

# nih record



**ABOVE** • The expanded CTSA program includes local medical centers. See story on p. 5.

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## Ex-NIH Director Varmus 'Re>Returns' to Lead NCI

By Rich McManus

**F**ormer NIH director Dr. Harold Varmus (1993-1999) returned to NIH for the second time in his career on July 12, when he became the 14th director of the National Cancer Institute. His first stint at NIH was service as a clinical associate for 2 years (1968-1970) at the National Institute of Arthritis and Metabolic Diseases.

Sworn in to his new duties by HHS Secretary Kathleen Sebelius earlier that day, Varmus conducted a 50-minute Town Hall meeting at Kirschstein Auditorium in Natcher Bldg. in the afternoon. He outlined some of his objectives for NCI, shared his philosophy on how science advances, named key associates and divulged some personal preferences on grammar, salutation and deportment before the crowded hall.



NIH director Dr. Francis Collins (r) welcomes Dr. Harold Varmus back as 14th director of NCI. Varmus was also the 14th NIH director.

SEE VARMUS, PAGE 6

### The Tao of Tau

#### Tangles, Not Plaques, a New Focus in Alzheimer's Research

By Rich McManus

Mainstream research on Alzheimer's disease may be giving short shrift to the tangles part of the two-fisted pathology that has for decades been a hallmark of the disease: the development of plaques and neurofibrillary tangles in the brains of AD patients.

It is the latter feature that intrigues researchers such as Dr. Karen Duff, professor of pathology and cell biology at Columbia University's Taub Institute for Research on Alzheimer's Disease and the New York State Psychiatric Institute. She presented a Wednesday Afternoon Lecture in Masur Auditorium on June 23.

In a 75-minute talk titled "It Takes Tau to Tangle: Plaques, Tangles and Neurodegenerative Disease," Duff explained how scientists are "reconciling the contributions of amyloid plaques (or A-beta, a peptide that forms plaques) and tau," a protein causing tangles.

SEE ALZHEIMER'S, PAGE 4

### Program Seeks Volunteers

#### 'Adventures in Biology' Begins This Fall

Adventures in Biology, a series of evening lectures at NIH for high school students, will begin its first season this October and is seeking volunteer teachers from the NIH staff. The program will explore selected topics in biology that are not covered in the usual high school curriculum. Each week, a guest scientist will discuss a topic of current research interest. The goal of AIB is not just to present science facts, but to introduce students to the process and drama of scientific discovery.

AIB will be administered as a 4H program and is not sponsored by NIH, although NIH supports its educational goals. "Science education is part of the mission of NIH," says Dr. Bruce Fuchs, director of NIH's Office of Science Education. "Although Adventures in Biology may only reach students who already have a significant interest in science, it's important to nurture that interest. We support the goals of this program and may learn some lessons from it that might be applicable on a wider scale."

SEE ADVENTURES, PAGE 8



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## briefs

### Free Outdoor Film Festival, Aug. 13-20

The movie line-up has been announced for the 14th annual Comcast Film Festival, which will take place nightly from Friday, Aug. 13 to Friday, Aug. 20. Due to construction at the Strathmore location, the film festival has relocated to the Universities at Shady Grove, 9630 Gudelsky Dr., Rockville. Bring your blanket, chairs (low chairs only) and anyone who loves movies to this event. The movies are free, as is parking, and food will be available to purchase. There will also be a raffle and acceptance of donations to help raise funds for the NIH Charities (Friends of the Clinical Center, the Children's Inn and Camp Fantastic/Special Love).

- Aug. 13 *The Blind Side*
- Aug. 14 *Twilight: New Moon*
- Aug. 15 *Transformers: Revenge of the Fallen*
- Aug. 16 *Jerry McGuire*
- Aug. 17 *Valentine's Day*
- Aug. 18 *Up in the Air*
- Aug. 19 *Julie & Julia*
- Aug. 20 *Cloudy with a Chance of Meatballs*

Restaurants will open at 6:30 p.m. and the movies will begin at 8:30. For more information, visit [www.filmfestnih.org](http://www.filmfestnih.org) or call (301) 496-6061. If you are interested in volunteering, contact Kallie at [wassermankt@mail.nih.gov](mailto:wassermankt@mail.nih.gov).

### Help Feed Hungry Families

NIH'ers are asked to contribute to the 2010 Feds Feed Families summer food drive. A list of needed donation items is displayed on the promotional poster next to the collection bins. All employees are encouraged to bring in canned goods, hygiene products and other non-perishable nutritional items. Below is a listing of the food drive locations.

On campus locations include cafeterias in Bldgs. 1, 10, 31, 38 and 45; Bldg. 31 parking office (B3 level) and Bldg. 50 lobby.

Off campus bins are at 301 N. Stonestreet Ave. lobby, 6001 Executive Blvd. cafeteria, 6100 Executive Blvd. lobby, 6120 Executive Blvd. lobby, 6700B Rockledge lobby, 10401 Fernwood lobby, Bayview lobby, Gateway Bldg. 2nd floor, 701 Democracy lobby and 2115 East Jefferson.

The collection boxes will be picked up by the Capital Area Food Bank on Aug. 31. For more information, visit [www.fedsfeedfamilies.gov](http://www.fedsfeedfamilies.gov).

### Principles of Clinical Pharmacology Course

The Principles of Clinical Pharmacology course,

sponsored by the Clinical Center, will begin in Lipsett Amphitheater, Bldg. 10 on Sept. 2. The course will be held Thursday evenings from 6:30 to approximately 7:45 and will run through Apr. 28, 2011.

The course covers topics such as pharmacokinetics, drug metabolism and transport, assessment of drug effects, drug therapy in special populations and drug discovery and development.

Registration is open to all interested individuals at no cost unless the course is being taken for graduate credit. The course may be taken for credit through FAES as PHAR 500 I and PHAR 500 II; contact FAES directly at (301) 496-7976. Deadline for registration is Aug. 20. Certificates of participation will be awarded at the end to all students who attend 75 percent of the lectures. More information is available at [www.cc.nih.gov/training/training/principles.html](http://www.cc.nih.gov/training/training/principles.html) or by calling (301) 496-9425.

