

# nih record



**ABOVE** • Princess Chulabhorn of Thailand (c) visits NIH, gets briefing on cancer research collaboration. See story, page 12.

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### NIH Principal Deputy Director Kington Departs For College Presidency

By Carla Garnett

**W**ith just a few weeks left in his 10-year tenure here, NIH principal deputy director Dr. Raynard Kington's Bldg. 1 office looked not terribly different than it did shortly after he'd moved into the agency's second-highest job in February 2003.

"I'm in denial," he said, smiling, glancing around at his still-full bookshelves, file-laden table and paper-stacked desk. "Apparently the hardest part of leaving is the actual physical mechanics of leaving."

Kington stepped down as NIH's second in command in July.

"Throughout his tenure as principal deputy and acting NIH director, Raynard demonstrated tremendous skill in tackling the toughest issues of the day, with his extraordinary intellect, integrity and tenacity—and good humor," said NIH director Dr. Francis Collins. "He is respected far and wide—not just here at NIH,

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NIH director Dr. Francis Collins (l) bids farewell to his principal deputy, Dr. Raynard Kington, at a reception in Wilson Hall.



Dr. Stefan Heller

### NIDCD-Funded Scientists Grow 'Ear in a Test Tube'

By Robin Latham

Hair cells, the tiny sensory cells located in the cochlea of the inner ear that turn sound vibrations into electrical signals, are among the most scarce cells in the body. We're born with fewer than 15,000 of them per ear and they are the only ones we'll ever have. Unlike birds and fish, humans don't have the ability to grow new hair cells if some are lost due to disease, drugs or long-term exposure to noise. Unfortunately, the loss of just a thousand is enough to make a noticeable difference in how well we hear.

For years, hearing research has been hindered because scientists have never been able to get their hands on enough hair cells for experi-

SEE HELLER, PAGE 4

### NIMH Working on New Methods for Classifying Mental Disorders

By Julnar Issa

Currently, mental disorders are defined by clusters of signs and symptoms, some of which are hundreds or even thousands of years old. Although plenty of information now exists on the biological basis of behavior, no classification exists that makes use of this information.

NIMH, however, is working on a project called the Research Domain Criteria (RDoC) project with the goal of providing a framework for classifying research subjects based on genomics, clinical science and neuroscience. Dr. Bruce Cuthbert, director of NIMH's Division of Adult Translational Research, discussed RDoC recently at the Association for Psychological Science annual convention in Boston.

"To me, the brain is a motivational computing machine," he said. Particular motivational brain systems control dimensions for the direction and vigor of behavior. In a healthy person, these dimensions of behavior are within a normal range. In mental disorders, howev-

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## briefs

### Nutrition Is Topic of Wellness Lecture, Aug. 5

The "Focus on You" Wellness Lecture Series continues with "Is Work Making You Fat? Nutrition Knowledge for 9-5," presented by nutrition and exercise physiology expert Megan Nechanicky on Thursday, Aug. 5 from 1 to 2 p.m. in Executive Plaza North, Conf. Rm. H. Individuals who need reasonable accommodation to participate in this event should contact Chris Gaines of the Division of Amenities and Transportation Services at (301) 451-3631 and/or the Federal Relay (1-800-877-8339).

### Lecture on Cancer Prevention, July 28

The 11th annual Advances in Cancer Prevention Lecture will feature Dr. Andrea De Censi on the topic of "Cancer Prevention Therapy: Accomplishments and Challenges" on Wednesday, July 28 at 3 p.m. in Lister Hill Auditorium, Bldg. 38A. De Censi is director of medical oncology at the Galliera Hospital in Genoa, Italy. He also serves as consultant to the division of cancer prevention at the European Institute of Oncology in Milan, which he directed from 1998 to 2003. He specializes in treating patients with solid tumors, especially breast, colorectal, genitourinary and gynecological cancers. For more information, or to request reasonable accommodation to participate, call (301) 496-8640.

### 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 July 30 and Aug. 31. For more information, visit [www.fedsfeedfamilies.gov](http://www.fedsfeedfamilies.gov).

### Immunity, Inflammation & Cancer Symposium, Sept. 23-24

International leaders in cancer and inflammation will provide a forum for discussion and debate on the state of current understanding of this field. The target audience includes researchers interested in the latest developments in the role of inflammation in development and progression of cancer. Sessions will include: cancer immunity and immunosurveillance; cancer and inflammation; the microbiome role in immunity, tissue homeostasis and cancer; and the tumor microenvironment. The event will be held in Masur Auditorium and Lipsett Amphitheater, Bldg. 10, Sept. 23 and 24, 8:30 a.m. - 5 p.m. Seating is limited. Registration closes Aug. 20. For more information and to register online, visit <http://web.ncifcrf.gov/events/cancerinflammation/2010/>. The event will be videocast live at <http://videocast.nih.gov>.

### NIH Sailing Association Open House

The NIH Sailing Association will hold an open house on Sunday, Aug. 1 from 10 a.m. to 3 p.m. at the Selby Bay Sailing Center in Mayo, Md. Explore your interest in learning to sail and discover opportunities for sailing with NIHSA. There will be demonstration sails for adults in the club's 19-ft. Flying Scot sailboats. Fall sailing classes begin Aug. 26; this is a good chance to preview the boats and meet the members. Directions can be found at [www.recgov.org/sail](http://www.recgov.org/sail). The open house includes food, drinks and beer for \$10 per person. Look for posters and flyers around campus for more information.

