

# THE NIH RECORD

Still The Second Best Thing About Payday

## Creating the 'Spitome'

### NIAID Laboratory Studies Complex World of Insect Saliva

By Paul Williams

While the buzz around this summer's campfires may be that of lovelorn cicadas,



Mosquito takes a blood meal.

Dr. José Ribeiro knows that it is the insects' blood-thirsty relatives that should

receive the most attention from outdoor enthusiasts. As head of the vector biology section of the Laboratory of Malaria and Vector Research (LMVR) at the National Institute of Allergy and Infectious Diseases, Ribeiro studies the ongoing battle between

SEE INSECT SALIVA, PAGE 6

### NHLBI 'PALS Up' with Heart Health

The National Heart, Lung, and Blood Institute is practicing what it preaches with an innovative new physical activity program called PALS.

PALS stands for "physical activities and lifestyles" and its goal is to get employees up and moving during the day. PALS was recently launched with two "heart walks," led by NHLBI acting director Dr. Barbara Alving, who created the program. Altogether about 80 employees participated in the walks, which took off from Rockledge 2 and Bldg. 1.

"People need encouragement and support to become more physically active," said Alving. "They need to know that taking the time is all right with their supervisor."

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U.S. Department of Health and Human Services National Institutes of Health

June 8, 2004  
Vol. LVI, No. 12

## Hard-Won Spending Authority Now Key

### Director's Discretionary Fund To Mark 15 Years

By Carla Garnett

What do the Women's Health Initiative and the NIH Roadmap for Medical Research have in common? Besides having the potential to improve the health of billions of people worldwide, both have similar roots: seeds for them were sown by a relatively young—and comparatively small—spending authority, the Director's Discretionary Fund (DDF).

In fiscal year 2004, NIH director Dr. Elias Zerhouni presides over a DDF of more than \$44 million—the largest Congress has ever allotted the agency. As budget negotiations began this spring for FY 2005, the fund—once an elusive goal for NIH leaders—marked its 15th year, and it's difficult to perceive how past directors managed without it.

#### Wanted: More Power, Flexibility

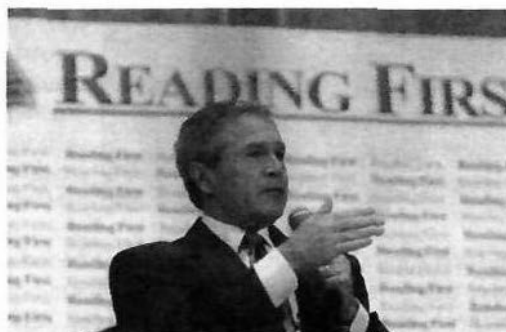
The idea for the NIH director to have direct authority over a modest portion of the budget existed long before it was ever

SEE DIRECTOR'S FUND, PAGE 8

### President Visits NIH To Discuss Reading

By Rich McManus

President George W. Bush paid his second call on NIH in 15 months on May 12 when he visited Natcher auditorium to emcee a five-person "Conversation on Reading" that touted his No Child Left Behind legislation and its "Reading First" initiative. The 40-minute session featured the contributions of NICHD's Dr.



President Bush touts his reading program.

in such an informal setting, recounted his relationship with Lyon, whom he affectionately called "Reid-o." "I've known Reid for a

G. Reid Lyon, an authority on the science underlying the complex task of reading whose findings undergird the President's approach to a national literacy problem.

Bush, a booming speaker with a light and convivial touch

SEE PRESIDENT'S VISIT, PAGE 4

## HEART HEALTH, CONTINUED FROM PAGE 1

"Physical activity is just as important for your health as a good diet and good sleep habits," said Dr. Carl Hunt, director of the National Center on Sleep Disorders Research at NHLBI, who spearheads the effort. "Physical activity has many benefits. It helps prevent heart disease, raise HDL cholesterol and control weight and blood pressure. And being physically active during the day helps us sleep better at night."

As part of PALS, every NHLBI employee received a step counter, to help them track their activity level, and the chance to join a PALS walking group. Additionally, PALS has a web page with activity tips, an

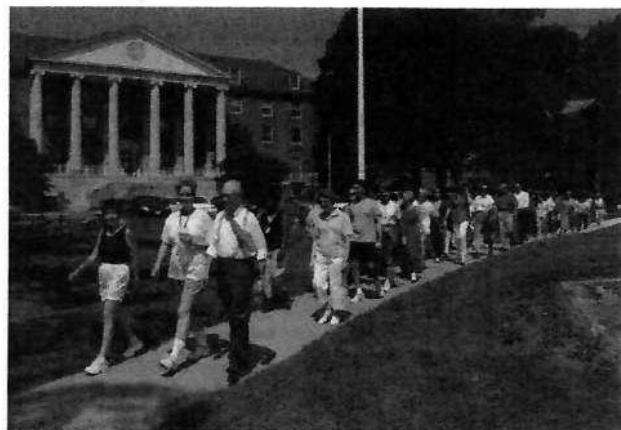
activity tracking feature and maps to help employees plot heart-healthy walks—outside or in. For instance, those eager to do an air-conditioned, cicada-free mile can take four laps of the distance from Bldg. 31's A wing to its C-wing elevator. Or for another mile, start at the front door of Bldg. 37 and walk four laps around the outside corridor.

NHLBI also has set up two LifeClinic Health stations, which can be used by all NIH employees. The stations are located in Bldg. 31, near Rm. 4A10, and in Rockledge 2, next to the 9th floor cafeteria.

The easy-to-use stations record blood pressure and weight, and employees can create a confidential web-based record of their results. Further, the stations are stocked with NHLBI publications

on such topics as eating to help lower blood pressure, tips to weight loss success and heart-healthy recipes. The publications and resources, such as a BMI calculator and an interactive menu planner, also are available online at [www.nhlbi.nih.gov](http://www.nhlbi.nih.gov).