### Tae Kwon Do Beginner's Class

The NIH Tae Kwon Do School is offering a beginner's class for adults and mature teens. New students are invited to begin classes on Monday, Sept. 13. The curriculum combines traditional striking arts, forms, sparring and basic aikido techniques with emphasis on self-defense. No experience is necessary. Classes meet in the Malone Center (Bldg. 31C, B4 level, next to the NIH Fitness Center) from 6 to 8 p.m. on Mondays and 6 to 7 p.m. on Wednesdays (6-7 p.m. Fridays, optional). Registration fee is \$50 and includes 10 weeks of beginner's class and a uniform costs \$40. Interested persons are welcome to watch regular training sessions. For information call Lewis Slotter, (301) 213-5841 or visit [www.recgov.org/r&w/nihtaekwondo.html](http://www.recgov.org/r&w/nihtaekwondo.html).

### Marcus Moves to NIGMS

*Dr. Stephen Marcus recently joined NIGMS as a program director in the Center for Bioinformatics and Computational Biology. He is developing and leading a new extramural research program focused on social and behavioral modeling, but also looking more broadly at systems*



*science approaches to health. Marcus comes to NIGMS from NCI, where he served as a senior epidemiologist in the Tobacco Control Research Branch, Division of Cancer Control and Population Sciences. He earned an M.P.H. from the University of Michigan and a Ph.D. in philosophy from the University of North Carolina at Chapel Hill.*

## New NIH Global Health Course Enlightens Students

By Susannah Cleary

Interest in global health across campuses nationwide is surging and NIH is no exception. This past semester marked the debut of Introduction to Global Health, a new course available through the FAES Graduate School. The course was the brainchild of Dr. Linda Kupfer from the Fogarty International Center, who designed it with the intention of raising awareness of underappreciated topics in global health while also dispelling common myths.

Much of the focus of the curricula was on low- and middle-income countries; however, the concept that global health concerns the health of people worldwide was emphasized. The diseases having the greatest impact on health were also discussed. Of those, AIDS, tuberculosis and malaria are frequently viewed as being a profound cause of death and illness, especially in the developing world. The class was also introduced to the unexpected burden of disease from non-communicable conditions such as diabetes, heart disease and stroke, which are steadily having a greater impact on health in the developing world.

According to student Susan Ivey, "My understanding of global health before I started was confined to infectious diseases that afflict people in the developing world; the class helped round out that vision to encompass health issues affecting the entire global community—developed and developing—such as chronic diseases, nutrition and traffic safety."


Additionally, as pointed out by lecturer Dr. Peter Hotez of George Washington University, neglected tropical diseases (NTDs), including parasites and worms, have an alarming impact on health for up to a billion of the world's poorest people. While not always fatal, these infections are debilitating to individuals and devastating for communities. According to Hotez, treating or preventing NTDs is a highly cost-effective intervention that can often be achieved with a single pill, sometimes for less than 10 cents per tablet.

The powerful impact of nutrition on health, whether through malnutrition or obesity, surprised many in the class. Dr. Meera Shekar of the World Bank described how nutrition can be a critical determinant underscoring one's ability to work and learn productively, alerting the class to the special role of nutrition for the very young. Poor nutrition in babies up to 24 months of age has major and irreversible effects on growth and cognitive development. Designing interventions targeting these age groups can have a major impact that is felt over a lifetime.

Another important aspect of the course was an emphasis on the idea that solving global health issues cannot be achieved without addressing underlying problems such as poverty and inadequate health systems. Thus, a significant component of the course was devoted to how these challenges are being addressed through programmatic or policy means. Fogarty's mission of building research capacity in the developing world was showcased, while other NIH programs were also discussed, such as the NHLBI Global Health Initiative and the NCI initiative in global health training, both of which aim to combat chronic diseases in developing countries.

For many of the students who began the course with the belief that global health challenges are too complex to be solved, their doubts had disappeared by the end. "The course presented a large range of global health issues, each of which is incredibly complex in its own right," said student Fanette Fontaine. "However, the course taught me that through interdisciplinary teams of researchers, physicians, policy makers and other key players these challenges can be tackled despite their complexity."

Another unexpected outcome was the large number of students who expressed an interest in pursuing a career in global health. "Taking the course did motivate me to pursue a career in global health; for instance the research done in sub-Saharan Africa can be applicable to any person living with the same disease in the U.S. or other countries," said student Kathrina Quinn. "The world, as a whole, can benefit both medically and economically from global health research."

Due to popular demand, Introduction to Global Health will be offered again in 2011. For more information about the course, visit [www.faes.org](http://www.faes.org). 

## NIDDK's Bennett Honored by ADA

Dr. Peter Bennett, NIDDK scientist emeritus and former chief of the Phoenix Epidemiology and Clinical Research Branch, was honored with the American Diabetes Association's Harold Rifkin Award for Distinguished International Service in the Cause of Diabetes. He received the award at the ADA's 70th scientific sessions in Orlando in June.

The award recognizes individuals whose outstanding service in the cause of diabetes has been performed with an international perspective and impact.

Bennett is best known for his many contributions to diabetes research through long-term studies of the disease in the Pima Indians and other American Indian populations. He played a major role in the World Health Organization Multinational Study of Vascular Disease in Diabetes, the first study to clearly show the wide variation in the type and frequency of blood vessel complications from diabetes in different racial groups and geographic locations.

In the 1980s, Bennett conducted epidemiology studies in several South Pacific islands. He also designed the China Da Qing Diabetes Study, a forerunner to the landmark Diabetes Prevention Program, which documented the benefits of lifestyle changes in people at high risk of developing type 2 diabetes. He has contributed extensively to teaching diabetes epidemiology by serving on the faculty of more than 25 international courses during the past 30 years.



*Dr. Peter Bennett (r) accepts the Rifkin Award from Dr. Richard Bergenstal of the American Diabetes Association.*



*Dr. Karen Duff's recent lecture focused on the role of tangles in Alzheimer's disease and on possible therapeutic interventions.*

Accumulation of either substance, she said, has been shown in cell and animal models to lead to loss of synapses, degeneration of neurons and memory loss. However the identification of mutations that cause AD in genes contributing to the amyloid pathway has driven the urge to understand how A-beta or amyloid accumulation contributes to the disease and how it can be neutralized to attempt to prevent or reverse the disease.