### 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. Deadline for registration is Aug. 20.

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. An outstanding faculty has been assembled to present the lectures. The faculty has also prepared a textbook, *Principles of Clinical Pharmacology, Second Edition*, which will be available in the Foundation for Advanced Education in the Sciences, Inc. bookstore located in Bldg. 10. The textbook is also available from Amazon.com.

Registration is open to all interested persons free of charge unless the course is being taken for graduate credit through FAES. Certificates will be awarded at the end of the course to students who attend at least 75 percent of the lectures. More information about the course, including online registration, 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.

## NIMH Holds Summit on Closing Gaps in Research, Care

The NIMH Office for Research on Disparities and Global Mental Health (ORDGMH) recently convened representatives from universities, community organizations and government for a day-long summit to discuss strategies for increasing our understanding of group differences in mental health status and rapidly reducing disparities in mental health care in the United States. With expertise ranging from cultural neuroscience and medical anthropology to service delivery and policymaking, the group nevertheless faced a daunting task.

“Mental disorders have far-reaching implications for an individual’s participation in society, interpersonal relationships, physical well-being and overall quality of life,” said ORDGMH director Dr. Pamela Collins. “Disadvantages along the axes of socioeconomic status (SES), race or ethnicity, gender and geography have created unacceptable gaps in the availability of and access to evidence-based care.”

In her introductory overview to the meeting, Collins cited a 2009 report by the Joint Center on Economic and Policy Studies stating that eliminating health disparities among racial and ethnic minorities would have reduced indirect costs associated with illness and premature death by more than \$1 trillion between 2003 and 2006. Also in 2009, the Agency for Healthcare Research and Quality issued a report indicating that minorities’ access to care and quality of care compared to non-minorities is worsening.

Health disparities can be defined in a variety of ways—by distribution of resources, by health care quality, as well as by disease incidence, prevalence, morbidity, mortality or survival rates. NIH recognizes that health disparities occur along racial and ethnic, geographic and socioeconomic lines. However, research has shown that a broad range of social factors—including immigration, education level, early childhood experiences and geography—can either increase or decrease risk for various diseases in different populations as well. Disparities in treatment availability, quality and use and access to care further compound the problem.

This complex web of influences does not lend itself to easy resolution. For example, though many populations have seen improvements in overall health and life expectancy that coincided with gradual increases in SES over time, increasing SES alone does not help to close the health gaps between minorities and non-minorities. Thus the charge to the invited representatives was multi-faceted:

- Inform approaches to reduce mental health disparities in the groups most affected
- Make recommendations to optimize the reach and cost effectiveness of interventions
- Discuss ideas for better, broader and swifter dissemination of scientific knowledge and interventions to impact mental health disparities in the United States.

Throughout the day, NIMH staff presented information on the current state of the institute’s research investments. They discussed the root causes, protective and risk factors and mechanisms for mental illness; treatment availability, use and quality and how to measure mental health disparities. In response, many of the experts’ comments coalesced around building a sustainable infrastructure for research, including fundamental changes to study design and to new investigator training and career support. For example, as noted by Dr. Sergio Aguilar-Gaxiola of the University of California, Davis, and former member of the National Advisory Mental Health Council, most studies are currently conceptualized in a manner far removed from the community that is the focus of study or intervention.

Following the day’s discussion and debates, NIMH director Dr. Thomas Insel summarized the state of mental health disparities and priorities for research. Among the strategies deemed actionable in the short term were studying model programs to determine which components are effective; focusing on population-based approaches and community engagement in research; and supporting studies aiming to improve basic resources for people typically excluded from research, including those with serious mental illness and the homeless. Insel further recognized that genetic studies and other biologically based research, which some minority populations may regard with special distrust due to historic misuse of such methods, hold the promise of transforming treatment, as long as they are conducted in a culturally sensitive manner.

“Reducing mental health disparities requires a cooperative effort, so it’s crucial to hear from the various sectors working towards this common goal and discuss how we can work together most effectively,” said Insel. ●



### Farmer’s Market Returns to NIH

*At left, Charmaine Peters of Licking Creek Bend Farm of Needmore, Pa., organizes produce for the NIH Farmer’s Market, held every Tuesday at the Bldg. 31 patio. The market opened June 1 and runs through October.*

*At right, Nancy Neville (r) and Diane Hayes (bending over) of Upper Crust Bakery in Colesville, Md., greet customers during a recent farmer’s market. The baked goods table is a new addition this year. The bakery uses no additives or preservatives and is known for European crusty breads, baguettes, challah and raisin, cranberry, whole wheat and harvest breads.*

PHOTOS: VALERIE LAMBROS

## HELLER

CONTINUED FROM PAGE 1

mentation in the lab. As a consequence, we know far less about sensory cells in the ear than we do about their equivalents in the eye or the nose, where such cells are plentiful, renewable and easy to extract.

All of that is about to change. In May, a group of NIDCD-funded researchers led by Dr. Stefan Heller at Stanford University School of Medicine announced that they had developed a system for making what appear to be functional hair cells from stem cells.

The findings, published in the May 14 issue of *Cell*, bring the scientists closer to achieving two goals. Short-range, their goal is to grow abundant numbers of working hair cells for further research. Long range, they hope to use what they discover to restore the ear's ability to regenerate hair cells.

"Our dream was to get what a colleague of mine called a 'bucketload' of cells," says Heller. "Now it's like having an ear in a test tube."

Heller and his colleagues began to work on the recipe more than 10 years ago, borrowing knowledge gained from other scientists in the

field to guide them as they tried to rebuild hair cells in a culture dish. They began with stem cells from mouse embryos, setting up conditions to mimic what they knew about how the inner ear forms during fetal development.