PALS grew out of an NHLBI survey of its employees' physical activity habits and preferences. The



Alving (front, c), Hunt (front, r) and Maria Stagnitto (front, l), associate director of the Office of Clinical Affairs in NHLBI's Division of Intramural Research, lead employees on a heart walk around campus.

survey found that most employees are not physically active during the day and do not belong to the NIH Fitness Center. But, when asked if they would participate in an NHLBI physical activity program, about 90 percent said yes.

PALS also fits in with the HHS Steps to a Healthier US Initiative, which promotes finding ways to help Americans make healthy lifestyle choices, including to become physically active. Nationwide, about two-thirds of adults do not engage in a regular leisure-time activity.

"PALS is still evolving," said Alving. "We hope to offer more types of activities for employees in the future. But one thing will stay the same—strong support from the institute so employees will feel encouraged to follow a healthy lifestyle." ■



NHLBI acting director Dr. Barbara Alving (front, r) and PALS coordinator and NCSDR director Dr. Carl Hunt (front, c) lead employees on a heart walk from Rockledge II.



NHLBI employees sign up for PALS walking groups.

## NIH RECORD

Published biweekly at Bethesda, Md., by the Editorial Operations Branch, Office of Communications and Public Liaison, for the information of employees of the National Institutes of Health, Department of Health and Human Services. The content is reprintable without permission. Pictures may be available on request. Use of funds for printing this periodical has been approved by the director of the Office of Management and Budget through Sept. 30, 2004.

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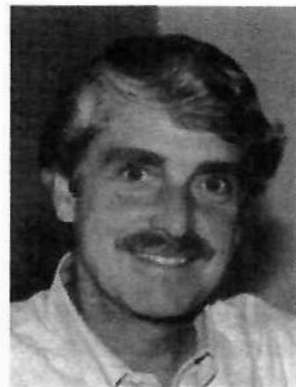
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## Hingson Joins NIAAA as Division Director

Dr. Ralph W. Hingson, a researcher whose work has inspired legislative efforts against drinking and driving, has joined the National Institute on Alcohol Abuse and Alcoholism as director of its Division of Epidemiology and Prevention Research.

He comes to NIAAA from the Boston University School of Public Health (BUSPH), where he had served since 2001 as associate dean for research. From 1986 to 2000, Hingson served as professor and chair of the BUSPH social and behavioral sciences department. Research by Hingson and colleagues in the early and mid-1990's helped stimulate passage of legislation, now enacted in all states, that makes it illegal for drivers under 21 to drive after any drinking.



Dr. Ralph W. Hingson

Hingson's more recent studies on the relationship between blood alcohol levels and automobile accidents has factored into proposals in many states to lower the legal blood alcohol concentration to 0.08 percent. Currently, 47 states have adopted the 0.08 percent limit. Hingson also has evaluated comprehensive community interventions to reduce alcohol-impaired driving and investigated how age of drinking onset affects alcohol-related outcomes such as motor vehicle crashes, injuries and fighting. He recently wrote a background chapter for the National Academy of Sciences *Report to Congress on Developing a Strategy to Reduce and Prevent Underage Drinking*.

Hingson serves as a member of the committee on alcohol, drugs and traffic safety for the National Transportation Research Board of the National Academy of Sciences and the national advisory council of Mothers Against Drunk Driving (MADD). He has served as national vice president for public policy for MADD and spent 7 years on its national board of directors. Hingson helped develop MADD's Rating the States program, which grades national and state efforts to reduce alcohol and other drug-impaired driving.

The Robert Wood Johnson Foundation honored him in 2001 with its Innovators Combating Substance Abuse Award. In 2002, he received the Widmark Award, the highest award bestowed by the International Council on Alcohol, Drugs and Traffic Safety, of which he is currently president-elect. In 2003, MADD instituted the Ralph W. Hingson Research in Practice Annual Presidential Award, with Hingson honored as its first recipient. ■

Dr. Natasha Karamanlis, wife of the Prime Minister of Greece, Kosta Karamanlis, visited NIH on May 20. She met with a number of postdoctoral fellows who hail from



Greece during a campus tour coordinated by the Fogarty International Center. Below, she greets Dr. Constantine Stratakis (l) of NICHD as NIH deputy director Dr. Raynard Kington looks on.



## Research Festival Calls for Poster Abstracts by July 2

The NIH Research Festival organizing committee, cochaired this year by scientific directors Dr. Marvin Gershengorn of NIDDK and Dr. Eric Green of NHGRI, announces that the 2004 NIH Research Festival will be held Sept. 28 through Oct. 1 in the Natcher Conference Center. The committee is now accepting poster abstracts online through July 2 by all NIH investigators and Bethesda FDA/CBER investigators. The committee requests a limit of one poster submission per first author.

The theme of this year's festival will focus on new and exciting areas of activity in intramural research. Dr. Michael Gottesman, NIH deputy director for intramural research, will highlight the advances in the festival's keynote address entitled "The NIH Intramural Research Program: Current Status and Future Prospects," on Tuesday, Sept. 28, at 9 a.m.

Other events during the 4-day annual showcase of intramural science will include symposia and poster sessions, special exhibits on resources for intramural research, the Job Fair for NIH Postdoctoral and Clinical Fellows, the Festival Food & Music Fair and the Technical Sales Association scientific equipment tent show.

For a preliminary schedule of events and online poster registration, visit <http://festival04.nih.gov>. Applicants will receive email confirmation of receipt of their poster abstracts and will be notified of acceptance by email in early August. For more information about poster registration, contact Paula Cohen at (301) 496-1776 or email [pc68v@nih.gov](mailto:pc68v@nih.gov). ■



PRESIDENT'S VISIT, CONTINUED FROM PAGE 1

long time," Bush began. He had been worried, back in 1996 as governor of Texas, about how public schools were failing in their mission to teach children how to read. He learned about Lyon's work in a field NIH has funded since the mid-1960's and told his staff, "Get him down here. We've had a great relationship ever since."

"Reading is more of a science than people think," said the President. "We've got a problem in America. Not every child can read at grade level." He called the successful teaching of reading a "national obligation," and called reading "the new civil right...You don't have a chance to succeed in the 21st century if you can't read."

