov) or call (301) 496-3271.



Dr. Leighton Chan, chief of rehabilitation medicine at the Clinical Center, participates in panel on collaboration.

### Fellows Get Creative with Seminar Series

Two presidential management fellows, Dr. Tim Puetz and F.L. Dammann, were recently challenged to create a management seminar series for the NIH Training Center.

Since May marks Armed Forces Day, Memorial Day and Mental Health Awareness Month, the two decided on the topic of veterans' health. They contacted Dr. Christiane C. O'Hara, chair of the ArtReach Foundation's Project America program. They also contacted Dr. Leighton Chan, chief of the Clinical Center's rehabilitation medicine department, and Dr. Regina Armstrong, director of the Center for Neuroscience and Regenerative Medicine, two key collaborators in NIH's Traumatic Brain Injury Program. From this was born the series "Strategies for Effective Collaboration."

The concept, Puetz and Dammann explained, was to bring together two seemingly different organizations and teach a lesson about the challenges of collaboration to the NIH community. Their intent was to expose the similarities and differences between NIH's TBI program and the ArtReach program in their work with veterans.

ArtReach conducted two 3-hour workshops, each consisting of participants from Walter Reed National Military Medical Center, veterans who work at NIH and regular employees who were simply interested in veterans' health and creative arts. They participated in exercises that involved meditation, drawing, sculpting, dramatic improvisation, expressive movement and writing.

Attendees had positive reactions, say Puetz and Dammann. Plans for future workshops and collaboration between NIH, Walter Reed and ArtReach are in the works.



### NIDA, INSERM Forge New Collaboration

On May 7, the National Institute on Drug Abuse and Institut National de la Santé et de la Recherche Médicale (INSERM)—the French scientific and technological institute focusing on human health—signed a memorandum of intent to strengthen cooperation in basic and clinical research and research training, specifically in the areas of neuroscience and psychiatry. François Delattre (c), French ambassador to the United States, provided opening remarks at a NIDA Director's Seminar Series on the importance of fostering exchange of scientific information between France and the U.S. and also signed the memorandum. Dr. André Syrota (r), chair and chief executive officer of INSERM and president, French National Alliance for Life and Health Sciences (Aviesan), gave the plenary address titled "New Challenges in Life and Health Research: Opportunities for Cooperation in the French Research Landscape." NIDA director Dr. Nora Volkow (l) signed on behalf of the institute.



*ORF has eliminated more than 22 acres of weekly mowed lawn areas, turning those swaths into meadow and reforestation land. This has led to savings on recurring maintenance expenses.*

*Mo' Better to No-Mow*

### **Campus Environmental Practices Beginning to Flourish**

Beginning in the mid-1980s, the Office of Research Facilities began a comprehensive effort to minimize environmental conflicts on the NIH grounds by eventually eliminating pesticide and fertilizer use. The goal is to advance reforestation efforts, mitigate soil erosion as well as provide and enhance wildlife habitat.

“The 308-acre NIH campus is much more than just a beautiful place,” says Lynn Mueller, ORF landscape architect. “It is an outstanding example of innovative and best environmental practices.”

In particular, ORF has eliminated more than 22 acres of weekly mowed lawn areas, turning those swaths into meadow and reforestation land. This has led not only to savings on recurring maintenance expenses, but also has provided new and diverse wildlife habitat for birds and mammals. This acreage is now showing the natural regeneration of native trees that will attract other wildlife species.

Over those 20-plus years, surface parking lots have been replaced with multi-level parking structures, leading to an increase in campus green space. These natural, unmaintained areas are also responsible for greater stormwater control.

“Meadows and woodlands act as sponges and filters, absorbing rainwater and allowing it to infiltrate into the soil, recharging groundwater,” Mueller explains. “They act as filters by absorbing and then slowly releasing run-off, absorbing and blocking up-hill sediment flows and preventing soil erosion. Closely trimmed lawns do not have that full ability.”

The 50-foot-wide buffer strips along the stream banks filter out road and parking lot pollutants before they enter the stream and flow down to Rock Creek, to the Potomac and on into Chesapeake Bay.

“These small naturalized areas do much more than just look nice,” Mueller says.