Then they tried various combinations of growth-inducing substances until they found the one that causes the cells to cluster and display hair cell-like characteristics. The key ingredients were chemicals known as fibroblast growth factors, which were shown in previous studies to be intimately involved in inner-ear development.

Hair cells in the inner ear have a complicated structure. They resemble other kinds of epithelial cells (cells that line the cavities and surfaces of structures in the body) but with a twist.

At their tips, hair cells display a spiky bundle of filaments—known as stereocilia—that contain mechanosensitive ion channels that are able to produce electrochemical signals when stimulated by sound vibrations.

Building a hair cell from scratch meant not only replicating its complicated architecture, but also endowing it with the ability to respond electrochemically to sound vibrations.

A year ago, Heller and his team knew they'd hit on the right combination of factors when they looked at a group of cells through a scanning electron microscope and saw some that were intriguingly hair cell-like with recognizable hair cell bundles at their tips. It took another year to establish that the cells were indeed functional. Stimulated by electrodes, the cells generated electrochemical currents that resembled those made by young hair cells.

What's left to do is find a way to encourage these newborn hair cells to take on a specific identity. "They know that they're hair cells," explains Heller. "They've developed a hair bundle and they can convert mechanical stimulation into electrochemical activity, but they still don't know whether they're vestibular or cochlear."

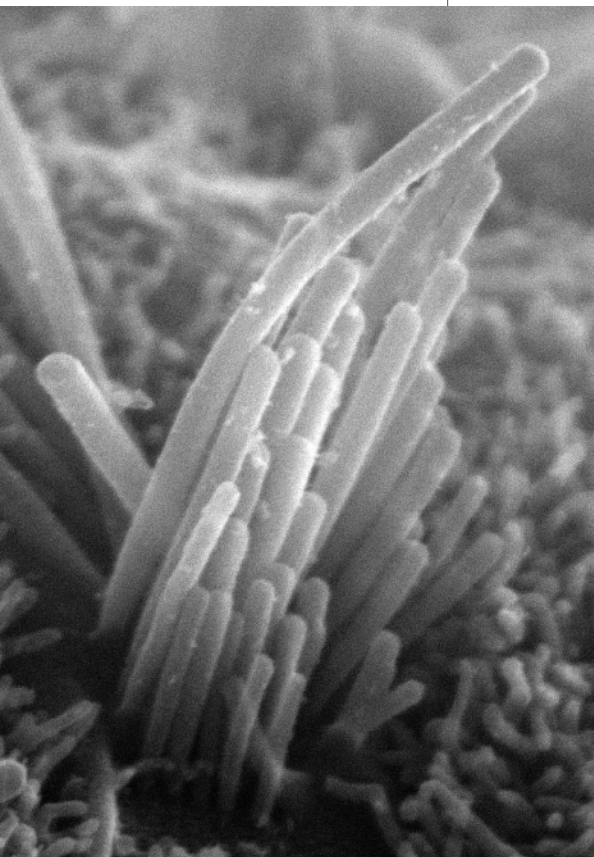
By growing the manufactured cells with real cochlear cells, the researchers are hoping that the baby cells can take direction from the adults and head in a cochlear direction.

With their "ear in a test tube," Heller and his team also plan to start a series of tests to search for the biochemical basis of the inner ear's inability to regrow hair cells.

"Since all the other hair cell-bearing organs in the body are able to replace lost hair cells," explains Heller, "it's reasonable to assume that the current structures in the inner ear evolved from structures that once had the capacity of self-repair."

Finding the switch that turns hair cell regeneration on and off could make returning the inner ear's capacity to grow hair cells as simple as hitting a chemical reset button, although getting there may take some time.

"We're one step further on a journey," says Heller. "It will take a while until we reach any kind of clinical relevance. ●"



*Hair cells grown from mouse embryonic stem cells display their characteristic stereocilia.*

PHOTO: S. HELLER AND K. OSHIMA



### NICHD's Basser Honored for MRI Technology

Dr. Peter J. Basser, chief of NICHD's section on tissue biophysics and biomimetics and director of the Program in Pediatric Imaging and Tissue Sciences, recently was

honored as a fellow of the International Society for Magnetic Resonance in Medicine (ISMRM). He received the honor for his role in inventing and developing the technology known as diffusion tensor magnetic resonance imaging, or DTI.

DTI can provide three-dimensional images of the body's fibrous tissues such as nerves, muscles and tendons. This technology allows researchers and physicians to make detailed maps of the nerve pathways through which various parts of the brain communicate. Such maps, and other information DTI provides, allow physicians to plan brain surgery, to pinpoint the location of brain tumors or to track damage to brain tissue among stroke survivors.

DTI works by measuring the random motion of water molecules, a process called diffusion. DTI measures the rate of diffusion in different directions, adding new information about the tissues to what traditional MRI provides.

In the early 1990s, Basser invented the technology with two collaborators at NIH, Denis LeBihan and James Mattiello. Basser developed the basic physical and mathematical underpinnings of the technique and designed the experiments to test it. NIH issued the first license for a private corporation to use the technology in 2002. DTI is now available to patients in many large hospitals worldwide, especially in academic research centers.

"This was a long-term, high-risk, high-reward project," Basser said. "It required continued support and the availability of outstanding imaging resources. We probably couldn't have developed it anywhere but here, in NIH's intramural program."

In addition to being named a fellow of the society this year, Basser received ISMRM's highest research honor in 2008, its Gold Medal. That same year, Dr. Carlo Pierpaoli, a coworker of Basser's, was named a fellow of the society. Pierpaoli has worked to develop biological and clinical applications of DTI.