Bush repeatedly interrupted his serial discussions with five experts in reading to acknowledge members of the audience, including Maryland Gov. Robert Ehrlich and Lt. Gov. Mike Steele; NIH director Dr. Elias Zerhouni ("Elias, I'm proud of the job you're doing. You've got a tough job—and I picked a good man to do it, and I really appreciate you being here," he commented); and Rod Paige, secretary of the Department of Education, which sponsored the event. He also paused to greet Rep. Ralph Regula (R-OH), chair of the House appropriations subcommittee in charge of the NIH budget, and to congratulate NIAID director Dr. Anthony Fauci on a job well done.

Bush wants to see every child in America reading at grade level by third grade, adding, "I don't think that's too high a goal. I think it's the role of the federal government to help school districts implement reading strategies that work." He said it was appalling that some U.S. high school seniors are not able to read.

Bush credited Lyon's investigations into "phonemic awareness and phonics" as the basis of recent improvements in national test scores in reading. "I believe it has a lot to do with what Reid has shown us," he said.

Lyon, who is chief of NICHD's Child Development and Behavior Branch, said that NIH has been "devoted to studies of reading since 1965" but that many impoverished students still suffer a major literacy deficit that he called a "national disgrace." Non-readers typically spiral into low self-esteem and bleak futures, he explained. "We had to figure out what it was that kept those kids behind. We had to figure

out how to prevent reading failure from ever happening to begin with," he said.

"Reading is complex," Lyon explained. "It requires great physiology and good genetics, but most of all, it requires

teachers and adults to interact with kids to give them the foundations to be able to pull print off a page." He said that the teaching of phonics—the matching of elemental speech units called phonemes to the letters of the alphabet that represent them—is crucial, adding, "While that might not be in vogue, it is absolutely critical and non-negotiable." Interrupted Bush, "It's in vogue at the White House, I'll tell you that."

Lyon recalled meeting Bush in Texas in 1996, when the governor asked him to address the challenges presented by a population of youngsters whose first language was Spanish but who needed to learn to speak and write—and read—English. "Right now, we have the largest research program in the world that is understanding how children whose first language is Spanish learn to listen, speak, read and write in English, and [NICHD's] Dr. Peggy McCardle directs that," Lyon said. Shortly after he was inaugurated as President, Bush asked Lyon to do whatever

he needed to do, including gain the cooperation of previously uncooperative agencies, to improve the teaching of reading. The four other panelists, ranging from a professor at the University

of Kansas to a first-grade teacher from Alabama, testified to the success of Lyon's approach.

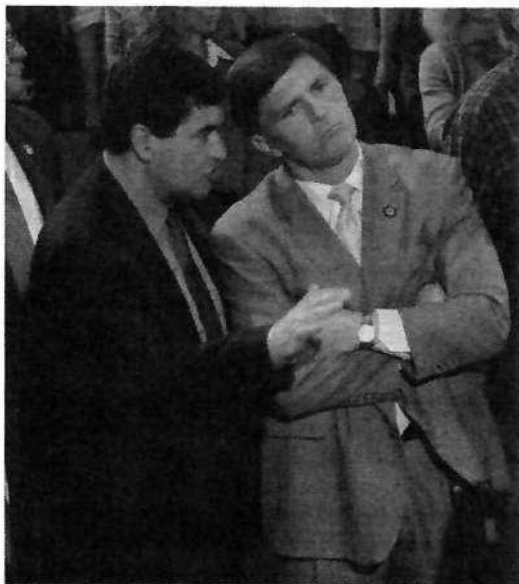
Bush repeatedly emphasized that science, not guesswork, forms the basis of his approach to literacy. Noting that literacy coaches are a feature of his administration's approach to reading, he recalled that he had been more familiar with football coaches when he grew up as a kid in Midland, Tex. But he



Dr. G. Reid Lyon of NICHD

PHOTOS: ERNIE BRANSON

NIH director Dr. Elias Zerhouni (l) converses with Maryland Gov. Robert Ehrlich at the Natcher auditorium after the President's talk.



Bush congratulates reading expert Lyon on a job well done.

maintained, "Reading is more important than athletics."

As the conversation wound down, Bush concluded, "We're getting it right [in reading instruction] because smart people have told policymakers what works."

Bush then left the Natcher stage and worked his way across the front aisle of the auditorium, greeting officials and guests that included a number of local schoolchildren. Then, just as he had done in February 2003 when he visited Natcher to announce Project BioShield, he exited NIH by motorcade and caught his helicopter on the grounds of the National Naval Medical Center, across Rockville Pike. ■

*Dr. Steve Zullo, who recently returned to NIH from the National Institute of Standards and Technology, is scientific review administrator for the gene and drug delivery systems study section of the new bioengineering*



*sciences and technologies integrated review group at the Center for Scientific Review. After a postdoctoral fellowship at Yale School of Medicine, he joined the Laboratory of Biochemical Genetics at NIMH, where he created the first mammalian (CHO) cell line with a functional mitochondrial DNA-encoded gene stably integrated in the nuclear genome. Zullo assembled a team*

*that first demonstrated protease inhibitors designed to block the HIV protease could also block the mitochondrial processing protease. This mechanism might contribute to the lipodystrophy syndromes that first surfaced when PI's were combined with nucleoside analogues in highly active antiretroviral therapy.*

#### **NLM Scientists Host IEEE Meeting**

The 17th IEEE (Institute of Electrical and Electronics Engineers) Symposium on Computer Based Medical Systems 2004 (CBMS 2004) will be held at the Sheraton Four Points Hotel in Bethesda on June 24-25. The event is being cochaired by Rodney Long and Sameer Antani of the National Library of Medicine. Preliminary program, registration and other details are available at <http://www.cvial.ttu.edu/Conferences/cbms2004/cbms2004.html>. ■

#### **Asian/Chinese Volunteers Needed**

The Clinical Center seeks healthy volunteers (male and female) 18 years of age and older to participate in a research apheresis study that assesses the influence of ethnic background on immune response. Volunteers are needed who were born in China, including Taiwan, Hong Kong and Singapore or first generation offspring of parents who were born in these countries. Two visits are required and pay is available. Call Rose Werden, (301) 402-0757. ■

#### **Hinton, Stine Win Mentoring Awards**

The Association for Women in Science (AWIS) Bethesda chapter presented its annual Awards for Excellence in Mentoring to Dr. Deborah M. Hinton and to Dr. Deborah D. Stine at its recent meeting at the Cloisters chapel at NIH. The awards are in recognition and appreciation of outstanding mentoring of young scientists.