Other ORF environmental initiatives include the almost total elimination of pesticide applications.

“Practicing integrated pest management, or IPM, over the past 25 years has allowed the campus to become much more in balance with beneficial insects and birds, controlling pest insects,” Mueller points out. “Only when absolutely necessary, ORF uses just the mildest of insecticides such as horticultural oil, insecticidal soap and *Bacillus thuringiensis* and only on a specific targeted pest on individual infested plants. Raising the tolerance for ‘weeds’ in the turf has allowed the total elimination of turf herbicide and insecticide applications.”

Soil tests are performed yearly to ensure the proper soil pH is maintained to support a healthy lawn. Lawn fertilizers have not been applied on campus in more than 20 years.

Mueller concludes, “All these environmental maintenance best practices have helped to protect the bay from unnecessary nutrient and sediment pollutants, all the while providing a lovely landscape for all to enjoy.”

### **Feedback Welcome on Adverse Event Reporting**

The National Cancer Institute is currently accepting open comment on the newest version of its adverse event reporting language.

The Common Terminology Criteria for Adverse Events (CTCAE) is used throughout the oncology research community as the standard grading scale for adverse events. The basic configuration of CTCAE is a list of adverse event terms associated with a grading scale—Grade 1 through Grade 5.

CTCAE has been revised based on feedback from users, including new term additions, clarifications in the grading of various terms, etc. The comment period for draft version CTCAE 5.0 will close on June 30. Suggestions received during this time will be considered for integration into the final product.

Examples of comments include requests for additional terms, changes to the grading for current terms and requests for clarification or examples of confusing language. Individuals should send comments to [ncictcaehelp@mail.nih.gov](mailto:ncictcaehelp@mail.nih.gov).

For the latest information and to view CTCAE 5.0, visit [http://ctep.cancer.gov/protocolDevelopment/electronic\\_applications/ctc.htm](http://ctep.cancer.gov/protocolDevelopment/electronic_applications/ctc.htm).



## NIMH OUTREACH

CONTINUED FROM PAGE 1

**Above, from l:**  
*NIMH director Dr. Thomas Insel moderates a dialogue on violence and mental illness at the NIMH Outreach Partnership Program meeting.*

*NIH director Dr. Francis Collins delivers the OPP meeting's keynote address.*

from across the U.S. More than 80 national organizations also participate in the program.

During his keynote address, NIH director Dr. Francis Collins called the OPP “a great model” of how NIH wants to connect with communities. He highlighted pioneering discoveries, innovative technologies and NIH neuroscience initiatives. “It’s an exhilarating time to be a biomedical researcher,” he said.

Partners learned about groundbreaking research being conducted by NIMH intramural scientists, such as fast-acting antidepressant medication trials and adolescent brain development studies. NIMH grantees described interventions to improve the health and longevity of individuals with serious mental illness. Partners also shared their experiences and outreach strategies in critical public health areas such as suicide prevention.

A special panel discussion, “How Sandy Hook Is Changing the Conversation,” addressed issues related to mental illness and violent behavior, sparked by mass shootings such as occurred in Newtown, Conn.

Partners described efforts to help communities cope with such traumatic events. “We have spent a considerable amount of time on decoupling the actual act that occurred at Sandy Hook from someone who has a mental illness,” said Kate Mattias, executive director of the National Alliance on Mental Illness Connecticut.

Stereotypes that wrongly link mental illness to violent behavior tend to develop as people attempt to rationalize violence that is difficult to explain, noted Dr. Bruce Link of Columbia University. He suggested that educating the public is key to overcoming these stereotypes and misperceptions about mental illness. Dr. Jeffrey Swanson of Duke University emphasized the importance of swiftly supplying the public with accurate mental health information, because the few months following an event like Sandy Hook is “a time when they are paying attention.”

Brian Altman of the Substance Abuse and Mental Health Services Administration described the National Dialogue on Mental Health, a new federal initiative called for by the President, which will include community conversations, social media and a new mental health web portal.

Early detection of mental illness proved to be an important issue to partners and panelists alike. Dr. Larry Wissow of Johns Hopkins University discussed the need for systematic engagement of pediatricians in mental health screenings of children and adolescents. Dr. Philip Leaf, also from Johns Hopkins University, noted that many early interventions in schools have proven effective in reducing violent incidents, arrests and suspensions.

