

THE NIH RECORD

Still The Second Best Thing About Payday

NLM Web Site Wins Harvard University's 'Oscar' Award

ClinicalTrials.gov, the web site developed by the National Library of Medicine, is the recipient of Harvard University's "Oscar" of government honors—the

Innovations in American Government Award. The site is one of five winners of the award, and will receive a \$100,000 grant to support its replication.



Dr. Alexa McCray runs NLM's award-winning site.

"We are extremely proud of this resource," said NIH director Dr. Elias Zerhouni. "It is accessible to all and written in a manner that patients

SEE NLM WEB HONOR, PAGE 2

Life of a Summer Intern

A Win-WINS Situation

By Cynthia Delgado

Rodeo champion and summer intern Lakota Mowrer says she grew up "thinking science was a joke." Until a few months ago, she didn't know much about NIH. In the past 8 weeks, however, her outlook has changed dramatically, and NIH has gained a promising young advocate.

The Office of Equal Opportunity and Diversity Management sponsored Mowrer through the Washington Interns for Native Students (WINS) program, implemented by American University. As a member of the Cheyenne River Sioux of South Dakota, Mowrer is eligible for the program. She heard about the internship from her supervisor at the University of Notre Dame, where she is a sociology major. "When I

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Of Squid Cells and Other Slippery Subjects

Black Scientists Association Marks 10th Anniversary

By Carla Garnett

The recent 9th annual John W. Diggs Lecture, which marked the 10th anniversary of the NIH Black Scientists Association, tackled two seemingly unrelated, but equally slippery



Dr. George Langford

subjects: cytoskeletal motion in squids and recruitment of minorities to science. Perhaps the one person qualified to marry such divergent topics served as guest lecturer, Dr. George Langford, the Ernest Just professor of natural sciences at Dartmouth College.

In his talk titled "Molecular Motors and Memory: Building a Career in Biomedical Science and the Science and Engineering Workforce," Langford wove the challenges and triumphs he has experienced pursuing each matter over his 30-plus years in scientific research and research training.

By examining the intricate transportation mechanisms used by

SEE BSA ANNIVERSARY, PAGE 6

It's Not the Shape, It's the Substance

NIDDK's Rodgers Offers Sickle Cell Update

By Rich McManus

For many years, doctors thought that the excruciating pain associated with sickle cell disease crisis was due to the sickled shape of the cell—the things were contorted like sharp boomerangs rather than like friendly little disks and were thus tearing up the microcirculatory systems of patients.

But thanks to intramural research by such investigators as Dr. Connie Noguchi and Dr. Alan Schechter at NIDDK, we now know that it is the chemical properties of sickled cells more than their shape that impose the penalties of sickle cell disease. "It is the accumulation of intracellular polymers, not the sickling of cells, that causes pathogenesis," explained NIDDK deputy director Dr. Griffin Rodgers, who spoke



Dr. Griffin Rodgers

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can understand. The site tells the public about the location of clinical trials, what they are trying to do, where they are located and how any member of the public can volunteer to participate. Even more, it links to additional information about diseases and disorders. We are delighted by this recognition."

ClinicalTrials.gov grew out of 1997 legislation that required HHS to broaden the public's access to information about clinical trials on a wide range of serious or life-threatening diseases by establishing a registry for both federally and privately funded trials. The site is completely confidential; no registration or personal identification of any kind is required. People who search the site are not contacted by the sponsors of clinical trials or anyone else.

"Created in 2000, the web site gives patients and families convenient access to information on clinical trials for a wide range of diseases and conditions," said NLM director Dr. Donald Lindberg. "If we are to continue to make the giant strides in diagnosis, treatment and cure of illness that marked the last century, we must have the participation in clinical trials by well-informed volunteers."

Dr. Alexa McCray, who directs the ClinicalTrials.gov project, said, "Most gratifying to us has been the reaction of our users. Our primary, overriding goal is to provide patients, their families, and other interested individuals with high-quality, reliable health information."