### NIH Philharmonia Performs at CRC

*The NIH Philharmonia charms a large audience (above) in the atrium of the Clinical Research Center with performances of Vivaldi's "Summer" movement from the Four Seasons and Mozart's Jupiter symphony. Below, Dr. Nancia D'Alimonte conducts the NIH Philharmonia during the group's special performance at NIH on June 15.*

PHOTOS: VALERIE LAMBROS



### New Technology Benefits Patients

*Dr. Itzhak Avital (l) shares iPad images of a research volunteer's CT scans with Dr. Rick Sherry, attending surgeon of the National Cancer Institute's immunotherapy section. Avital, an investigator in NCI's Surgery Branch, said the portability of the tablet computer enables patients to see first-hand results of scans taken the same day, increasing awareness and understanding of cancer treatment options. "A picture is worth a thousand words—especially a portable, moving picture showing the presence or absence of disease in a patient's body," said Avital. He uses his iPad for inpatient and outpatient consults with NCI research volunteers and family members.*

PHOTO: TIM HERMETZ





## KINGTON

CONTINUED FROM PAGE 1

### Top, l:

Offering up a memento of the D.C. area, NIDCR director Dr. Lawrence Tabak, who served as acting NIH deputy director while Kington was acting NIH director, is among a host of top NIH staffers to wish Kington well at a Bldg. 1 reception.

### Top, r:

Kington and Collins enjoy light moments at the farewell reception with Kington's family, including (from l) son Emerson, partner Dr. Peter Daniolos and son Basil.

### Below:

Kington and a sleeping Basil pose with NIH Deputy Director for Management Colleen Barros.

PHOTOS: BILL BRANSON



but across government and throughout the research community. He leaves behind a sterling record of accomplishments of which he should be very proud. I'm grateful that I have had the honor of working with him, and benefiting from his wise counsel. Grinnell is getting a fabulous president!"

His was a rocket-like launch into the top ranks of NIH leadership: Named associate director of behavioral and social sciences research in 2000. Asked to serve as acting director of NIAAA in January 2002. Called to be NIH principal deputy director just 14 months later.

Kington, however, should be well accustomed to quick climbs. He graduated high school at 16 and undergrad at 19. At 21, he had finished his M.D. and begun his internship, the first year of his residency. He'd earned his M.D., Ph.D. and M.B.A. degrees before he turned 31. He has arguably seen NIH from nearly every perspective—from grantee and reviewer to acting IC director to acting director.

Now, he sees it fondly, but firmly, in his rear-view mirror.

### 'New Perspectives, New Energy'

"What's that quote from Walden? 'I left the woods for as good a reason as I went there... Perhaps it seemed to me that I had several more lives to live...'" Kington said, during a recent interview. "It's good to have turnover in a job like this. It's beneficial and healthy for large organizations to have churn in their leadership. You get new perspectives, new energy. The world is not static and good organizations should not be static."

On taking the deputy director job, Kington recalled that he set a loose, but finite timeline for his term. "In the back of my mind I thought I'd stay maybe 5 years max in the

position," he said. "I ended up staying for 7½."

Ask anyone in the know: The principal deputy director job at NIH is part-firefighter, part-King Solomon and, apparently, part-James Bond/007—only without the "license to kill."

"Certain issues that took an extraordinary amount of time...it is unwise to talk about," Kington quipped diplomatically, only half-joking. "I take them to the grave."

He explained, "A disproportionate amount of bad stuff goes to the deputy director [to handle]...Every deputy director job is different, of course, but it's the nature of the position."

Former NIH director Dr. Elias Zerhouni, writing in a farewell note read at a Wilson Hall send-off for Kington on July 8, put Kington's service in perspective, "He rose to the challenges of what I think is probably the most difficult job at NIH and accomplished it in superb fashion with resilience and integrity. I will be forever grateful to him."

NIAID director Dr. Anthony Fauci noted, "Dr. Kington represents the epitome of integrity, keen intelligence, sharp insight, common sense and reason. He helped guide the NIH through some of its most challenging times in recent memory, and he did so with grace as well as strength of purpose. He will be sorely missed."

### Critical Backstage Manager

The thorniest problem he had to tackle? "Ethics and the conflict of interest situation," Kington answers without hesitation. "I think it was one of the most difficult challenges the agency faced in its history. The intensity of feeling invoked on all sides, careers were seriously damaged, the character of the whole agency impugned—it was quite the challenge to handle."

Serving often in a behind-the-scenes capacity, Kington left a legacy of accomplishments. Colleagues say chief among them was his shepherding of the ARRA funds last year. No small feat



Clinical Center director Dr. John Gallin (r) offers good wishes to Kington on his departure this month from NIH. The search for the next principal deputy is under way.

for NIH to spend 10 billion bonus dollars in a mere 2 years. The average research grant lifespan might be two or three times that term.

Kington called to mind different highlights.

“Helping to think through what became ‘D-Pough-keepsie’ [Division of Program Coordination, Planning and Strategic Initiatives, or DPCPSI] and the Roadmap was especially rewarding,” he said. “I also will never forget how impressive the NIH staff is. I have worked with some remarkable people at every level. I don’t think you can fully appreciate the size and complexity of NIH, the incredible breadth of work that the agency does, unless you come to work here.”

NIDCR director Dr. Lawrence Tabak, who is also serving currently as acting DPCPSI director, said Kington’s contributions, both seen and unseen, were vital to the agency.

“Without Raynard’s selfless and tireless efforts,” Tabak noted, “the NIH Roadmap and its new way of doing business at NIH would never have been realized.”