“Most violence has nothing to do with mental illness and most mental illness has nothing to do with violence,” said Insel. He suggested mental health researchers and advocates “use this as a teachable moment.”

### **IntraMall Summer Showcase, June 19-20**

The NIH IntraMall Summer Showcase will be held in the South Lobby of Bldg. 10 on Wednesday, June 19 and Thursday, June 20 from 9:30 a.m. to 2 p.m. Since opening in June 1998, the IntraMall has become a leading NIH web site for using government purchase cards to locate, buy and track purchases from over 300 of its most frequently used suppliers, offering over 12 million lab, office and computer items.

The NIH IntraMall is open to all institutes and centers. Register for the event and a free lunch at <http://intramalls.com/showcase>, where a daily list of vendors is also displayed.

If you require reasonable accommodation to participate in this activity, call 888-644-6255 during business hours of 8:30 a.m. and 5 p.m. to discuss accommodations at least 7 days before the event.



*Photovoltaic solar collector panels have been installed on the roof of PNRC II as one of the project's many energy-efficient features. The panels generate DC electricity, which is then converted to AC.*

### Alternative Form of Energy Captured Underground at NIH

For the past 3 months on the west side of Bldg. 35, a high-tech drilling enterprise has been under way that will partially supply the Porter Neuroscience Research Center II with thermal energy to help cool the edifice. Although the geothermal drilling project was recently finished, work on piping the water through PNRC II is not yet complete.

The effort involved drilling about 100 feet from the building to approximately 1,500 feet down into the Earth to obtain 350,000 gallons of groundwater (or 8,600 gallons of water daily) annually from seven wells.

“What we have been doing for the past 3 months is drilling deep enough into the Earth's surface to reach groundwater at a temperature of some 45 degrees. Afterwards, we would return the water from the wells to the aquifer at 55 degrees. Meanwhile, the thermal energy generated by so doing is extracted for cooling purposes,” said Frank Kutlak, Office of Research Facilities (ORF) project manager and architect.

The 22-year NIH veteran added that geothermal drilling provides an environmentally friendly way to add another resource to the non-fossil fuel energy supply. It is expected to provide 60 tons of cooling capacity throughout the year.

Geothermal drilling has also been done at oth-

er local federal facilities, as well as some schools, Kutlak said.

“When this project was first planned, it did not have as many of the energy savings and sustainability features that it does now,” said ORF's Glen Stonebraker. “The requirements within the American Recovery and Reinvestment Act for sustainable design really caused us to go back and re-imagine what could be done, leading to the inclusion of features such as ground-source heat pumps and a partially green roof.”

Another component of the project involves solar collector panels installed on top of PNRC II. According to Kutlak, they are silicon composition panels that absorb rays from the sun and convert them to low-voltage DC electricity, which is then wired into the building where it is transformed into AC power. This complies with the electrical usage requirements of the Energy Policy Act of 2005.

Meanwhile, this may not be the last geothermal drilling on campus. Although the latest endeavor represents the first drilling project of its kind at NIH, others could follow in time, if found cost-effective and energy-efficient.—Jan Ehrman



*A drilling rig on the west side of PNRC II bores one of seven deep wells to provide geothermal energy to the building.*

PHOTOS: FRANK KUTLAK



## BIKE TO WORK DAY

CONTINUED FROM PAGE 1

**Above, l:**  
NIH director Dr. Francis Collins (l) and his wife Diane Baker arrived early at Bldg. 1 on BTWD.

**Above, r:**  
BTWD participants could have minor repairs made to their bikes at the event.

**Below:**  
Dr. Roger Kurlander of the Clinical Center displays his recumbent bike.

PHOTOS: BILL BRANSON

tion reported that more than 14,000 people registered for the event, up from 12,000 who signed up last year. This year, 477 NIH'ers registered. NIH also placed first in the region as the employer with the most Bike to Work Day participants for the 8th consecutive year.

NIH's pit stops included the front of Bldg. 1, Rockledge Drive at the Rock Springs Business Park and Fallsgrove Village Center in Rockville. All featured tents from several area sponsors and refreshments; the pit stop at Bldg. 1 even had a bike-powered stereo and blender.