Hinton is a research chemist in the Laboratory of Molecular and Cellular Biology, NIDDK. She has trained a number of visiting fellows, IRTA fellows and pre-IRTA fellows in her laboratory. Several of her trainees have gone on to medical school. Her students credit her for their professional and emotional growth and their training in use of the scientific method. Her group holds weekly meetings in which students present their work as well as more frequent discussion and training meetings. She encourages her fellows to draft their own papers and works with them closely on their writing, presentation and communication skills.

Stine is associate director of the committee on science, engineering and public policy at the National Academies in Washington, D.C. She was instrumental in starting the Christine Mirzayan Science and Technology Policy Internship Program at the National Academies in 1997, which gives graduate students and recent Ph.D.s and postdocs in the sciences and related fields the opportunity to spend 3-4 months working at the National Academies in science and public policy.

The Bethesda chapter of AWIS is supported in part by the Office of Research on Women's Health and the Office of Community Liaison. ■



*Deborah Hinton (r) receives her certificate from Christine Goertz, president of the Bethesda chapter of AWIS, in the Cloisters chapel.*

#### **Henderson To Give Leiter Lecture, June 28**

Dr. Donald A. Henderson, dean emeritus, Johns Hopkins School of Public Health, and resident scholar, Center for Biosecurity, University of Pittsburgh Medical Center, will discuss "Plagues for the 21st Century—A Communications Challenge," the 2004 Joseph Leiter Lecture sponsored by the National Library of Medicine and the Medical Library Association on Monday, June 28, from 1 to 2:30 p.m. in Lister Hill Auditorium, Bldg. 38A. A reception will follow in the Lister Hill lobby. ■

#### **Have Follicular Lymphoma?**

Patients who have not had chemotherapy may call for combination chemotherapy and a vaccine: 1-800-411-1222 (TTY 1-866-411-1010). Refer to study 00-C-0050. ■



## INSECT SALIVA, CONTINUED FROM PAGE 1

humans and the more than 14,000 species of blood-sucking arthropods—mosquitoes, ticks and other bugs whose bites can spread potentially fatal diseases. His work focuses on the role of arthropod saliva in blocking the body's natural defenses and in aiding the transmission of disease-causing parasites.

"Over hundreds of millions of years, blood-feeding insects and ticks have evolved a magic potion that disarms our system for reducing blood flow to a wound," says Ribeiro. "The mission of my lab is to identify the many active substances found in their saliva and to determine how each one affects the body. With this knowledge we can uncover possible targets for new vaccines against bug-borne diseases."

## Big Problems in Small Packages

Bloodsucking insects and ticks carry some of the world's most debilitating diseases. For example, malaria, which is spread by female mosquitoes, is responsible for more than 1 million deaths annually, according to the World Health Organization. WHO estimates that more than 40 percent of the global population—mainly those living in tropical areas of Africa, Asia and Latin America—are at risk of contracting the disease.

In the United States, mosquitoes are responsible for the spread of West Nile virus, among other infections. In 2003, approximately 9,858 human cases of West Nile virus infection were reported to the Centers for Disease Control and Prevention—more than double the number of reported cases in 2002. The cases reported in 2003 spanned 45 states and the District of Columbia, resulting in 262 deaths.

Despite the rise of West Nile, mosquitoes are not the biggest bloodsucking offenders in the U.S. Lyme disease, a non-fatal, rash-inducing affliction spread by ticks, is by far the most common bug-borne illness with nearly 24,000 reported cases in 2002, according to the latest data from the CDC. This figure represents a nearly 30 percent increase from 2001. Ribeiro attributes the rising number of Lyme and other bug-borne diseases to human activity such as the expansion of residential developments into areas where animals used to roam freely.

"Insects and ticks are very adaptable, and we are very good at creating changes in the environment," he says. "For example, the deer population is exploding in and around the suburbs because the wolf, the deer's natural predator, is no longer there. This creates the perfect habitat for ticks and brings the

potential for Lyme disease right to our backyards."

## Part Syringe, Part Pharmacy

Ribeiro first became interested in studying arthropod saliva more than 20 years ago when he saw a sand fly feeding on his arm. (Sand flies are blood-suckers that can spread leishmaniasis, a parasitic skin disease that occurs in tropical countries such as Brazil.) As he was looking at the bite's aftermath, he noticed that although the affected skin was red, it was not painful or itchy. From this observation, he realized that his immune system was not causing the redness. Rather, it was something introduced by the sand fly.

This revelation, he says, led to the discovery of maxadilan, the most potent known vasodilator. Vasodilators are chemical compounds that widen human blood vessels, increasing the flow of blood to a particular body part. Sand flies essentially spit maxadilan on human skin to bring blood closer to the surface, hence improving their chances of a hearty blood meal followed by a quick getaway.

In subsequent studies of arthropod saliva, Ribeiro found that while mosquitoes, ticks, sand flies and other bugs share the thirst for blood, they all evolved their feeding habits independently. As a result, each arthropod species has a unique salivary cocktail that enables it to not only maximize the size and speed of its blood feast, but also to drill through human skin without attracting attention.

For example, tick saliva contains at least one anti-clotting agent, one anti-platelet agent and one vasodilator. Together, these substances block the body's ability to stop a wound from bleeding. Ticks also secrete special chemicals that prevent the body from feeling pain at the feeding site.

"If you see a tick feeding on you, it can be very surprising because you do not feel a thing," says Ribeiro. "Ticks can feed on us for days without being noticed because their saliva contains enzymes that destroy our body's pain producers, including bradykinin, ATP, ADP, serotonin and histamine."