Traffic on the site is one measure of its value. Since its inception, the site has logged more than 75 million hits. During the last 2 years, daily visitors to the site have more than doubled from 7,130 to 16,055. In February 2000, ClinicalTrials.gov included about 4,400 trials. Today, that number has more than doubled to 11,000.

The Innovations in American Government Awards is a program of the Ash Institute for Democratic Governance and Innovation at Harvard's Kennedy School of Government. The award is administered in partnership with the Council for Excellence in Government. ■

Asian/Chinese Volunteers Needed

The department of transfusion medicine (Blood Bank) at 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 compensation is available. Call Rose Werden, (301) 402-0757, Mon.-Thurs., 2-4 p.m. ■



At the Summer Genetics Institute (SGI), an intramural training program sponsored by the National Institute of Nursing Research, 18 nurses (9 faculty in schools of nursing and 9 doctoral students), completed an intensive 8-week molecular genetics research training program on July 30. The program provides a foundation in genetics for use in clinical practice and the research laboratory. Since the program began in summer 2000, 84 students from nearly every state in the union and many major universities have completed the program. Graduates earn 12 hours of doctoral-level credit from Georgetown University School of Nursing and Health Studies. Says NINR's Dr. Mindy Tinkle, "Participants take away a rich learning experience. The program enables graduate students and faculty to develop or expand their research capacity and enables advance practice nurses to develop and expand their clinical practice in genetics."

Study of Uterine Fibroids

Call NIH at 1-800-411-1222 (TTY 1-866-411-1010) for information on a study using a new medication for 3 months before hysterectomy. Study-related treatment provided at no cost. Compensation is provided.

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CDC Director Gerberding To Speak, Sept. 16

Dr. Julie Gerberding, director of the Centers for Disease Control and Prevention, will speak on, "Achieving Energy Balance: Aspiration...Inspiration...Motivation...Implementation!", on Thursday, Sept. 16 from 1 to 2 p.m. in Masur Auditorium, Bldg. 10. The lecture is part of the NCI Director's Seminar Series. Gerberding will talk about how CDC is working on many levels across various disciplines to reverse the disturbing trends in the nation's obesity epidemic. She will also discuss CDC's new research initiatives and the need for increased collaboration among government agencies, industry and other partners.

Gerberding, an infectious disease expert, became CDC director and administrator of the Agency for Toxic Substances and Disease Registry on July 3, 2002, and is the first woman to hold that position. She joined CDC in 1998 as director of the Hospital Infections Program, now known as the Division of Healthcare Quality Promotion, and then became acting deputy director of the National Center for Infectious Diseases, where she played



Dr. Julie Gerberding

a major role in leading CDC's response to the anthrax bioterrorism events of 2001.

In her pre-CDC career, Gerberding practiced and taught in the field of infectious diseases at San Francisco General Hospital, at the University of California at San Francisco and at Emory University.

She has been a consultant to NIH, the American Medical Association, the Occupational Safety and Health Administration, the National AIDS Commission, the Congressional Office of Technology Assessment and the World Health Organization.

Gerberding serves on the editorial board of the *Annals of Internal Medicine*, is an associate editor of the *American Journal of Medicine* and serves as a peer-reviewer for numerous internal medicine, infectious diseases and epidemiology journals.

Gerberding's lecture will also be webcast at <http://videocast.nih.gov>. Sign language interpretation will be provided. For more information, or for reasonable accommodation, contact Karen Davison at (301) 348-1606 or the Federal Relay at 1-800-877-8339. ■

Muscular Leg Pain?