Jonathan Mazal, who is new to NIH this year and also an active member of the NIHBC, organized the event.

Randy Schools, president of NIH's Recreation and Welfare Association, spoke on the steps of Bldg. 1 and presented the second annual Carl Henn Bicycling Advocacy Award; it honors the memory of Henn, a former employee and activist who helped the NIHBC get off the ground and was killed by lightning in 2010. The City of Rockville also renamed a portion of its Millennium Trail in honor of Henn shortly after his death. Henn worked tirelessly with the city to make sure the trail was contiguous and clearly marked for bicyclists.

Schools gave the award to Steve Friedman, protocol and information specialist at the National Cancer Institute, who has been involved with the

NIHBC for over 22 years. He has also worked with Montgomery County officials to keep bike trails maintained not only for NIH employees but also for other county residents.

Friedman said, "Biking to work is such a great opportunity...we're very grateful to everyone for their support." He said he uses the Millennium Trail and gets goosebumps every time he passes the sign honoring Henn.

County Councilmember Hans Riemer also spoke at the gathering. "I want to thank you all for changing the way that this county lives and the choices they're making," he said. "It's a great place to work and a great place to live, but not always a great place to bike...As we move to the future we've got to have more people biking to work. Each of you is an ambassador of that future."

He warned that gridlock will result if county residents insist on single-occupant vehicles for commuting, but acknowledged that change will come slowly. "It's a gradual shift, a cultural shift, a mind-set shift."

An at-large member of the council, Riemer also noted that the county recently allocated \$250,000 for more bike lanes and signs, which will "help make cyclists feel safer." The county is also in the process of bringing Capital Bike Share, a short-term community bike-sharing service in the District and Northern Virginia, to Montgomery County, he noted. "The last thing we want is a failed county bike program."

NIH director Dr. Francis Collins also joined the festivities, as has been his custom since becoming director. He and his wife Diane Baker rode about 4 miles from their home in Chevy Chase





NCI's Steve Friedman was presented with this year's Carl Henn Bicycling Advocacy Award. He is shown here with Henn's widow, Carol Henn.

via the Georgetown Branch Trail (the interim Capital Crescent Trail) and back streets—a route laid out, Collins said, by NHGRI's Dr. Peter Chines, who lives nearby.

"We were encouraged by Bike to Work Day to do more biking outside of the workday," he said, divulging that a favorite route is the 22-mile loop down Beach Drive through Rock Creek Park past the zoo to the river, then up the Crescent Trail. "I can't imagine a better way to spend a couple of hours."

He continued, "We are the National Institutes of Health, and it's great to see us exhibiting health in our own personal behavior." Of bicycle commuting he observed, "It's nice to have a little distraction before going to work."

Dr. Angela Atwood-Moore, who organized the event in the past, also attended. She noted that despite improvements in attitudes and infrastructure toward commuter biking, there are still improvements to be made.

"I hope that NIH continues to recognize that biking is a serious form of transportation, not just for recreation," she said. "It can allevi-



**Above:**

Collins (r) checks in at the registration table in front of Bldg. 1 on Bike to Work Day. Registrants got free T-shirts, breakfast foods, bike tune-ups and a chance to win raffle prizes.



**Left:**

Dr. Angela Atwood-Moore, who organized the event last year, poses here with her husband Tchad Moore and their daughter Sofiya Moore.

**Below:**

NCCAM director Dr. Josephine Briggs embraces an alternative mode of transportation on BTWD 2013.



County Councilmember Hans Riemer at BTWD.



## GENOME ANNIVERSARY

CONTINUED FROM PAGE 1



for Advancing Translational Sciences, can help address the gap between those numbers.

Thirteen speakers from leading research institutions around the country painted a multifaceted picture of genomics. Their talks tied genomics to fields as diverse as anthropology, oncology, developmental biology, microbiology, pharmacology, public health and museum studies. Here is a sampling from those presentations:

▣ Dr. Kirk Johnson, director of the National Museum of Natural History at the Smithsonian Institution, described a new 12,000-square-foot museum where scientists are using genomics to address the problem of declining biodiversity. He said that Smithsonian biodiversity researchers, who traditionally have relied on the established taxonomy of species and genera, have since realized that genomics is a powerful way forward. He also enthusiastically described the exhibition, “Genome: Unlocking Life’s Code,” developed through a partnership between the museum and NHGRI. The exhibition will open June 14. For information, visit <http://unlockinglifescode.org/>.