## Cracking the Genetic Code

So how do you extract spit from a tiny arthropod? According to Ribeiro, it depends on the arthropod. For mosquito saliva, scientists put the insect under a stereoscope (a microscope that combines two different views of the same object to produce a three-dimensional effect), remove its legs and wings, and place its mouthparts in a tube along with mineral oil and a dash of insecticide or serotonin to prompt salivation. A similar process is used for ticks. Sand flies are too small to have their mouthparts manipulated under a stereoscope, so researchers collect their salivary glands by dissection.

With each sample, Ribeiro and his five-person team create a "spitome," a full genetic transcript of the

*The vector biology section of the NIAID Laboratory of Malaria and Vector Research includes (from left) Dr. Nanda Gudderra, Dr. Ivo Francischetti, Dr. José Ribeiro and Dr. John Andersen.*



substances found in the saliva. After isolating these substances, the lab then works to identify the role of each one. Because most spitomes contain between 20 and 40 distinct chemical compounds, determining the function of each substance is painstaking work.

"While we can identify the compounds in arthropod saliva rather quickly, the process of finding out how these compounds affect our bodies is quite complex," says Ribeiro. "Because the potions in arthropod saliva are so diverse, we do not know even 20 percent of what these chemicals do to us."

#### Mining Drugs from Bugs

To determine the function of substances found in a particular spitome, Ribeiro turns to Dr. Jesus Valenzuela, head of the vector molecular biology unit of LMVR. Valenzuela develops experimental DNA vaccines to search for salivary genes that could one day be used to block the transmission of disease-causing parasites from arthropods to humans. While most existing vaccines use genetically engineered proteins to protect against disease, DNA vaccines work by directing the body's cells to produce proteins similar to those introduced by a virus or bacteria. Armed with these proteins, the immune system can recognize and neutralize any subsequent encounters with disease-causing invaders.

Valenzuela and his team test their vaccines by injecting the DNA into laboratory animals and studying their immune responses after an arthropod's bite. So far, this approach has led them to identify and isolate a salivary gene from the sand fly that protects rodents against *leishmania major*, a common form of the skin disease. This is a particularly important and timely discovery as leishmaniasis is a growing nuisance for U.S. soldiers in sand-fly rich Afghanistan and Iraq—where troops disdainfully refer to the disease as the "Baghdad boil."

Valenzuela says isolating this salivary gene could lead to a leishmaniasis prevention strategy for humans that combines a vaccine against the disease with a helper vaccine that alerts the immune system to a sand fly's presence and kills the disease-carrying parasites in its saliva. In the meantime, he and his team will continue to study the salivary genes of different species of sand fly in hopes of finding vaccine targets against other forms of leishmaniasis. They will also examine tick saliva to identify genes that may help block the transmission of *Borrelia burgdorferi*, the bacterium in tick spit that causes Lyme disease.

#### Love Thy Enemy

While sucking blood and carrying disease hasn't won them many human friends, mosquitoes, ticks and other arthropods have proven that they are resilient creatures. They have fed on blood since the

time of dinosaurs whose thick, leathery skins were the primary obstacle to taking a meal. When dinosaurs became extinct and mammals rose to prominence, the dinner menu changed significantly and arthropods were forced to develop chemicals against the clot-inducing platelets found in mammal blood. Anything less would have meant extinction.

There is a lot to learn from these bloodsuckers. As Ribeiro pointed out in a 1995 study, Nobel prizes have been awarded to scientists who discovered a few chemical compounds, while ticks and insects have been using Nobel prize-quality compounds to survive for more than 50 million years. "We know that arthropods are winning the war against us because they are still alive and feeding," he says. "Our goal is to unlock the secrets of their evolution and use that information to improve public health."



*The lab's vector molecular biology unit includes (from l) Dr. Jesus Valenzuela, Dr. Luiz Oliveira, Dr. Sreenath Subrahmanyam and Amy Seitz.*

*Dr. Donna J. Dean recently received the Award for Scientific Achievement in Health Sciences from the Washington Academy of Sciences "in recognition of visionary leadership and pivotal roles in fostering new arenas of research endeavor at the National Institutes of Health." Dean was cited for her professional contributions as researcher, regulatory scientist, administrator and manager of NIH's peer review process and founding/lacting director of the National Institute of Biomedical Imaging and Bioengineering. Her activities on behalf of workforce issues, women's health research and professional societies were also highlighted. A chemist/biochemist by training, Dean is currently senior advisor for engineering in the NIH Office of the Director and senior scholar in residence at the National Academy of Engineering of the National Academies.*



#### Orioles Bullpen Party, June 12

There's no better time to visit Camden Yards than to join the R&W annual Bullpen Party. The event will take place on Saturday, June 12 as the Orioles take on the San Francisco Giants; game time is 3:15 p.m. Tickets are \$32.50 and include game admission and entrance into the bullpen area approximately 1½ hours before the game. The menu will include Boog Powell's pit beef sandwich, hotdogs, tortilla chips and salsa, baked beans, coleslaw, beer and soda. Stop by any R&W Gift Shop to join the fun. Part of the proceeds will assist with Camp Fantastic.



## DIRECTOR'S FUND, CONTINUED FROM PAGE 1

brought before Congress. As early as 1988, when an Institute of Medicine committee was appointed "for a study to evaluate strategies to promote the continued excellence of the NIH intramural laboratories," the recommendation to beef up the NIH director's spending power was one of several offered "to address problems with minimal disruption to a successful enterprise."

At the next appropriation hearing, then-NIH



Former NIH director Dr. Bernadine Healy and the late Rep. William Natcher (D-Ky.), who chaired the House appropriations subcommittee for NIH in 1991, were instrumental in setting the infant Director's Discretionary Fund to work for NIH.

director Dr. James Wyngaarden included a proposal for the fund in his opening statement.

"The urgency of the need for the director to have additional funds became clear much earlier, probably in Dr. [Donald] Fredrickson's era, but certainly in Dr. Wyngaarden's," says Dr. Ruth Kirschstein, senior advisor to the NIH

director, who as acting NIH director from January 2000 to May 2002 oversaw the DDF process.