If it is caused by blocked arteries and it occurs with activity but improves with rest call NIH at 1-800-411-1222 (TTY 1-866-411-1010) for more information on a new study. ■



Dr. Rocky Tuan (r), chief of the NIAMS Cartilage Biology and Orthopaedics Branch, recently received the Marshall Urist Award from the Orthopaedic Research Society, presented by Dr. Maurizio Pacifici (l). Tuan received the award at the society's annual conference for his cutting-edge work in the area of tissue regeneration. He joined NIH over 2 years ago from Thomas Jefferson University in Philadelphia to head the then-new NIAMS branch. He has been instrumental in recruiting a number of talented researchers and physicians to build an active research group. The branch's work is to study cartilage and bone biology, and to translate their research discoveries into novel and effective tissue engineering approaches to treat degenerative diseases affecting joints and connective tissue.

Bernal Named Executive Officer of NINR

Diane Bernal has recently joined the National Institute of Nursing Research as executive officer. She is a key administrative advisor to the NINR director, identifying opportunities to improve business and management systems. She also advises on research grant and contract implementation plans, program planning and evaluation, policy analysis, financial management, technology transfer, information systems, human resource management, acquisitions and space development.

Prior to her appointment to NINR, Bernal served as director of intramural management for the National Eye Institute and as a senior adviser to NEI's scientific director. She has extensive leadership experience in cross-cutting research support programs and in the development of two state-of-the-art research support facilities—the Silvio Conte Neuroscience Bldg. 49 and Bldg. 10A.

Bernal has a master's degree in organizational development from the College of Notre Dame and advanced training certificates from Harvard School of Public Health, George Washington University School of Business and Public Management and the NIH Management Cadre Program.

She has served as a loaned executive to HHS to organize the Combined Federal Campaign for the Department of Commerce, Department of Transportation and Department of Justice. She has received both HHS and NIH Director's awards for leadership and innovative management and most recently the Professional Achievement Award from the National Hispanic Association for Federal Workers. ■



Diane Bernal

WINS PROGRAM, CONTINUED FROM PAGE 1

told my roommate, who is pre-med, about my acceptance, she was jealous. She told me all about the NIH, and I got a little nervous about everyone's expectations since I'm not a science major," says Mowrer.

Top Projects

During her internship, Mowrer gained practical skills and work experience, and participated in numerous NIH outreach activities. She served on a discussion panel for the American Indian/Alaska Native Youth Initiative, a collaborative effort with the Association of American Indian Physicians and the National Center on Minority Health and Health Disparities. During the event, high school students from all over the country visit NIH for 2 days to learn about training, research and internship opportunities.



Lakota Mowrer made significant contributions to OSE's top initiative—The NIH Curriculum Supplement Series.

Mowrer fielded questions from the audience, and talked about her experiences at NIH and how she secured her internship. Her assistance in the final planning stages of the initiative was instrumental to the program's success.

Mowrer made headline news when she joined the OD EEO office as part of the NIH Native American Powwow Outreach Initiative on a 4-day trip in July to the Lumbee tribe reunion (similar to a powwow) in North Carolina. While working the NIH booth, a News Channel 13 reporter interviewed her. Her OEODM supervisor Michael Chew says, "She handled herself very well while discussing NIH's outreach goals and her internship. The following day, many visitors said they knew about the booth because they saw her interview on TV."

For 2 weeks of her internship, Mowrer was assigned to the Office of Science Education. She reviewed one of the office's curriculum supplements and provided feedback on how to make it more culturally relevant for Native Americans. She also joined OSE staff at a local high school, to see how the supplement was used in the classroom and how students responded to it. "On the reservation, we just colored pictures of frogs in science class," says Mowrer. After being here, she understands the need to recruit more students into the field, especially to work on health disparities.

"I've learned it is important to stress the sciences in education," she says. Taking the initiative, Mowrer contacted numerous school counselors on her



The airing of an interview with Mowrer on News Channel 13 drew people to the NIH booth at the Lumbee tribe reunion in North Carolina.

reservation to tell them about free educational materials available at NIH.

Next Steps

Mowrer plans to complete her studies at Notre Dame, and continue in her other roles there as president of the Native American Student Association and president of the Rodeo Club. After finishing her degree, she is considering law school. "I want to be involved in Native American policy, and work on issues that affect our people such as suicide, alcoholism and domestic abuse," she says. She hopes to return to NIH next summer.