Today, however, "the field is moving to tau," which is normally a soluble microtubule-binding protein. In a misfolded conformation, tau turns bad guy, accumulating in brain cells and destroying them. Once tau pathology begins to propagate in certain brain areas, the plunge from mild cognitive impairment to full-blown AD is virtually assured. In addition to AD, at least 30 different dementia, including Parkinson's disease, involve what Duff called "tauopathy."

In her studies on AD, she and her colleagues are looking for possible therapeutic targets against pathways that lead to both plaques and tangles forming. They hypothesize that, in the late-onset or sporadic form of AD (as opposed to the hereditary form, which tends to manifest earlier in life), both paths are activated; preventing one pathway may not prevent the devastating effects of the other unless the therapy is started before the disease has really taken hold. In support of this, human clinical trials have shown that immunotherapy to remove plaque amyloid only had limited success in preventing further decline in the patients and patients still died with end-stage AD, which included devastating tangle pathology.

Duff said that although several approaches may be effective against both plaque (or A-beta) pathology and tangles, there are not currently enough being tested; strategies against tau tangles especially need to be researched. A potential vulnerability in brain cells includes degradation pathways and autophagy (literally "self-eating") pathways, which drugs could theoretically target as a way of spurring the removal of damaged organelles or abnormal proteins such as amyloid or tangle-type tau. Her lab's recent work using a drug called trehalose that targets autophagy reduced levels of the dangerous form of tau in a mouse model of disease; others have shown similar drugs can remove amyloid and even proteins causing Parkinson's and Huntington's disease. Targeting autophagy may eventually prove helpful as a therapy for a

range of neurodegenerative diseases or diseases such as AD where several different proteins can accumulate in the same brain.

Interestingly, a person can harbor both plaques and tangles and not have any disease at all. "A crucial thing is where they accumulate," Duff noted. Her most recent work aims to look at why certain areas of the brain are vulnerable

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*Once tau pathology begins to propagate in certain brain areas, the plunge from mild cognitive impairment to full-blown AD is virtually assured.*

to plaques and tangles and how we can prevent them from spreading to these sensitive areas.

In summary, Duff concluded:

- ▲ Tangle pathology correlates best with cognitive decline in AD and it does not seem to be prevented in patients with reduced amyloid load following immunotherapy.
- ▲ Therapeutics against tau (tangles, precursors) are likely to be necessary to reduce cognitive decline/degeneration once the disease has started.
- ▲ Disease is likely to be well-advanced at the earliest stage currently diagnosed (MCI, or mild cognitive impairment).
- ▲ Therapeutic approaches that target more than one pathological entity (plaques, tangles, Lewy bodies) may be more efficacious for diseases such as AD that have mixed pathology.

The full talk is available at <http://videocast.nih.gov/Summary.asp?File=15982>. 📺



Dr. Jill Joseph (l) of Children's National Medical Center and Dr. Peter Hotez of George Washington University talk with research participant Wendy White and her son Mekhi White, age 5 months.

PHOTO: PAULA DARTE

## NIH Expands Clinical and Translational Science Award Program

NIH has awarded nine new health research centers with Clinical and Translational Science Awards (CTSAs). In total, the new awards will provide an estimated \$255 million over 5 years to help scientists bridge laboratory discoveries to patient treatments. Led by the National Center for Research Resources, the CTSAs enable NIH-funded scientists to collaborate nationwide and with other NIH institutes and centers to advance research.

"A critical goal of biomedical research is to transform discoveries into preventions, treatments and cures," said NIH director Dr. Francis Collins. "By working together, CTSAs are removing barriers to research, training new generations of clinical and laboratory research teams and providing them with the equipment and resources they need."

Now in its fourth year, the CTSA consortium has generated resources that transform the research and training environment to enhance the efficiency and quality of clinical and translational research. Examples include a web-based national recruitment registry that connects researchers with volunteers interested in participating in clinical studies, establishing public-private partnerships and a portal that connects researchers with potential investigational drugs that may be useful in new ways.

The 2010 CTSAs expand consortium representation in new areas including New Mexico, Virginia and the District of Columbia, growing the consortium to 55 member institutions in 28 states and the District of Columbia. When the program is fully implemented in 2011, it will support approximately 60 CTSAs across the nation.

The nine newly awarded institutions are: Children's National Medical Center, Washington, D.C.; Georgetown University with Howard University; Medical College of Wisconsin, Milwaukee; University of California, Irvine; University of California, San Diego; University of Massachusetts, Worcester; University of New Mexico Health Sciences Center, Albuquerque; University of Southern California; Virginia Commonwealth University.

For more information, visit [www.ncrr.nih.gov/ctsa](http://www.ncrr.nih.gov/ctsa).

## Intel Science Fair Winners Have NIDA to Thank

A project using cutting-edge computer modeling to identify potential new medications for nicotine addiction won first place at the annual Addiction Science Awards at the 2010 Intel International Science and Engineering Fair (ISEF)—the world's largest science competition for high school students. The awards were presented at a ceremony held recently in San Jose by the National Institute on Drug Abuse and Friends of NIDA, a coalition that supports NIDA's mission.

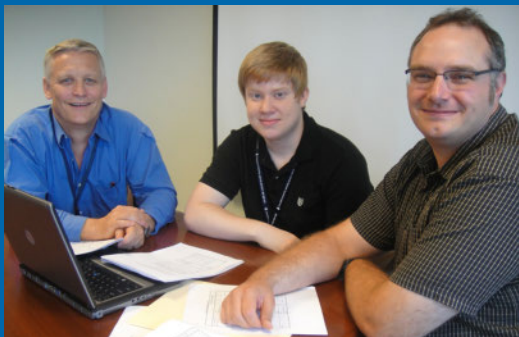
The fair's 2009 winner, Jada Nicole Dalley, who won first place for her project on third-hand smoke titled, "A Cytogenic Analysis of Genetic Mutation Induced by Cigarette Smoke in *Drosophila Melanogaster*," recently graduated from Keystone School in San Antonio. She is currently spending 5 weeks as a NIDA intern before attending Elon University in North Carolina, where she is interested in studying business with a minor in communications. Dalley is helping NIDA plan for its upcoming National Drug Facts Week.