▣ Dr. David Kingsley, a developmental biologist from Stanford University, described physical adaptations that distinguish multiple varieties of sticklebacks—fish whose marine habitats have influenced the expression of their genes. Kingsley’s laboratory identified a gene that, when mutated, impairs formation of a spiny pelvic fin—an advantage for ocean sticklebacks who must defend against soft-mouth ocean predators, but disadvantageous to freshwater sticklebacks. Researchers in the Kingsley laboratory have been able to manipulate the gene in the freshwater, finless variety, growing the fin that evolutionary adaptation had eliminated.

▣ Dr. Claire Fraser, director of the University of Maryland Institute for Genome Sciences, described a core set of functions that are carried out by different suites of microorganisms in the gut. She discussed a study that is helping to determine the effect of the gut microbiome on immunologic response in animal models, following immunization against a bacterial infection called shigellosis.

▣ Harvard University’s Dr. David Williams discouraged the assumption that genomic research breakthroughs will reach all populations and recommended that systematic efforts be made

to disparities in access to genetic medicine. It is clear to me from this day that genomics will play an enormous role in virtually all areas of medicine in the future.”

The symposium coincided with the date, 60 years earlier, when discovery of the double-helical structure of DNA was published in *Nature* and the month, 10 years earlier, when the HGP reached completion. Bloomhardt would not likely remember the fanfare that accompanied the HGP completion announcement. But on this day in 2013, the historic context of the HGP and the ongoing impact of the project came into view.

NHGRI director Dr. Eric Green set the stage for the day of scientific presentations. He noted that generating the first human genome sequence required 6 to 8 years of active sequencing and cost about \$1 billion. Advances in DNA sequencing technologies since then have reduced both the cost and time required to sequence a human genome to just a few thousand dollars and a few days, respectively.

NIH director Dr. Francis Collins, who was at the helm of NHGRI during the HGP, described it as so compelling, game-changing and interdisciplinary that it attracted some of the best and brightest of our generation. Dispelling the notion that the HGP was the end of the line for genome sequencing, he emphasized, “We are still not in the post-genomic era.”

Future challenges in genomics include the need to generate data sets that scientists depend on to understand biology, train future scientists and develop treatments for the diseases that are now better understood due to genomic advances, Collins said. He observed that the molecular basis of almost 5,000 rare genetic disorders has been described, but treatments are available for just 200 of those. He hopes that NIH programs, such as the recently established National Center

### Top, r:

HGP anniversary panelists included Harvard’s Dr. David Williams (l) and Dr. Nancy Cox of the University of Chicago.

### Below:

Also on the panel were (from l) Dr. Claire Fraser of the University of Maryland, Dr. David Botstein of Princeton University and Dr. Levi Garraway of Dana-Farber Cancer Institute.

PHOTOS: MAGGIE BARTLETT





Dr. David Kingsley of Stanford University described genetic studies with stickleback fish.

to ensure equitable access to genomic medicine. "Minorities have elevated levels of illness even at comparable levels of education and income," he said. "Your zip code is a stronger predictor of health than your genetic code."

University of Chicago geneticist Dr. Nancy Cox acknowledged her good fortune in witnessing the genomic discoveries of the past 10 years. "The things that have been highly significant and reproducibly associated with common diseases and complex human traits, to date, really are the tip of the iceberg of what there is in even the genotype-level surveys that have been done," she said.

Dana-Farber Cancer Institute researcher Dr. Levi Garraway addressed the genomics of cancer, with particular emphasis on expanded understanding of the complex nature of the disease made possible through genome sequencing. Cancer occurs in the presence of recurrent mutations, so the field of research is not only focused on genes implicated in the disease, but also on the metabolism of cancer in relation to genome mutations. Garraway outlined a set of best practices for the introduction of genome sequencing into clinical oncology practice.