Mowrer's internship has been enlightening, a real



Mowrer participates in youth discussion panel in Lipsett.

eye-opener at the very least. When she first arrived on campus, she admits to being amazed by all the institutes and the magnitude of research under way. On her reservation, many of her family members were participants in NHLBI's Strong Heart Study. She

worked for the study, tracking and recruiting participants and filing records. She didn't realize it was part of NIH until she met the study's principal investigator here. "I didn't realize the connection," she said.

"Growing up on the reservation, you don't view the government very well. You go to the hospitals and see the health disparities and wonder why no one is doing anything about it. After coming here, I realize that something is being done," she says. "I'm going to make sure my tribe appreciates what NIH does, because it's very important." ■

Iraqi Minister of Health Visits NIH

On a 3-day visit to Washington, D.C., Iraq's newly appointed Minister of Health, Dr. Ala'adin Al-Alwan, visited with the Secretary of the Department of Health and Human Services and each HHS component agency, capping off his trip with an afternoon at NIH. During his visit with NIH director Dr. Elias Zerhouni, Al-Alwan discussed the urgent needs of the Iraqi people for basic health care services. Looking to the future, he identified areas of potential research cooperation. Areas for exploration include better use of the Internet to train physicians, physician-scientists and nursing personnel, and taking advantage of existing NIH modules. Enhanced training in epidemiology was another priority.

Dr. Sharon Hrynkow, acting director of the Fogarty International Center, outlined some long-term FIC-NIH programs as well as the shorter-term programs supported by others. At an evening reception held at the Lawton Chiles International House in honor of the minister and Iraqi Ambassador-designate to the United States Rend Rahim Francke, Zerhouni praised them for their bravery in taking on the many



Iraqi Ambassador-designate to the United States Rend Rahim Francke offered impassioned thanks to the American people for their great sacrifice in saving the Iraqi people.



At a recent Stone House reception are (from l) Francke; Al-Alwan; Zerhouni; Dr. Anthony Fauci, director, National Institute of Allergy and Infectious Diseases; and Dr. Sharon Hrynkow, acting director, Fogarty International Center.



Dr. Ala'adin Al-Alwan (r), Iraqi Minister of Health, with NIH director Dr. Elias Zerhouni looking on, expresses appreciation for a productive set of meetings and a warm welcome.

challenges facing them as Iraqi leaders. He also pledged support on behalf of Secretary Thompson to work with the Iraqi people however possible to assist in improving the health care and research enterprise for the benefit of all. ■

Dr. Peter Lyster is joining NIGMS as program director in the Center for Bioinformatics and Computational Biology. His experience is in bioinformatics and computational biology, including image reconstruction and analysis, data mining, modeling and data integration. He was formerly a program director at the National Institute of Biomedical Imaging and Bioengineering, where he developed initiatives for computational bioengineering and informatics. At NIGMS, he will manage grants in biological modeling and bioinformatics and play a leading part in implementing NIGMS's participation in the bioinformatics and computational biology roadmap.

Prior to joining NIH, Lyster worked at the Jet Propulsion Laboratory in Pasadena, Calif., where he laid the groundwork for the Federal High Performance Computing and Communications (HPCC) initiative. He then became principal investigator in the HPCC program at NASA Goddard Space Flight Center at the University of Maryland; he led the effort to use massive computing power to improve data collection for weather and climate models. Lyster conducted postdoctoral research in applied physics at the Institute for Fusion Studies at the University of Texas at Austin. He received his Ph.D. in applied physics and M.S. in numerical analysis from Cornell University and received his undergraduate degrees with honors in electrical engineering and theoretical physics from the University of Adelaide.



Web Users Needed

NLM is looking for researchers and clinicians to volunteer for an hour of usability testing of NLM's retrieval systems (e.g., PubMed). No experience is necessary. Testers will receive a small thank-you gift. For more information call (301) 496-7716 or email nahina@mail.nih.gov.