Still, Kington said, there’s at least one issue he wishes he’d had more time to tackle at NIH:

“There’s still a huge amount of work to do in diversity and its impact on the scientific workforce at large and at this agency,” he pointed out. “I think it’s very difficult for agencies to diversify without some major external force driving it. It’s not that there are not good intentions and it’s not for lack of trying. I don’t think that diversity has been seen as a core, long-term survival issue for NIH. I would have liked to have been a bigger influence on that.”

Although he still intends to find ways post-NIH to help the scientific community broaden its STEM (science, technology, engineering and math) workforce—and hopes one day to teach a course in science policy—Kington said his career as a research scientist is virtually done.

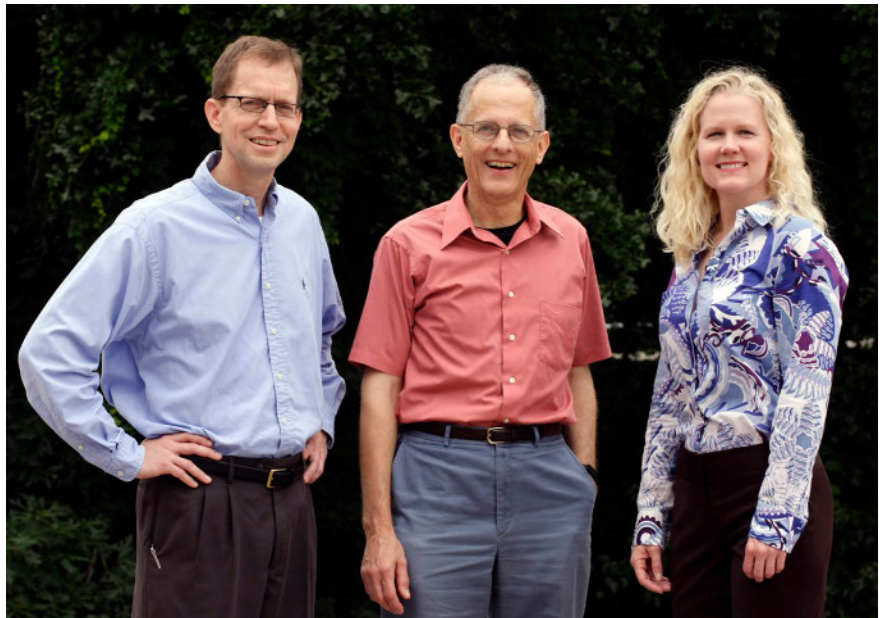
“That door is essentially closing,” he explained. “It’s very difficult if not impossible to return after being absent so long. It basically leaves you behind.”

## A Certain Symmetry

Legend has it that when newspaperman Horace Greeley advised in an 1850s editorial, “Go west, young man,” he was actually speaking to a youthful abolitionist minister named Josiah Grinnell. By 1854, Grinnell had traveled as far west as Iowa, where he founded his namesake town, which became a stop on the Underground Railroad. After its founding in 1846 in Davenport as Iowa College, the school—one of the first accredited colleges west of the Mississippi River—relocated to the town of Grinnell in 1860 and later formally adopted the name of its new home.

On Aug. 1, when Kington at age 50 becomes Grinnell College’s 13th president—and the first African American to hold the post—he’ll be about 10 years younger than the average college head, according to a study by the American Council on Education. *Go west, young man.* Relishing the rich history of his new institution, Kington said he anticipates both familiar and unfamiliar challenges.

“Some dimensions will be similar,” he said. “What I can bring is the perspective of running a large organization. We train here [at NIH]. We have students, young people here. Our missions overlap, to some extent. Colleges are incredibly optimistic institutions, believing in the potential to influence young lives. They’re also complicated organizations. I’ve never lived in a small town. I’ve never really been associated with a liberal arts college. It’ll be a leap into a new world. I’m looking forward to it.”



## NIEHS Honored for Sustainability

Representatives of the Department of Health and Human Services Green Champions Awards program offered NIEHS kudos for its accomplishments in sustainability and presented the institute with the 2009 Organization Green Champion Award on June 10. Receiving the honor are (from l) NIEHS Deputy Associate Director for Management Chris Long, environmental awareness advisory committee co-chair Dick Sloane and sustainability coordinator Trisha Castranio. NIEHS efforts to “go green” have included establishing an Environmental Management System, upgrading campus lighting fixtures and installing the institute’s first solar roof, cutting water use by nearly 20 percent and reducing the amount of chemical and regulated waste by 43 percent over the past 6 years. In addition, 27 percent of NIEHS’s federal employees use alternative workplace and commuting methods.

PHOTO: STEVE MCCAWE

## CLASSIFICATION

CONTINUED FROM PAGE 1



Dr. Bruce Cuthbert

er, extremes in these dimensions occur. For example, fear is a normal adaptive emotion, but when fear is taken to an extreme, anxiety disorders such as phobias result. Thus, understanding how the brain works by studying its biological aspects such as brain circuits and genetics can help elucidate a classification system for mental disorders.

Cuthbert made clear that this classification system is only meant to be used for classifying subjects in research studies. The project is not designed to change or replace the Diagnostic and Statistical Manual of Mental Disorders (DSM) or the International Classification of Diseases and Related Health Problems (ICD), the two systems currently used for classifying mental disorders. Perhaps it will influence the criteria for classification used in these systems in the future; however, the purpose of RDoC is solely to improve research.

RDoC's approach to classification might contribute to a solution for many research problems. For example, research has found that there is a genetic relationship between schizophrenia and bipolar disorder. Although they do not appear to be the same disorder, they do not appear to be completely unrelated either. However, due to the lack of a developed classification system, these disorders are classified as two completely separate ailments in research studies.