The task of summarizing the symposium fell to geneticist Dr. David Botstein of Princeton University. He hailed advances in comparative genomics as the grand unification of biology and enumerated discoveries that were promised at the start of the HGP and many others that have been a surprise. "It's the genome that started a whole field of biology, which seeks to understand how genes and proteins talk to each other," he said. "That has got to be the way of the future."

NHGRI organizers scheduled the symposium and other commemorative events to give the NIH community and as many people as possible across the country an opportunity to celebrate the HGP completion a decade earlier. Green offered directions to the forthcoming genome exhibition at the National Museum of Natural History: "Go to the Hope Diamond and take a left," he said, adding that the exhibition will occupy Hall 23, a number whose significance was not lost on audience members, many of whose work entails sorting through the 23 pairs of human chromosomes in the human genome.

Video recordings from the symposium are at [www.genome.gov/27552257](http://www.genome.gov/27552257).

### Mider Lecture Features NICHD's Lippincott-Schwartz, June 12

Dr. Jennifer Lippincott-Schwartz, NIH distinguished investigator at the National Institute of Child Health and Human Development, will deliver the annual G. Burroughs Mider Lecture as part of the 2012-2013 Wednesday Afternoon Lecture Series. Her talk, "Navigating the Cellular Landscape with New Optical Probes, Imaging Strategies and Technical Innovations," will be held on Wednesday, June 12, 3-4 p.m., in Masur Auditorium, Bldg. 10.



Dr. Jennifer Lippincott-Schwartz of NICHD will deliver the 2013 G. Burroughs Mider Lecture.

Lippincott-Schwartz is chief of the section on organelle biology in the Cell Biology and Metabolism Branch. Her research uses live-cell imaging approaches to analyze the spatiotemporal behavior and dynamic interactions of molecules in cells. The projects in her lab cover a range of cell biological topics including protein transport and the cytoskeleton, organelle assembly and disassembly and the generation of cell polarity. Analysis of the dynamics of fluorescently labeled proteins expressed in cells is performed using numerous imaging approaches including fluorescence recovery after photobleaching, fluorescence-correlation spectroscopy and photoactivation. She is an active member of the scientific community, having served as a member of the council of the American Society of Cell Biology and on the executive board of the Biophysical Society. She was elected to the National Academy of Sciences in 2008 and to the Institute of Medicine in 2009.

The Mider lecture, established in 1968, honors the first director of NIH laboratories and clinics. The lecture is presented by an NIH intramural scientist in recognition of outstanding contributions to biomedical research. For lecture information and reasonable accommodation, contact Jacqueline Roberts, (301) 594-6747 or [robertsjm@mail.nih.gov](mailto:robertsjm@mail.nih.gov).

### How Can NIH Help Smokers Quit?

Dr. Steven A. Schroeder, professor of health care, division of general internal medicine, and director, Smoking Cessation Leadership Center, department of medicine, University of California, San Francisco, will speak on Tuesday, June 18, from 10 a.m. to noon in Natcher Bldg., balcony B. His topic is "Bridging the Gap Between What Health Professionals Should Do to Help Smokers Quit and What They Actually Do: What Is the Role of Public Health Care Workers and the NIH?" The talk is part of the NIH Office of Disease Prevention's Medicine: Mind the Gap seminar series.



Dr. Steven A. Schroeder

Although tobacco use remains by far the most important cause of death and disability, it fails to "punch its weight" among the policy, research and academic communities when compared with other conditions such as breast cancer, obesity or autism. There needs to be more direct focus on both helping smokers quit and preventing initiation of smoking. In addition, there are many important questions regarding how best to tailor smoking cessation interventions. Schroeder's talk will address these issues.

No advance registration is needed. Email [Paris.Watson@nih.gov](mailto:Paris.Watson@nih.gov) or call (301) 496-6615 for sign language interpreters or other reasonable accommodation.

## Scientists Discover Molecule That Triggers Sensation of Itch

NIH scientists discovered in mouse studies that a small molecule released in the spinal cord triggers a process that is later experienced in the brain as the sensation of itch.

The small molecule, called natriuretic polypeptide b (Nppb), streams ahead and selectively plugs into a specific nerve cell in the spinal cord, which sends the signal onward through the central nervous system. When Nppb or its nerve cell was removed, mice stopped scratching at a broad array of itch-inducing substances. The signal wasn't going through.