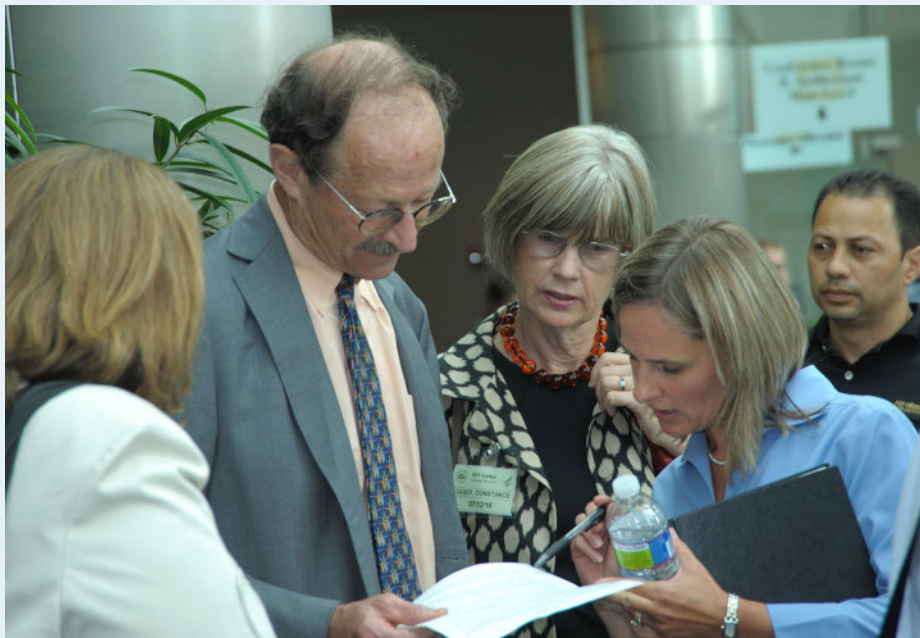
Ethan Garrett Guinn, whose project on video games addiction won the ISEF second place award in 2008, is spending his summer in Boston working with Dr. Michael Rich and Dr. David Bickham at a lab connected to Children's Hospital Boston. He is working on completing his data analysis and preparing for publication this summer of his research that should provide a better understanding of how American kids are playing video games and if there are problems associated with certain types of use.



At left, winning Addiction Science Awards at the 2010 Intel science fair are (from l) Joseph Yagoda (3rd place), Kevin Knight (2nd place) and Ameya Deshmukh (1st place). At right is Dr. Cindy Miner, chief judge for NIDA.

In the photo at left below, 2008 Intel fair second-place winner Ethan Guinn (c) is working this summer in Boston with Dr. Michael Rich (l) and Dr. David Bickham. At right, 2009's winner Jada Nicole Dalley is currently a NIDA intern.





## VARMUS

CONTINUED FROM PAGE 1

*Varmus meets with attendees of the recent NCI Town Hall at an informal reception in Bldg. 45. On his left is his wife, Constance Casey.*

PHOTOS: BILL BRANSON

“One of the attractions [of coming back] of course is working with old friends, in particular with the new director, Dr. Francis Collins,” Varmus said.

Collins said it is “a great personal pleasure” to welcome Varmus back to NIH. “What a remarkable day this is, and what a remarkable leader we have with us—in my view the best person on the planet to take the reins of the National Cancer Institute...this is going to be a glorious good time.”

Varmus cautioned at the outset that he was “not going to be setting out a full agenda here in any detail—please, no reading of the tea leaves.” But he did clarify why he chose this moment to come back after more than 10 years as president of Memorial Sloan-Kettering Cancer Center in New York.

“There is no better time,” said the 40-year veteran of cancer research, “to lead the nation’s cancer research efforts...we have a portrait emerging of all the cancers. We know the parts and how the parts interact...It’s these opportunities that create the most profound incentive to take the helm at this time.”

Varmus said he also wanted to satisfy “an old envy of institute and center directors, something I call ‘IC envy.’ When I was the director here in the nineties, I felt I had very little control over scientific program and I didn’t really have any money to spend...The ICs ran the show and they largely still run it.”

He also confessed to “a profound affection for the NIH,” calling the agency “the most glorious manifestation I know of what government and democracy are capable of doing.” Varmus

remembered arriving at NIH in 1968 as a clinical associate. “I was brought into this incredible family of scientists and clinicians...My life was completely transformed.”

A final reason for coming back? “I need a job,” he said. “I like to work and, hey, this looks like a great job.”

Varmus outlined three basic principles for his directorship, the first of which unifies the others: “Everything that we do and everything that we say will be based on evidence.” He also emphasized the importance of the individual intellect: “The great achievements in science that I’m aware of have almost all begun with an individual scientist, a lone explorer...having an unexpected idea.” Lastly, a sense of community is essential, including free and open dissemination of knowledge and generosity in sharing ideas, materials and methods. “This is especially true for work that is supported by the government, hence by taxpayers.”

Varmus called for the repair of a number of “things that are obviously dysfunctional in the system, not that it’s anybody’s fault” including NCI’s clinical trials system, which was the subject of a critical Institute of Medicine report earlier this year; an underutilized Clinical Research Center; and the cancer drug approval and regulation process.

Varmus said a working group of the National Cancer Advisory Board is drawing up suggestions for him, which will be included in a report due in September. “I think we’re mainly in sync,” he said. “I am looking at all NCI programs, and looking as I go for problems that need attention,” he continued, adding that he expects to enlist outside advisors in the process.

Varmus then described a paradox confronting the cancer research community: “Despite the extraordinary progress we’ve made in understanding the underlying defects in cancer cells... still it has to be acknowledged that we have not succeeded in controlling cancer as a human disease...Why have we not succeeded at the level that we aspire to?”