"How do we come up with some system of classifying these patients?" Cuthbert wondered. To offer a suggestion on how to answer this question, he cited recent research on schizophrenia. This research found that people with schizophrenia or related symptoms can be divided into three clusters based on the symptoms present and that a different gene was associated with each of these symptom clusters. Future research on the relationship of these genes to bipolar disorder might make the relationship between schizophrenia and bipolar disorder clearer. A better classification system could then be developed based on the underlying genetics.

Encouraging future research is, in fact, a goal of the project. "We're trying to encourage basic research that would help us understand these [biological] mechanisms better," Cuthbert explained. Such research would affect the way scientists think about disorders.

The RDoC committee plans to hold multiple conferences to discuss the classification system over the next couple of years, with its first conference this summer. 🗨️



NINR director Dr. Patricia Grady (third from l) welcomes new council members (from l) Dr. Glenna Dowling, Dr. Everette J. Freeman and Dr. Elaine Larson. Not shown is Dr. Susan Reinhard.

## NINR Welcomes Four New Council Members

NINR recently welcomed four new members to its National Advisory Council for Nursing Research:

Dr. Glenna A. Dowling, professor and chair of the department of psychological nursing at the School of Nursing at the University of California, San Francisco and director of the Institute on Aging Research Center, is an expert on gerontology nursing and chronic progressive neurological disorders. Her research focuses on the effects of such diseases on circadian and rest-activity rhythm function in older adults.

Dr. Everette J. Freeman, president of Albany State University, is a leader in higher education, widely recognized and lauded for his commitment to equity in the academic community and specialized interest in organizational development, Equal Employment Opportunity Commission compliance and industrial relations.

Dr. Elaine Larson, associate dean for research and professor of pharmaceutical and therapeutic research at Columbia University School of Nursing, has served as editor of the *American Journal of Infection Control* since 1994. She is also a fellow of the American Academy of Nursing, the Infectious Disease Society of America, the New York Academy of Medicine, the Institute of Medicine and the National Academies of Practice.

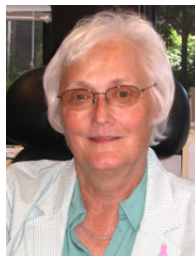
Dr. Susan Reinhard is senior vice president for public policy with AARP and chief strategist with the Center to Champion Nursing in America. She is an expert in nursing and health policy with extensive experience in translating research and developing coalitions to promote policy change and in teaching nurses and other professionals how to better interact with consumers and their families.



# milestones

## NCI Breast Cancer Researcher Vonderhaar Retires

By Jennifer R. Crawford



After 39 years of service to NIH, Dr. Barbara K. Vonderhaar hung up her lab coat and became a scientist emeritus recently. Rising from the ranks of staff fellow at a time when few women were encouraged to enter, let alone advance in the sciences, Vonderhaar achieved a senior investigator position, ultimately becoming chief of the Mammary Biology and Tumorigenesis Laboratory at NCI.

Vonderhaar received her Ph.D. from the McArdle Laboratory at the University of Wisconsin for studies on estrogen and its receptors. She then moved into the breast biology field during postdoctoral studies with Dr. Yale Topper. Her early investigations into mouse prolactin activity in the breast served as a springboard for her successful independent career.

Studies conducted in Vonderhaar's laboratory were the first to isolate a receptor for prolactin from any source and to characterize an antibody to recognize these receptors. Her lab was also the first to show that prolactin was made in, and released by, breast cancer cells. Their data demonstrated that this locally produced hormone plays a critical role in breast tumor growth.

Cumulatively, Vonderhaar's research has resulted in nearly 150 publications with several manuscripts still in revision. She is an internationally recognized leader in the mammary gland field and has served as associate editor for a variety of peer-reviewed journals. Vonderhaar was a founding co-chair of the Intramural Program for Research on Women's Health, co-chair of the Breast and Gynecologic Malignancies Faculty and co-chair of the Cancer Stem Cell Consortium. She has won numerous awards including the NIH Merit Award and was elected to the Senior Biomedical Research Service.

Vonderhaar may be most appreciated, however, for her mentoring of young scientists. More than 150 high school, undergraduate, graduate and postdoctoral researchers, many of whom have assumed high-profile positions in medi-

cine, industry, academia and administration, benefited from working with her. The Bethesda chapter of the Association of Women in Science recognized her efforts with its first Excellence in Mentoring Award.

"To me, Barbara is the rare combination of an outstanding mentor, scientist and friend—at times critical and tough but always caring and supportive of that next step," said Dr. Jessica Faupel-Badger, associate director of the Cancer Prevention Fellowship Program at NCI and former Vonderhaar postdoctoral fellow.

Vonderhaar has also trained and supported technicians and visiting scientists. "She has allowed me the freedom to explore scientific ideas, to build my confidence and independence. We are true collaborators," said Senior Research Assistant Erika Ginsburg, who has worked with Vonderhaar nearly 30 years.

As an emeritus, Vonderhaar looks forward to continuing to consult with her NCI collaborators as well as co-writing a forensic science book for attorneys with her son, traveling with her husband, Brendan, and spending more time with her granddaughter, all between rounds of golf.

## NAGC Awards NIH Communicators

The National Association of Government Communicators announced its 2010 Blue Pencil (printed material) and Gold Screen (audiovisual and electronic media) Awards, "Highlighting Some of the Industry's Best in Government Communications," recently. NIH'ers nabbed several. Award winners are listed below by category, product title, producers and place.