"Before [the DDF], the director would have to go to Congress and ask for supplemental funding."

NIAID director Dr. Anthony Fauci recalls asking Congress for additional funds to address an emergency about 10 years ago.

"The discretionary fund is very important," he agrees. "Continually over the years, things spring up where you may have to move quickly and you may have all of your money already committed. We were dealing with a resurgence of drug-resistant tuberculosis among individuals infected with HIV. We needed to do some work really rather quickly, but the epidemiological awareness of this significant problem came about after we had put in our budget request and all of our money was committed to other very important HIV and non-HIV issues. We needed to jumpstart a program, and we had to go to Congress."

The budgetary process can take a long time from planning to appropriation to program implementation, he points out. "You have to plan your programs before you get a budget," Fauci explains. "So when you do get a budget, you already have commitments in place that you have made in anticipation of getting the budget. In the meantime, if something crops up that is unexpected or an emergency, you really have a difficult time reneging on the planning and the commitments that you have made. You cannot take money from what you have already committed to, but the money has got to come from someplace. That is why the Director's Discretionary Fund is so important."

The tin cup approach worked well for NIH

director Dr. James Shannon, who served at a time when the NIH budget was in its "golden age," but it was not as effective when economic times became lean.

By January 1990, when NIH was conducting a protracted search for a new leader following Wyngaarden's departure, a blue-ribbon panel appointed to examine how to enhance the NIH director's job suggested providing a \$20 million discretionary fund as "a mechanism to be used for risk-taking and for funding unusual ideas that might not make it through the peer review process," according to an *NIH Record* article quoting Dr. Samuel Thier, then-Institute of Medicine president and blue-ribbon panelist. The DDF would, the panel felt, counter the perception that the director had little leeway in disbursing NIH's finances.

#### Birth of the Shannon Awards

Congress did not agree in 1988 or 1989, but did approve of the idea for a discretionary fund in 1990. A portion of the \$19 million inaugural DDF was already targeted: Special NIH components such as the Office of Research on Minority Health and the Office of Research on Women's Health—although initiated earlier—benefitted substantially from the first DDF.

"Getting ORMH and ORWH started were very important," Kirschstein stresses. "They were under way, but we did it on a shoestring."

However, it was midway through fiscal year 1991 when new NIH director Dr. Bernadine Healy, just weeks after being confirmed by Congress for the job, applauded the new authority at the annual appropriations hearings and announced her plan for the bulk of the DDF: Nearly \$14.5 million was to be used to establish a new kind of grant.

"I would like to tell you how very important I think the discretionary fund is," said Healy, in response to a question from the late Rep. William Natcher (D-KY), who chaired the House appropriations subcommittee for NIH at the time. "Whatever size it is, it is a necessity, and a much treasured authority for the NIH director. What I would like to do...is to create a new and very special category of award for this year that addresses, I think, an extraordinary and compelling need, and that is the stability in funding of the scientist and the science base out there. What I would like to do is create the James A. Shannon Director's Award to address a group of scientists that are right at the margin of funding."

Recalling the day, Kirschstein says, "Bernadine Healy was really the first to articulate why the discretionary fund was needed. She told Congress she specifically wanted it for the Shannon awards. In fact, she told them she would need more funds, that her idea would cost more in order to be done



well. It was a time when funding was limited for grants."

NIH was funding only about a quarter of the grant applications it received. "We do not expect 1991 by any means to be a year in which we fund more than 25 or 26 percent of the applications," Healy explained to the congressional panel. "That is a skimpy success rate and we hope the Shannon awards will help even a little in sustaining as many as 300 to 400 scientists."

In every year, she said, there are competitive grant applications that just miss funding "by a hair" and which in all likelihood would make the cut in the next season, but would need a small sum to tide them over.

"Institutes attempted to pick [Shannon award winners] based on several factors—young investigators, new investigators," Kirschstein explains. "It was always a combination of highly creative projects, or those that might have just missed the pay line, or those that promised some critical impact on the disease. This was very much worthwhile, because some of these scientists—without this crucial funding—might have dropped out, or done something else. The Shannon awards offered them just enough of a start."

#### DDF Gets Smaller, but Grows

By June 1993, the last year in which NIH was reauthorized by Congress, the DDF had become permanent, institutionalized with the passing of the NIH Revitalization Act. The new law described several broad purposes for the fund: "research on matters that have not received significant funding relative to other matters, responding to new issues and scientific emergencies and acting on research opportunities of high priority; supporting research that is not exclusively within the authority of any single agency of such institutes; and purchasing or renting equipment and quarters for activities of such institutes."

The fund had already been used for 3 straight fiscal years and had risen steadily in influence, both extramurally and intramurally: Shannon awards accounted for nearly \$15 million of the DDF's \$17.9 million in FY 1992. In FY 1993, Congress appropriated just over \$10 million to the DDF; \$7 million of it was used to initiate an NHGRI intramural program. Projects vying for a slice of the DDF pie were being proposed routinely by all sectors of the NIH community.

Then came new NIH director Dr. Harold Varmus, who raised the level of competition. For FY 1994, he ordered a small review committee to evaluate the merits of DDF proposals submitted annually in early spring.

"The Director's Discretionary Fund has evolved over the years," notes Kirschstein, who as NIH

deputy director under Varmus coordinated the review sessions, which also became a yearly process. "The manner by which it was best handled was developed with Dr. Varmus. And, he had much less money to work with—only about \$6 million or so. The Shannon awards still accounted for the majority, but he also began to fund more, smaller proposals." The Wednesday Afternoon Lecture Series was inaugurated that year with the DDF as was a loan repayment program for clinical researchers from disadvantaged backgrounds. Both successful efforts have expanded and continue today.