He said, “We need to think a little bit more clearly about how we frame the questions that we’re trying to answer.” For example, it is not understood why cancer cells die if scientists interfere with the expression of an oncogene. Better therapeutics depend on having that kind of knowledge.

There is also an association between obesity and certain cancers, he said, but the research questions that could define the link have “not been



Varmus addressed a packed Kirschstein Auditorium.

succinctly defined,” he said. He plans to stage a series of cross-disciplinary meetings to define “provocative, answerable questions” that will move the field forward.

Varmus also wants to put cancer more prominently on the global health agenda, expand NCI’s drug development and make more extensive use of health information technology, especially as it relates to comparative effectiveness research. “We need to think about ways to get new knowledge more quickly into the practice of oncology,” he said.

Calling for more outside collaborations, he noted, “NCI is a very strong place, but it is clearly not self-sufficient...It’s not standing proud and alone, fighting its own wars.” He applauded NIH’s closer ties with the Food and Drug Administration and said that NCI must also partner more closely with the Centers for Disease Control and Prevention, non-governmental organizations, scientific societies, advocacy groups and industry.

“We cannot succeed in controlling cancer without strong connections with industry,” he said, noting that potential financial conflicts of interest pose a manageable problem.

He concluded with a candid assessment of his personal style: “Cancer is a serious matter,” he said, but seriousness doesn’t mean there is no room for humor or enjoyment. He prefers informality in personal relations, he said. “My first name is not Doctor—I like to be called Harold.”

Taboo for him are such things as unclear communication, clichés, euphemisms, using the word impact as a verb and employing abstractions such as “Bldg. 1 said...” or “The White House said...” He also recommended avoiding the phrase, “NIH is already doing it” or “This is the way we’ve always done it.

“Orders don’t have to be followed unless they’re right,” he continued. “It’s the government, not the military. Let’s question things rather than just follow them.”

Varmus warned that it is unlikely that budgets will double as they did under his NIH directorship. “Don’t expect me to produce budget magic,” he said. “Things will probably be tough for awhile...We can’t expect a budget turn-around overnight, but we can do a better job shepherding the considerable funds we already have.”

He named NCI vaccine expert Dr. Douglas Lowy as his “alter ego” and said he would soon name a number of other new deputies. “Joy Wyszneaukas will be the portal to my calendar...and the portal for ideas and responses is Harold.Varmus@nih.gov.”

Varmus also thanked outgoing NCI director Dr. John Niederhuber, who has taken a laboratory position within the institute. “John has been very helpful during the transition and I’m very pleased to have a chance to thank him publicly for that.”

During a brief Q&A session before an informal reception, Varmus disclosed that, as he did during his NIH directorship, he will maintain a laboratory, although it must obey “what some call Varmus’s Rule”—it can’t be within his own institute.

“I will have a lab at NHGRI,” he said. “[NHGRI director Dr.] Eric Green has been very welcoming.” The lab in Bldg. 50 will be staffed by 4-5 postdocs who are expected to arrive by September.

“I can actually see the lab [on the fifth floor of Bldg. 50] from my new office [on the 11th floor of Bldg. 31],” he quipped. He expects to visit the lab several times a week. 📍

## Workshop Explores Technologies for Healthy Independent Living

What are the unmet clinical needs that should be addressed in order to promote healthy independent living? Are there technologies that could be applied currently and in the near future to meet these needs? How would development and adoption of appropriate technologies for healthy independent living affect health care?

Some of the nation’s technology experts met with clinical researchers and patient advocates to discuss answers to those questions during a recent workshop held at NIH. The “Workshop on Personal Motion Technologies for Healthy Independent Living” was co-sponsored by NIA, NIBIB, NICHD/NCMRR and NINDS.

“The panel presentations and discussions at the workshop encompass some of the most important and dramatic challenges and opportunities for health care, especially for the aging population,” said Dr. Marie Bernard, deputy director of NIA. “This workshop focused on a vital area of technology development, which is expected to have a major impact on health care delivery,” said Dr. Roderic Pettigrew, director of NIBIB.

Presentations focused on defining clinical needs and potential technology solutions in areas including detecting personal motions and behaviors as early indicators of disease or adverse event onset; coping with impairment—effort expenditure, stability, range of motion; managing mild cognitive impairment; and rehabilitation and exercise in the home.

A videocast archive of the workshop is available at [www.videocast.nih.gov](http://www.videocast.nih.gov).

## ADVENTURES

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“Too many high school biology programs suck all the pleasure out of learning by requiring memorization of long lists of scientific facts,” said Dr. Edward Max, one of the organizers of AIB. “In my daughter’s first biology course, she had to memorize a long list of cell organelles, most of which she never heard about again. She was never exposed to the detective work of designing experiments to answer scientific puzzles. You could hardly expect to instill a love of literature by requiring students to memorize lists of book titles, authors and plot summaries and you can’t inspire a love of science without showing the fun of discovery.”

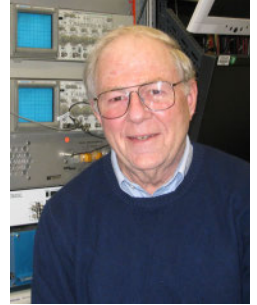
The program is looking for volunteer teachers who would enjoy teaching about biological problems that were solved by exciting scientific detective work and who believe that presenting a memorable and entertaining scientific lecture is an art form worthy of investing preparation time. The lectures should also address biology’s everyday role in society by including any implications of scientific discoveries for medicine and science policy.

“We won’t be disappointed if our students come away from a lecture without remembering every scientific detail,” said Dr. Juhong Liu, who is the other leader of Adventures in Biology. “But we want them to be convinced that finding things out is fun and that science is not a mysterious and remote process, but a kind of organized common sense that they can understand.”

Interested in volunteering? Contact Liu ([juhong.liu@fda.hhs.gov](mailto:juhong.liu@fda.hhs.gov)) to learn more about topics planned for the course and the format for the lectures.