**Brochures/Booklet.** *NIAID Edge of Discovery*. Courtney Billet, Cynthia Fabry, Robert Taylor, Lynne Komai. 2<sup>nd</sup> place

**Electronic Publication.** NIH Research Matters. OD. Dr. Harrison Wein, Vicki Contie, Alyson Olander, Sara Cohen. 2<sup>nd</sup> place

**Soft/hard cover book (21-49 pages).** *Stroke: Challenges, Progress and Promise*. NINDS. Dr. Daniel Stimson, Marian Emr, Margo Warren, Paul Girolami. 2<sup>nd</sup> place

**Soft/hard cover book (50 or more pages).** *Exercise and Physical Activity*. NIA. Karen Pocinki, Anne Brown Rodgers, Monica Snellings. 2<sup>nd</sup> place; *Caring for Persons with Alzheimer's Disease*. NIA. Jennifer Watson, David Burton, Wendy Mettger. Award of Excellence

**External newsletter.** *NIH News in Health*. OD. Dr. Harrison Wein, Vicki Contie, Margaret Georgiann, Bryan Ewsichek. Award of Excellence

**Web site I.** Know Stroke web site. NINDS. Marian Emr, Margo Warren, Ruth Shapiro. Award of Excellence

**Web article.** "Evolutionary Biology, Cichlids, Gene Networks, and Teeth." NIDCR. Bob Kuska. Award of Excellence. 📌

### Eye Study Finds Two Therapies Slow Diabetic Eye Disease Progression

In high-risk adults with type 2 diabetes, researchers have found that two therapies may slow the progression of diabetic retinopathy, an eye disease that is the leading cause of vision loss in working-age Americans.

Intensive blood sugar control reduced the progression of diabetic retinopathy compared with standard blood sugar control, and combination lipid therapy with a fibrate and statin also reduced disease progression compared with statin therapy alone. However, intensive blood pressure control provided no additional benefit to patients compared with standard blood pressure control.

Results of the Action to Control Cardiovascular Risk in Diabetes (ACCORD) Eye Study, supported by NIH, were published online June 29 in the *New England Journal of Medicine*.

“The ACCORD Eye Study clearly indicates that intensive glycemic control and fibrate treatment added to statin therapy separately reduce the progression of diabetic retinopathy,” said Dr. Emily Chew, chair of the study and chief of the Clinical Trials Branch at the National Eye Institute. “The main ACCORD findings showed that fibrate treatment added to statin therapy is safe for patients like those involved in the study. However, intensive blood sugar control to near normal glucose levels increased the risk of death and severe low blood sugar, so patients and their doctors must take these potential risks into account when implementing a diabetes treatment plan.”

### NIH-Led Scientists Find Antibodies That Stop HIV from Infecting Human Cells

Scientists have discovered two potent human antibodies that can stop more than 90 percent of known global HIV strains from infecting human cells in the laboratory and have demonstrated how one of these disease-fighting proteins accomplishes this feat. According to the scientists, these antibodies could be used to design improved HIV vaccines or could be further developed to prevent or treat HIV infection. Moreover, the method used to find these antibodies could be applied to isolate therapeutic antibodies for other infectious diseases as well.

“The discovery of these exceptionally broadly neutralizing antibodies to HIV and the structural analysis that explains how they work are exciting advances that will accelerate our efforts to find a preventive HIV vaccine for global use,” said Dr. Anthony Fauci, director of the National Institute of Allergy and Infectious Diseases. “In addition, the technique the teams used to find the new antibodies represents a novel strategy that could be applied to vaccine design for many other infectious diseases.”

Led by a team from the NIAID Vaccine Research Center, the scientists found two naturally occurring, powerful antibodies called VRC01 and VRC02 in an HIV-infected individual’s blood. They found the antibodies using a novel molecular device they developed that homes in on the specific cells that make antibodies against HIV. The device is an HIV protein that the scientists modified so it would react only with antibodies specific to the site where the virus binds to cells it infects.

The scientists found that VRC01 and VRC02 neutralize more HIV strains with greater overall strength than previously known antibodies to the virus. A pair of articles about the findings appeared July 9 in the online edition of *Science*.

### Mental Decline Thwarted in Aging Rats

Scientists have discovered a compound that restores the capacity to form new memories in aging rats, likely by improving the survival of newborn neurons in the brain’s memory hub. The research, funded in part by NIH, has turned up clues to a neuroprotective mechanism that could lead to a treatment for Alzheimer’s disease.

“This neuroprotective compound, called P7C3, holds special promise because of its medication-friendly properties,” explained Dr. Steven McKnight, who co-led the research with Dr. Andrew Pieper, both of University of Texas Southwestern Medical Center, Dallas. “It can be taken orally, crosses the blood-brain barrier with long-lasting effects, and is safely tolerated by mice during many stages of development.”

The researchers reported their findings July 9 in the journal *Cell*.

“This striking demonstration of a treatment that stems age-related cognitive decline in living animals points the way to potential development of the first cures that will address the core illness process in Alzheimer’s disease,” said NIMH director Dr. Thomas Insel.



*Researchers have found that two therapies may slow the progression of diabetic retinopathy, an eye disease that is the leading cause of vision loss in working-age Americans.*



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

### 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.

### Treatment Study for Cold Sores

Could a natural amino acid help recurring cold sores? NIAID is investigating a new treatment that may help prevent cold sore outbreaks. People between the ages of 18 to 65 who experience 6 or more outbreaks per year may be eligible to participate in this study. There is no cost to participate and compensation is available. Refer to study 09-I-0159. Se habla español.

### Women's Health Studies Seek Healthy Volunteers

Healthy women ages 18-65 are invited to participate in outpatient research studies. Compensation is provided. Call (301) 496-9576 and refer to protocols 81-M-0126, 88-M-0131 and 03-M-0138.