Because the nervous systems of mice and humans are similar, the scientists say a comparable biocircuit for itch likely is present in people. If correct, this start switch would provide a natural place to look for unique molecules that can be targeted with drugs to turn off the sensation more efficiently in the millions of people with chronic itch conditions such as eczema and psoriasis.

The paper, published online in *Science*, also helps to solve a lingering scientific issue. "Our work shows that itch, once thought to be a low-level form of pain, is a distinct sensation that is uniquely hardwired into the nervous system with the biochemical equivalent of its own dedicated land line to the brain," said senior author Dr. Mark Hoon of the National Institute of Dental and Craniofacial Research.

## Molecular Explanation for Age-Related Fertility Decline in Women

Scientists supported by NIH have a new theory as to why a woman's fertility declines after her mid-30s. They also suggest an approach that might help slow the process, enhancing and prolonging fertility.

They found that, as women age, their egg cells become riddled with DNA damage and die off because their DNA repair systems wear out. Defects in one of the DNA repair genes—BRCA1—have long been linked with breast cancer, and now also appear to cause early menopause.

"We all know that a woman's fertility declines in

her 40s. This study provides a molecular explanation for why that happens," said Dr. Susan Taymans of the Fertility and Infertility Branch of the National Institute of Child Health and Human Development, which funded the study. "Eventually, such insights might help us find ways to improve and extend a woman's reproductive life."

The findings appeared in *Science Translational Medicine*.

## Taming Suspect Gene Reverses Schizophrenia-Like Abnormalities in Mice

Scientists have reversed behavioral and brain abnormalities in adult mice that resemble some features of schizophrenia by restoring normal expression to a suspect gene that is overexpressed in humans with the illness. Targeting expression of the gene *Neuregulin 1*, which makes a protein important for brain development, may hold promise for treating at least some patients with the brain disorder, say researchers funded by the National Institute of Mental Health.

Like patients with schizophrenia, adult mice biogenetically engineered to have higher *Neuregulin 1* levels showed reduced activity of the brain messenger chemicals glutamate and GABA. The mice also showed behaviors related to aspects of the human illness. For example, they interacted less with other animals and faltered on thinking tasks.

"The deficits reversed when we normalized *Neuregulin 1* expression in animals that had been symptomatic, suggesting that damage which occurred during development is recoverable in adulthood," explained NIMH grantee Dr. Lin Mei of the Medical College of Georgia at Georgia Regents University. Mei, Dr. Dong-Min Yin, Dr. Yong-Jun Chen and colleagues reported their findings May 22 in the journal *Neuron*.

"While mouse models can't really do full justice to a complex brain disorder that impairs our most uniquely human characteristics, this study demonstrates the potential of dissecting the workings of intermediate components of disorders in animals to discover underlying mechanisms and new treatment targets," said NIMH director Dr. Thomas Insel. "Hopeful news about how an illness process that originates early in development might be reversible in adulthood illustrates the promise of such translational research."—compiled by Jeff Kopp



*NIH scientists have discovered in mouse studies that a small molecule released in the spinal cord triggers a process that is later experienced in the brain as the sensation of itch.*



NINR director Dr. Patricia Grady (fourth from r) and the AACN faculty policy intensive participants

### Grady Connects Science with Education, Practice, Policy

NINR director Dr. Patricia Grady recently presented at a series of American Association of Colleges of Nursing (AACN) events. The three events—a student policy summit, a faculty policy intensive and a luncheon briefing on Capitol Hill—brought together an interdisciplinary audience of nursing students and leaders in academia, research, clinical practice and policy. Throughout the events, Grady emphasized a central theme—the impact of NINR research on clinical practice and health care.

At the student policy summit, titled “Translating Nursing Research into Policy,” Grady explained how NINR, like other NIH institutes and centers, provides leadership and scientific consultation in a wide range of forums. She also gave examples of recent NINR-supported advances and their relevance to improving the health of all Americans.

“One common thread binding our communities together is the application of scientific evidence to improve health and health care,” Grady said. “Nursing research, practice and education are critical and essential components to catalyzing sustainable, comprehensive improvements.”