Students interested in attending the program should contact Eric Keen at [bccrhp@gmail.com](mailto:bccrhp@gmail.com) to receive enrollment information. 📧

## NEI’s Wurtz Wins Gruber Neuroscience Prize



Dr. Robert H. Wurtz, an NIH distinguished investigator and neuroscientist in NEI’s Laboratory of Sensorimotor Research (LSR), has been awarded the 2010 Neuroscience Prize from the Peter and Patricia Gruber Foundation for his pioneering work in establishing and advancing the field of cognitive neuroscience. Wurtz helped establish the LSR in 1973 and served as its chief until 1997.

Since 1969, Wurtz has been publishing studies on the physiology of the visual system in awake primates, through which he showed that single neurons in the brain could process visual information. He is being honored for his initial studies on brain structures that contribute to visual processing and initiate eye movements. This basic research knowledge has laid a foundation for scientists around the world to better understand how brain organization contributes to physical behaviors.

“This was a very important step in providing insights into the workings of the brain—an astounding information-processing biological structure that allows for perception, reasoning and action,” said Sten Grillner, chair of the selection advisory board.

Wurtz went even deeper, mapping individual nerve cells that receive visual information in the awake brain. He showed how different areas of the outer brain—the cortex—contributed to visual processing and how inner brain structures—subcortical areas—initiated eye movement. He also discovered and described the complex pathways that allow these brain structures to communicate. Through Wurtz’s advances in cognitive neuroscience, other researchers have moved beyond the eye to develop a deeper understanding of brain diseases and conditions including stroke, Parkinson’s disease and Huntington’s disease.

“We applaud this recognition of Bob Wurtz’s tremendous contributions to the field of neuroscience,” said NEI director Dr. Paul Sieving. “His groundbreaking work on brain structure and function has made possible many of the visual cognition studies on attention, motion perception and motivation.”

This \$500,000 award is also given to honor Wurtz’s role as a mentor and an inspiration for countless neuroscientists. He will accept the prize on Nov. 14 at the annual meeting of the Society for Neuroscience, where he will give a lecture titled “Brain Circuits for Active Vision.”



## feedback

Have a question about some aspect of working at NIH? You can post anonymous queries at [www.nih.gov/nihrecord/index.htm](http://www.nih.gov/nihrecord/index.htm) (click on the Feedback icon) and we'll try to provide answers.

**Feedback:** Before the construction of Bldg. 33 there was a bike rack near the entrance of the Bldg. 31 C wing, similar to the rack used by the A wing. It was never replaced. Why? Instead they moved it to some dark corner in the parking garage. Can we please have it returned?

**Response from the Office of Research Services:** As NIH changes its landscape with new buildings and garages, the Division of Amenities and Transportation Services (DATS) has worked hard to improve commuter services to include improvements for non-polluter commuters such as our bicyclists.

DATS worked with the NIH Bicycle Commuter Club to improve bicycle rack locations and move or add bicycle racks where needed. One of the improvements was to locate bicycle racks just inside the MLP-10 garage next to Bldgs. 31 and 33. This prime location provides cover from the elements and easy access for cyclists. DATS also added more bicycle racks in front of the A wing atrium of Bldg. 31 underneath the building's cover to accommodate the increase of cyclists at that location. Bicycle racks were also added and some relocated to high bicycle demand locations around Bldgs. 10 and 38.

**Feedback:** What is the weight-bearing load for the parking garage next to the north wing of Bldg. 10? Does this weight limit allow for the additional parking that is going on daily when cars are double-parked on the outer sides?

**Response from the Office of Research Facilities:** The floors of Multi-Level Parking Garage-9 are designed to meet or exceed 50 pounds per square foot (psf) design live load. A supplemental 30 psf is added to the roof to account for potential snow. This design standard exceeds the International Building Code of 2003, which requires 40 psf minimum design live load for parking garages.

When the MLP-9 garage utilizes stack parking (double-parked vehicles), it still does not exceed the design live load for either the floors or the roof of the structure.

To use an example, a new Lincoln Town Car has a weight of approximately 4,400 pounds. Assume

Town Cars could be crowded onto the floors of MLP-9, with only a 12 inch clearance between one car and the next. The psf for a floor full of Town Cars would still only add up to 31 psf—well below the building code. MLP-9 is safe, with or without the use of stack parking.

**Feedback:** Why is it that someone on a 4/10 work week (four 10-hour days) gets 10 hours off for a holiday but someone on a 5/8 work week (five 8-hour days) only gets 8 hours off for a holiday? At the end of the week, the 4/10 person only has to work 30 hours while the 5/8 person has to work 32 hours. With 12 federal holidays a year, this could add up to 24 hours or 3 days extra time off for the 4/10 worker. Can you have someone explain this?

**Response from the NIH Payroll Office:** The amount of holiday hours granted is mandated by the Office of Personnel Management. Here is information from its web site:

▲ Standard (40-hour/5-day week) Work Schedules. On a holiday, employees under a standard work schedule are generally excused from 8 hours of non-overtime work, which are considered part of the 40-hour basic workweek.

▲ Compressed Work Schedules. On a holiday, employees under compressed work schedules are generally excused from all of the non-overtime hours they would otherwise work on that day and which apply to their "basic work requirement." For example, if a holiday falls on a 9- or 10-hour basic workday, the employee's holiday is 9 or 10 hours, respectively.

**Feedback:** Each year NIH celebrates the National Day of Prayer. This is an R&W-sponsored event with printed posters around campus advertising the event. Recently, a federal court decided that the National Day of Prayer is unconstitutional. Why then, is this day still celebrated at NIH, in front of Bldg. 1, with speakers and music blaring away to all? In recent years, it has been a very Christian and evangelical event. As I remember the U.S. Constitution, there is a separation of church and state and this event at NIH, with the R&W paying for posters of eagles and American flags, seems in violation of that. Will you please comment on this?

**Response from ORS:** The event is not sponsored or supported by NIH or the NIH Recreation and Welfare Association. It is one of many events that employee groups have listed in the R&W advertisements to inform employees about upcoming events that may be of interest.