#### Addressing Emerging Threats, Emergencies

If it was promoting cutting-edge science, then the DDF was also more closely reflecting both the director's priorities and the times: In FY 1996, Varmus used the DDF to support additional grants in spinal cord injury, a topic that had received broad interest when actor Christopher Reeve was paralyzed in an accident in 1995. In FY 1997, support from the DDF—along with funds from NLM—helped launch a computer network for the Multilateral Initiative on Malaria (MIM), a joint research endeavor for NIAID and the Fogarty International Center. Malaria had been acknowledged earlier by the international medical community as a growing health threat to a number of African nations. Varmus traveled in winter that year to Senegal to meet with 150 malaria experts at a conference that he felt developed a "blueprint for future research" on the disease; the DDF gave funding to MIM each of the following years in the Varmus era.

#### Largest-Ever DDF for Roadmap

To track the history of the DDF is to, in many ways, plot its future: NIH directors are still employing the fund—most of which is contributed by the institutes and centers—to support wide-ranging projects with potentially broad impact. Zerhouni used most of the nearly \$20 million DDF in FY 2003 to help launch the NIH Roadmap, a three-pronged multidisciplinary vision for supporting and conducting medical research in the 21st century.

Perhaps the best measure of the DDF's success, however, is found in the numbers: the FY 2004 fund is at its largest level ever, more than double what it was when first instituted in 1991. ■

#### Healthy Volunteers Sought

The Mood & Anxiety Disorders Program, NIMH, is looking for healthy volunteers, not on medication, with no current or history of psychiatric illness, between the ages of 18 and 65, for a multitude of studies. These may include PET scans, MRI, psychological interview, neuropsychological testing, and other procedures depending on the project. Pay is available. Call 1-866-627-6464. ■



*The Royal Netherlands Academy of Arts and Sciences has awarded Dr. Elizabeth Blackburn the Dr. A.H. Heineken Prize for Medicine 2004 for identifying the structure of chromosome ends (telomeres) and discovering the enzyme telomerase. Although telomerase has been found to be crucial to normal cell growth, it also plays a role in uncontrolled cell growth. Her discovery of telomerase is considered to be one of the most important achievements in molecular genetics. A professor in the department of biochemistry and biophysics, University of California, San Francisco, Blackburn is a member of the NIA's National Advisory Council on Aging and is a long-time grantee of NIH.*

## 17-Year Itch

### Cicadas Return to Campus

The arrival of Brood X cicadas on campus, 17 years after their last appearance in 1987, was especially



noteworthy in the vicinity of Bldg. 15K and the nearby campus residences, where a relatively new picket fence turned out to be a

gathering spot for the buzz-loving little teenagers with their cool red and orange paint jobs.

The memory of their ubiquity, their game and fearless posture, their clumsy flight, and their signature call—almost dial-tone electronic individually, but seamless, hollow and haunting in unison—will have to last us until 2021, when the hatchlings of this year will rise up through the

earth, regardless of parking conditions or threat-code color, and sing and play and mate again, for it is what they do and why they are.



### NIH Training Center Classes

The Training Center supports the development of NIH human resources through consultation and provides training, career development programs and other services designed to enhance organizational performance. For more information call (301) 496-6211 or visit <http://LearningSource.od.nih.gov>.

NBS Travel System for Approving Officials	6/9
Fellowship Payment System	6/14
Professional Service Orders	6/15
Simplified Acquisitions Refresher	6/17
Purchase Card Training	7/12

### Psychology Study Recruits Volunteers

African American men ages 18-65 are needed to participate in a 45-minute psychology study on personality and dating preferences. \$25 compensation. Call Rachel at (202) 885-1729. ■

## Think Before You Toss It

### Donations Sought for Historical Value

Help the Office of NIH History save Clinical Center history from the trash and surplus. With many offices and laboratories in the CC moving in the coming months, the time is ripe to sort out which papers, books and instruments you're going to take with you to your new space. Before you throw anything away or surplus it, consider giving it to the ONH instead.

What is the ONH interested in? A better question might be, "What isn't it interested in?" ONH collects scientific instruments and non-scientific objects (such as nurses' uniforms or lapel pins) that document NIH history. Instrument manuals (for instruments you are donating or for those you no longer have) and trade catalogs are also sought. The archival section of the ONH collects documents and correspondence relating to programs, policies and laboratories; scientific notebooks; and photographs or audio-visual material (photos and AV material can be copied and the originals returned). ONH also seeks old telephone books, annual reports, books and other such materials.

Things do not have to be "old"—NIH history covers the present.

These items will be accessioned into ONH's DeWitt Stetten, Jr., Museum of Medical Research and archival collections. The collections are used in exhibits, loaned to other museums and studied by NIH researchers and outside scholars interested in NIH history. They will be searchable online.

If you have the remotest idea that something you have should go to ONH, contact Dr. Sarah Leavitt, (301) 496-8856 or [leavitts@od.nih.gov](mailto:leavitts@od.nih.gov). ■

### CIT Computer Classes

All courses are given without charge. For more information call (301) 594-6248 or consult the training program's home page at <http://training.cit.nih.gov>.

How to Get the Most Out of Outlook 2002	6/11
Introduction to Using the ECB Council Administration Module	6/14
nVision Travel	6/15
Microarray Analysis in GeneSpring - Statistical Analysis Tools	6/15
Microarray Analysis in GeneSpring - Quality Control & Clustering Tools	6/15
Microsoft Security Training Tour	6/21-22
SPSS Overview	6/23
Hands-on ECB Early Concurrence Workshop	6/23
New and Advanced Features of Council Administration Module Version 5	6/23
Introduction to mAdb	6/24
Social Sciences Resources	6/29
Introduction to the Web of Science and PORPOISE	6/29



## NHLBI Mourns Yvette Preston

Yvette Preston, a biologist in NHLBI's Laboratory of Molecular Cardiology (LMC) for 22 years, died in late April due to complications from hip surgery.

"She was proud, genteel and elegant," said Dr. Robert Adelstein, LMC chief. "Her ready smile brightened the lives of all she met. To know her was to love her. She'll be missed by the entire laboratory."

Preston was born in 1945 in Port of Spain, Trinidad, but grew up in New York City. In 1967, she earned a B.S. degree from Howard University.