At the briefing on Capitol Hill, Grady joined deans from AACN nursing schools for a discussion about nursing research and its impact on clinical practice. She offered examples of cutting-edge research and training opportunities that NINR is funding to improve health and health care across the lifespan. She also emphasized the need to support research that provides the evidence base for clinical practice. “Research in the health sciences has led to tremendous improvements in the health and welfare of people in our country and around the world,” she noted.

The following week, Grady met with fellows from the AACN faculty policy intensive, a program in which faculty from AACN-member schools engage in an intensive policy experience, which includes an opportunity to meet with leadership from federal departments and agencies.

“Nursing research, clinical practice and policy have an iterative, cyclical relationship,” Grady said. “Gaps identified by research spur on policy, which in turn influences and shapes our research agenda as well as clinical practice.”

### NITAAC Holds IT Acquisition Forum, June 18 at Natcher

The NIH Information Technology Acquisition and Assessment Center will present “At the Corner of Savings & Confidence,” an IT acquisition forum and exhibition, on Tuesday, June 18 from 9 a.m. to noon in Natcher Conference Center. Learn about government-wide acquisition contracts and visit more than 60 exhibits on the latest IT products, services and solutions. Attendance is free. Register at <http://nitaac.nih.gov>. For more information call 1-888-773-6542.



### 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.

### Volunteers with NAFLD, NASH Sought

NIDDK seeks volunteers 18 and older with non-alcoholic fatty liver disease (NAFLD) or non-alcoholic steatohepatitis (NASH). Researchers want to know which dose of vitamin E most effectively treats these conditions. You will initially join a 12-week lifestyle modification program for diet and/or weight loss followed by up to 3 years of treatment with vitamin E. Throughout the study, a registered dietitian will provide counseling to help you achieve and maintain the diet and lifestyle changes. Study-related tests, procedures and medications are provided at no cost. For more information, call 1-866-444-2214 (TTY 1-866-411-1010) and refer to study 13-DK-0002.

### Men with Prostate Cancer Needed

NINR seeks men 18 and older with prostate cancer to join a research study about the causes of fatigue during radiation treatment. Researchers also want to learn if exercise can help reduce this type of fatigue. The study involves at least 10 outpatient visits to the Clinical Center. Participants will have the option to complete an 8-week treadmill exercise program as part of the study. There is no charge for study-related procedures. For more information, call 1-800-444-2214 (TTY 1-866-411-1010) and refer to study 09-NR-0088.

### Women’s Health Studies Seek Healthy Volunteers

Healthy women ages 40-60 are invited to participate in outpatient research studies. Compensation is provided. Call (301) 496-9576.

### Postpartum Depression Research Studies

Women ages 18-50 who had PPD in the past are invited to participate in outpatient research studies. There is no cost for participation. Compensation is provided. Call (301) 496-9576 (TTY 1-866-411-1010) and refer to study 95-M-0097.



## Stormwater Management Pond Nears Completion

If you've taken a stroll on the southeast side of campus lately, you've probably noticed that the construction equipment is gone and the new stormwater management pond, also known as "NIH Stoney Creek Pond," is just about complete.

The project, constructed in partnership between NIH and Montgomery County, sits on 6 acres between NIH and Woodmont Ave. and is designed to collect water from a 204-acre watershed that includes much of downtown Bethesda and part of NIH's campus.

The pond is designed to improve water quality and reduce stormwater flow rates and erosion in Stoney Creek, which continues on to Rock Creek and eventually feeds the Potomac River then Chesapeake Bay.

The pond had been on the drawing board since the 1990's, but has just recently reached its final stages. Construction began in October 2010.

Now that it has been built, it will benefit lower Rock Creek and help meet the objectives of Montgomery County's pollutant discharge elimination system.

PHOTOS (EXCEPT FOR BOTTOM): JEFF KOPP



*Above:* The pond occupies the southeast corner of campus, near Woodmont Ave.; Lister Hill Center (Bldg. 38A) is visible on the right.

*Below, l:* The stormwater inlet that replaced the previous open culvert under Woodmont Ave.

*Below, r:* The forebay area of the pond, which is used to collect debris and trash before entering the main body of the pond



*The way things used to be at Stoney Creek, photo circa January 2011*