### NIH'ers Enjoy Night at the 'Big Train'

*The NIH Recreation and Welfare Association and Bethesda Magazine recently teamed up to sponsor an evening with the Bethesda Big Train baseball team. Named after Washington Senators pitching great Walter "Big Train" Johnson, the squad is a summer, collegiate, wooden-bat team playing in the Cal Ripken Collegiate Baseball League. Home games are played at Povich Field, a pocket-size ball park that makes fans feel they are back in small-town America. Some 650 NIH employees and members of the community attended the game. Shown are (from l) Chris Hoiles, former Baltimore Orioles catcher; Larry Chloupek of the NIH R&W Foundation; Steve Hull, editor and publisher of Bethesda Magazine; Randy Schools, president of the R&W Association; NIDDK's Debi Anderson, who is an R&W board member; and the Oriole Bird mascot.*



PHOTO: LISA KAMMERMAN

### Scientists Identify Brain Circuits Related to Initiation, Termination of Movement Sequences

In humans, throwing a ball, typing on a keyboard or engaging in most other physical activities involves the coordination of numerous discrete movements that are organized as action sequences. Scientists at NIH and the Gulbenkian Institute in Portugal have identified brain activity in mice that can signal the initiation and termination of newly learned action sequences. The findings appeared online July 22 in *Nature*.



*NIH scientists and collaborators abroad are learning about the brain activity underlying the start and end of physical movement.*

“This interesting report should advance our understanding of the neurobiology of movement disorders and open new avenues of research for their treatment and prevention,” said Dr. Kenneth R. Warren, acting director of the National Institute on Alcohol Abuse and Alcoholism.

“We recorded activity in the dorsal striatum and substantia nigra during the learning of novel action sequences,” explained Dr. Xin Jin

of NIAAA’s Laboratory for Integrative Neuroscience. “Although previous studies have reported changes in neural activity in these areas during movement, their role in the initiation and termination of newly learned action sequences has not been explored.”

“These results could have important implications for disorders where these circuits degenerate, such as Parkinson’s and Huntington’s disease, in which the initiation and termination of voluntary movement sequences are impaired,” said Dr. Rui Costa of the Gulbenkian Institute. “More broadly, they are relevant for understanding how we learn and control the execution of behavioral sequences, which may impact disorders of action control like compulsivity.”

### NIH Scientists Advance Universal Flu Vaccine

A universal influenza vaccine—so-called because it could potentially provide protection from all flu strains for decades—may become a reality because of research led by scientists from the National Institute of Allergy and Infectious Diseases.

In experiments with mice, ferrets and mon-

keys, the investigators used a 2-step immunization approach to elicit infection-fighting antibodies that attacked a diverse array of influenza virus strains. Current flu vaccines do not generate such broadly neutralizing antibodies, so they must be re-formulated annually to match the predominant virus strains circulating each year.

The research, led by NIAID scientist Dr. Gary Nabel, appeared online ahead of print July 15 in *Science Express*.

“Generating broadly neutralizing antibodies to multiple strains of influenza in animals through vaccination is an important milestone in the quest for a universal influenza vaccine,” said NIAID director Dr. Anthony Fauci. “This significant advance lays the groundwork for the development of a vaccine to provide long-lasting protection against any strain of influenza. A durable and effective universal influenza vaccine would have enormous ramifications for the control of influenza, a disease that claims an estimated 250,000 to 500,000 lives annually, including an average of 36,000 in the United States.”

“We are excited by these results,” said Nabel. “We may be able to begin efficacy trials of a broadly protective flu vaccine in 3 to 5 years.”

### Gene Therapy Rescues Monkeys from Parkinson’s Symptoms

In work funded by the National Institute of Neurological Disorders and Stroke, researchers have found they can rescue monkeys from a Parkinson’s-like condition by using gene therapy to deliver a growth factor into the brain. The approach is among the first that is beneficial to animals after they have developed signs of disease.

Parkinson’s disease attacks a part of the brain that controls movement called the substantia nigra. The disease leads to progressive loss of motor function including involuntary shaking, slowed movement, stiffened muscles and impaired balance. Drugs and other treatments are available to control these symptoms, but there are no treatments to curb the destruction of neurons in the substantia nigra.

The study appeared in the July 14 issue of the *Journal of Neuroscience*.

“There have been many challenges in developing a treatment that can restore function in patients with Parkinson’s disease,” said Dr. Beth-Anne Sieber, an NINDS program director. “Investigators have learned a lot from past experience and we are hopeful that this approach—in which a potent growth factor is delivered to the brain in a precisely controlled way—will prove beneficial in clinical trials.”



The phone numbers for more information about the studies below are 1-866-444-2214 (TTY 1-866-411-1010) unless otherwise noted.

### Non Invasive Imaging: Healthy Volunteers

If you are a healthy volunteer and have not been diagnosed with heart failure or ailments, you may be eligible to participate in a study that will evaluate the accuracy of non-invasive imaging testing in assessing how the heart functions. Study participants will be required to travel to NIH for initial screening and will undergo an MRI or CT scan with iodine contrast. The study duration is approximately 24 months. All study-related tests and medications will be provided at no cost. Refer to study 10-CC-0153. Se habla español.

### Non Invasive Imaging: Heart Failure

If you have been diagnosed with heart failure and you are not claustrophobic, you may be eligible to participate in a study that will evaluate the accuracy of non-invasive imaging testing in assessing how the heart functions. Study participants will be required to travel to NIH for initial screening and will undergo an MRI or CT scan with iodine contrast. The study duration is approximately 24 months. All study-related tests and medications will be provided at no cost. Refer to study 10-CC-0153. Se habla español.

### Diet-Induced Obesity

Healthy volunteers are needed for a study investigating the reasons why some individuals maintain their weight. The study looks at the response to different diets in relation to their metabolism. Consider participating in this study if you are 30-50 years of age, have a body mass index (BMI) between 18.5-23.0 and have a stable weight (less than 2 percent change in the last 6 months). All study-related tests and meals are provided at no cost. Compensation is provided. Refer to study 09-DK-0238.

### Adult Stem Cell

Healthy volunteers are needed for a study designed for the collection of stem cells from blood of adult humans for use in research. Researchers are studying adult stem cells to gain insight into blood diseases. If you are 18 years of age or older, consider participating. All study-related tests are provided at no cost. Compensation is provided. Refer to study 06-DK-0142. Se habla español.