### Healthy Female Volunteers Needed

The Mood & Anxiety Disorders Program, NIMH, is looking for healthy female volunteers, with no current or history of psychiatric illness, between the ages of 35 to 65, for a multitude of studies. Studies may include PET scans, MRI, psychological interview, neuropsychological testing and other procedures depending on which project you choose to participate in. Call (301) 435-8982 for more information.

### Postpartum Depression Research Studies

Women ages 18-45 who struggle with postpartum depression or who had PPD in the past are invited to participate in outpatient research studies. There is no cost for participation. Compensation may be provided. Call (301) 496-9576 and refer to study 03-M-0138.



*University of Maryland president Dr. C.D. Mote, Jr. (c) looks on as Dr. Robert Wiltrot (l), director of the NCI Center for Cancer Research, and Dr. Melvin Bernstein (r), vice president for research at Maryland, sign an agreement establishing the Collaborative Research and Graduate Partnership Program in Cancer Technology.*

PHOTO: JOHN T. CONSOLI

### NCI, U. of Maryland Team Up To Fight Cancer

Hoping to capitalize on the idea that solutions to fundamental questions in one field are facilitated by approaches and input from experts in another, Dr. Robert Wiltrot, director of the Center for Cancer Research, and University of Maryland vice president for research Dr. Melvin Bernstein signed a formal memorandum of understanding recently at the College Park campus.

Maryland graduate students had already been working in NCI laboratories for several years. Research presented by these students in a 2007 poster session convinced administrators that an official program would benefit both institutions.

The agreement between CCR and the departments of physics, mathematics and the Institute for Physical Sciences and Technology establishes the Collaborative Research and Graduate Partnership Program in Cancer Technology. This will allow qualified Maryland graduate students to conduct research under the joint supervision of CCR and university faculty. A series of lectures, workshops and meetings will accompany the program.

Additionally, the understanding facilitates collaborations among cancer researchers, physical scientists, mathematicians and engineers on the two campuses. The goal is to bring their various expertises to bear on the complex issues of cancer biology.

"We are very enthusiastic about this partnership with the University of Maryland," said Wiltrot. "I believe it will make both institutions stronger and ultimately advance cancer research for the benefit of patients. We can accomplish more by working in interdisciplinary teams."

More information on the partnership and announcements of upcoming events can be found at <http://cancertechnology.umd.edu>.—Jennifer Crawford



## Princess of Thailand Visits NIH, Discusses Collaborations with NCI

Her Royal Highness Princess Chulabhorn Mahidol of Thailand visited NIH on June 15 and 16 to discuss recent findings in cancer research and studies investigating the potential discovery and development of natural products that could yield treatments for cancer. The meeting, sponsored by NCI's Center for Cancer Research, was to discuss ongoing and new research collaborations between Thailand's Chulabhorn Research Institute and NCI. Chulabhorn, a Ph.D. research scientist who has visited NIH many times in the past, is founder and president of the Chulabhorn Research Institute, whose mission is to collaborate globally and apply translational discoveries to improve the quality of life for all people of Thailand.

The first day of the meeting focused on the Thailand Initiative on Genomics and Expression Research for Liver Cancer (TIGER-LC), a collaborative effort between Thailand, CCR and other international institutions. CCR director Dr. Robert Wiltout and Drs. Curtis Harris and Xin Wei Wang, both of whom are CCR investigators involved in TIGER-LC, and other scientists presented new findings in lung and liver cancer research, including studies investigating cancer biomarkers that could guide decisions regarding appropriate treatment choices. The day concluded with Chulabhorn touring CCR's Genomics Center and imaging laboratories.

Day 2 involved sharing data on natural products, an area of research under way at both NCI and the Chulabhorn Research Institute.

The princess presented data on natural products research in Thailand.

Dr. David Newman of NCI's Division of Cancer Treatment and Diagnosis talked about NCI's Natural Products Branch and Repository, which contains plant samples, marine animals and microbes from more than 35 countries.

Dr. James McMahon of NCI's Molecular Targets Laboratory spoke about the institute's efforts on screening natural products extracts for activity against cancer and HIV.

Dr. Barry O'Keefe of NCI's Molecular Targets Laboratory, a former teaching assistant of Chulabhorn's, talked about griffithsin, an antiviral protein that his team isolated from red algae that has been shown to be active against several viruses including HIV.

Dr. Yves Pommier of CCR's Laboratory of Molecular Pharmacology discussed two types of natural products that have anticancer activity—camptothecins and ecteinascidins.

Her Royal Highness and CCR were both pleased with their rich exchange of information and agreed to make plans for future collaborations in the months ahead.

Newman concluded, "We can have divers in the waters of Thailand within 6 months who can collect marine life that may have potential in the discovery and development of products that could be beneficial to treating cancer and other diseases."—**Kimberly Martin**

### Top, l:

Dr. Keith Killian of NCI briefs Her Royal Highness Princess Chulabhorn Mahidol of Thailand and members of her delegation, including Dr. Mathuros Ruchirawat (second from r).

### Top, r:

Center for Cancer Research director Dr. Robert Wiltout (l) and Princess Chulabhorn hear from CCR investigator Dr. Curtis Harris about the Thailand Initiative on Genomics and Expression Research for Liver Cancer, a collaborative effort between Thailand, CCR and other international institutions.

### Below:

Dr. Andrew Patterson (r), an NCI research fellow, describes several principles of mass spectrometry and the use of different mass spectrometers in the institute's metabolics program.

PHOTOS: ERNIE BRANSON