In August 1970, she married her college sweetheart, Albert "Skip" Preston. The couple adopted a son, Douglas Albert.

Preston began her career as a laboratory technician at Rockefeller University in New York City but in 1972 returned to the Washington area to work for Meloy Laboratories, first at its Springfield, Va., offices and then in Frederick, Md.

In 1982, she joined the LMC. She played an important role in the laboratory's transition from conducting research on the biochemistry of contractile proteins to investigating the molecular biology of developing mouse embryos. Preston coauthored 7 papers and her technical assistance was acknowledged on many more.

"I worked with her on a daily basis for over 20



Yvette Preston

years and her work was of the highest caliber," said Adelstein. "She had a warm, positive personality that helped her interact well with a large number of fellows and coworkers, each with a different personality. She spoke softly and listened to all who sought her ear.

"But even more than that, she acted as a generous resource when people needed to find out about research methods and techniques, and routinely gave trouble-shooting advice for our laboratory and others," Adelstein continued.

"During the past few years, she kept working hard, in spite of a severe vasculitis, which interfered with her balance and hearing," he added.

"She was a diamond, precious and rare," said Estelle Harvey, an LMC coworker. "She was truly my genuine friend. I'm very grateful to have shared such a loving relationship with her. I will always miss her and, especially, our early morning walks, our morning 'chat and chews,' and all the things we laughed about, even in difficult situations."

"She was a great coworker and a better friend," said Antoine Smith, another LMC colleague.

"Yvette was like a mother to me. Almost everything I learned in the last 8 years or so, she taught me. She had a patience and professionalism that I always strived to achieve. Everything had to be perfect, whether it was at her job or at home, or spiritually or morally.

"She was a beautiful person," Smith continued. "I will think of her with love and miss her every day."

Preston's husband and father have died. Survivors include her son, mother Gwendolyn, sisters Patricia Robinson and Suzanne Froix, brother Anthony Froix and stepmother Evelyn Froix.

## Four Appointed to NIGMS Council

Four new members were recently appointed to the National Advisory General Medical Sciences Council. They are:

Dr. Stanley Fields, professor of genome sciences and of medicine at the University of Washington, where he also serves as an adjunct professor of microbiology and a Howard Hughes Medical Institute investigator. His research interests include developing analytical strategies for understanding protein function using *Saccharomyces cerevisiae*.

Dr. Richard I. Morimoto, dean of the graduate school, associate provost for graduate education and professor in the department of biochemistry, molecular biology and cell biology at Northwestern University. His research interests include heat shock gene transcription, stress responses and the biology of misfolded proteins in *Caenorhabditis elegans* and mammalian cells.

Dr. Virginia A. Zakian, Harry C. Wiess professor in the life sciences in the department of molecular

biology at Princeton University. Zakian studies the structure and replication of eukaryotic chromosomes mainly using *S. cerevisiae* as a model organism.

Dr. Gregory R. Reyes, who recently retired as vice president of biological research, infectious diseases, oncology and gene therapy at Schering-Plough Research Institute in Kenilworth, N.J. His research interests there focused on the development of protease inhibitors for chronic hepatitis C and of CCR5 antagonists for HIV infection. ■



NIGMS director Dr. Jeremy Berg (c) welcomes new council members (from l) Dr. Stanley Fields, Dr. Richard I. Morimoto, Dr. Virginia A. Zakian and Dr. Gregory R. Reyes.

Police Day 2004

## Where There's Smoke, There Is Barbecue

There is at least one day every year when the smell of smoke in Bldg. 1 is cause not for alarm but for pleasure. That's the day when volunteer chefs fire up the grills and make lunch for whomever drops by the NIH Police Day observance on the building's front lawn.

As in years past, the event on May 11 featured many jurisdictions, not just our own men and women in blue. Officer Martin Murray of the Metro Transit Police was on hand astride a Segway motor scooter, which his department uses to patrol parking lots and garages, he said. "We just got a third unit for our bomb squad," he explained. Members of that team wear 80 pounds of equipment, so the Segway moves them quickly and effortlessly to the scene of their deployment.

A variety of K-9 teams performed demonstrations throughout the observance, which lasted from 10 a.m. to 2 p.m. Master Patrol Officer



Officer Martin Murray of the Metro Transit Police demonstrates Segway motor scooter.

Alan Blaum put NIH bomb dog Daisy through her paces, alongside teams from other forces. Visiting officers hailed from the U.S. Park Police, Chevy Chase Village Police, the Metro transit system, and from the military, among others.

Guests tended to cluster at picnic tables arranged in the shade of large trees, or along a row of tables with brochures and such giveaways as police whistles and badges, plastic fire hats, cookies, reflectors, mugs, pencils and emery boards. The event coincides with National Police Week, during which the sacrifices of public safety officers are recognized.



Ofcr. Alan Blaum puts explosive-sniffing dog Daisy to work.



It's hot work on the chow line each spring at NIH's observance of Police Day, but tables full of happy customers attest that the cooking is worth it.



## Wednesday Afternoon Lectures

The Wednesday Afternoon Lecture series—held on its namesake day at 3 p.m. in Masur Auditorium, Bldg. 10—features Dr. Phillip A. Sharp on June 16; his topic is "The Remarkable Biology of Short RNAs." He is 1993 Nobel laureate in physiology or medicine, Institute professor, Center for Cancer Research and director, McGovern Institute for Brain Research, MIT.

On June 23, Dr. Connie L. Cepko will present, "Genomics Approaches to Photoreceptor Development and Disease." She is professor of genetics and HHMI investigator, Harvard Medical School.

The WALs talks then go on summer break and will resume on Sept. 8.

For more information or for reasonable accommodation, call Hilda Madine, (301) 594-5595. ■

## Cataract Study Needs Volunteers

NEI needs healthy volunteers and patients, 18-80 years of age. Subjects will undergo a complete eye exam, cataract photography and testing with a special cataract detector developed by NEI and NASA. For information, call Dr. Manuel Datiles or Rita Hiller at (301) 496-6581. ■

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