### Loa Loa Study

Have you ever traveled to or lived in central or western Africa for longer than 1 month? Have you or someone you know experienced worms moving along the white part of the eye? Are you between 18 and 65 years old? NIAID is seeking volunteers to participate in a research study evaluating the effectiveness of reslizumab in reducing the side effects of the standard drug therapy used to treat Loa loa. All participants will be required to travel to NIH for an overnight stay. All study-related tests or treatment are provided at no cost. Refer to study 10-I-0101. Se habla español.

### Staphylococcus Study

NIAID is conducting a study on invasive and recurrent community-acquired *Staphylococcus aureus* infections, often called staph infections. If you are older than 2 years of age and have had a staph infection, contact us to see if you can participate in this study. Participation involves up to two visits. Parents must give permission for a minor to participate. Studies are conducted at the Clinical Center. There is no cost for study-related tests. Refer to study 09-I-0157.

## NCI Scientists' Innovations Honored

National Cancer Institute inventors and their three technology innovations were awarded the Federal Laboratory Consortium's 2010 Technology of the Year Award recently. The award recognizes those who have done an outstanding job in transferring technology developed in a federal laboratory to partners in the private sector.

Dr. Donald Court and Nina Costantino of the Gene Regulation and Chromosome Biology Laboratory were recognized for their work in the development of a recombination-mediated genetic engineering, or recombineering, technology. It has revolutionized genetic engineering techniques including modification of genes on bacterial artificial chromosomes and generation of conditional knockout mice. Over 1,100 non-profit researchers have received the technology thus far and it has been licensed to 18 commercial entities.



Nina Costantino



Dr. Jeffrey Schlom

Dr. Jeffrey Schlom's work on a new therapeutic vaccine, Prostavac, for treating prostate cancer was recognized. The vaccine induces an immune response that attacks prostate cancer cells. Numerous clinical trials have shown that the vaccine has a good safety profile and may be an effective option for the treatment of advanced prostate cancer. Schlom is chief of the Laboratory of Tumor Immunology and Biology.

Drs. Frederic Kaye, Adi Gazdar, John Minna and Bruce Johnson, formerly of the Genetics Branch, were recognized for their development of a cell line bank of approximately 439 human tumors. The lines contain a mutation that makes them sensitive to the presence of growth inhibiting drugs and are valuable research tools for identifying compounds with therapeutic potential against cancer. The lines have been the subject of more licenses than any other biological material at NCI and can be used by scientists to screen many compounds for anti-cancer activity.

## Grady Addresses Relationship Between Research, Practice and Policy

Comparing the dynamic interrelationships of science, policy and practice to complex biological systems, NINR director Dr. Patricia Grady provided a snapshot of NINR and NIH policy-related activities in a recent talk at the Robert Wood Johnson Foundation's Nurse Faculty Scholars Leadership Forum.

The scholars program, directed by Dr. Jacquelyn Campbell, chair of Johns Hopkins University School of Nursing, seeks to develop the next generation of national leaders through specialized training and career development awards for outstanding junior faculty. Selected scholars receive mentorship, leadership training as well as salary and other support to enable them to develop their own research programs. Grady serves on the program's National Advisory Council.

In her talk, Grady highlighted the many ways researchers and clinicians provide scientific leadership in public policy. As an example, she cited the work of Dr. Mary Naylor and colleagues related to transitional care (TC).

In a landmark series of NINR-supported studies on nurse-managed TC in older adults with chronic health issues, their research showed TC improves health outcomes and reduces health care costs. Grady said Naylor and colleagues have taken these findings "far beyond the boundaries of research science," including presenting their research data to Congress and developing partnerships with private insurers to further test TC in clinical and community settings.

Grady also described several other examples of policy-related activities in which NINR and NIH have participated, including the implementation and evaluation of science and health-related policies and legislation such as those pertaining to stem cell research and the American Recovery and Reinvestment Act.

She encouraged the audience of young scholars to get involved, noting, "As clinical scientists, we know that research, practice and policy are intrinsically linked...we must be proactive in all three areas to ensure that the highest caliber evidence-based research provides the foundation for public policies."—**Andria M. Cimino**

## FNIH Names Campbell New Executive Director, CEO

Dr. Scott Campbell is the new executive director and chief executive officer at the Foundation for the National Institutes of Health (FNIH). Previously, he served as national vice president of research programs at the American Diabetes Association (ADA).

"In this era of scientific complexity, as research, development and health delivery costs continue to increase, efforts at making the critical scientific advances needed to improve public health in the U.S., and globally, require collaboration between the public and private sectors," said Campbell. "I will look for new and creative ways to fulfill the mission of the foundation."

Campbell joined the ADA in 2001, overseeing all research-related programs there. He also had primary responsibility for oversight of the ADA research grant review and research policy committees and the scientific and health care council. He served as ADA liaison to NIH, the Veterans Administration, the Centers for Disease Control and Prevention and the Food and Drug Administration.

Campbell was invited to provide input on strategic planning efforts of the National Center for Research Resources and the National Institute of Diabetes and Digestive and Kidney Diseases. He served as a member of the board of trustees for the Association for Assessment and Accreditation of Laboratory Animal Care International and the Institute of Medicine's Clinical Research Roundtable. Currently he is a member of the forum on drug discovery, development and translation for the IOM at the National Academies.

Campbell received his Ph.D. in basic biomedical sciences in 1985 from the University of South Florida. Following postdoctoral training in cardiovascular physiology at the University of Ottawa in Canada, he spent 12 years in academia at Michael Reese Hospital in Chicago, the University of Missouri and the University of South Dakota, where his primary area of research was hypertension, heart failure and the renin-angiotensin system. During that time, he authored 41 peer-reviewed articles, 9 invited reviews and 14 book chapters.

FNIH supports the mission of NIH through a wide range of initiatives that advance human health through public-private, collaborative partnerships. Campbell will serve as its third executive director. He replaces Amy Porter, who resigned in February to become executive director and CEO of the National Osteoporosis Foundation.