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molecules in longfin squid cells, Langford and his colleagues—who spend the summer months studying the mollusks as well as clam eggs at the Marine Biological Laboratories (MBL) in Woods Hole, Mass.—hope to better understand how similar systems in the human nervous system affect memory and learning. He showed lab-made DVDs of video-enhanced microscopy to demonstrate how vesicles swiftly travel on actin filaments and slowly move on microtubules along the layers of street-like grids within neurons. Long known to be associated with movement of muscle cells, these filaments were shown by Langford's group in 1992 to have a role in transporting particles in nerve cells as well.

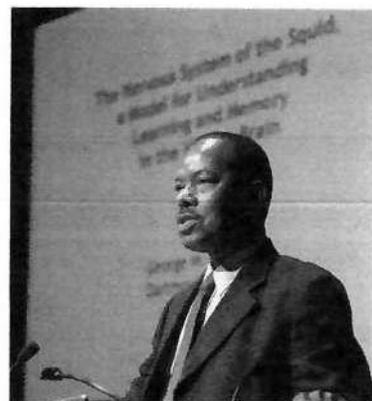
PHOTOS: ERNIE BRANSON

“What are those molecular motors and how are they regulated?” Langford asked, describing several questions being posed by his research team. “How does this relate to the whole process of learning and memory? There's a lot of cell biology going on there. It's what is happening at the synapses that we are very interested in.” Neuroscientists, he said, are trying to understand where in the brain memory is stored, how neurons make memory, how memory is organized and other such issues concerning motility in brain cells.

The cell biologist has spent almost as long asking questions and making observations about another complex, hard-to-grasp phenomenon: how to increase the movement of young people along the corridors of education and training toward careers in the sciences and engineering. At Dartmouth since 1991, Langford uses his position as Just professor to attract minority students to biological research. Just, who graduated from Dartmouth in 1907, was—like Langford—an African American biologist who conducted research on sea life for a time at MBL.

“One of the things that was very important about Just was that because of the difficulties of black scientists working in this country in the 1930s and 1940s, he did a lot of his research abroad,” ex-

Langford delivers a talk entitled, “Molecular Motors and Memory: Building a Career in Biomedical Science and the Science and Engineering Workforce.”



plained Langford, describing his role model and the scientist whose career helped shape Langford's professional path. “I have always thought of the twin tragedies of Just, that he could not obtain a position in a major research university in this country because of his skin color. It is because of Just that I'm able to hold a faculty position at Dartmouth, a position he would not have been able to hold during his lifetime. He also shouldered the whole burden of proving that blacks are intellectually capable of being scientists.”

Familiar not only on a personal but also a professional level with efforts to get young people involved in research careers, Langford had served from 1998 to 2004 on the National Science Foundation's governing board, chairing its education and human resources committee from 2002 to 2004. During that period, he also vice-chaired a task force on national workforce policies for science and engineering, and moderated a panel that looked at ways to “strengthen student interest in science, engineering and technology and graduate increased numbers of associate and baccalaureate degree recipients well-prepared for employment opportunities and/or advanced study.”

Langford said published reports produced by NSF highlight difficulties foreseen in replenishing the science research workforce for the balance of the 21st century. According to NSF's August 2003 report, *The Science and Engineering Workforce: Realizing America's Potential*, “the future strength of the U.S. S&E workforce is imperiled by two long-term trends: Global competition for S&E talent is intensifying, such that the United States may not be able to rely on the international S&E labor market to fill unmet skill needs; and the number of native-born S&E graduates entering the workforce is likely to decline unless the nation intervenes to improve success in educating S&E students from all demographic groups, especially those that have been underrepresented in S&E careers.” He showed data citing disturbing directions the nation is headed, including “flat or reduced domestic student interest in critical areas such as engineering and the physical, and mathematical sciences, as shown by data for

Marking the organization's 10th anniversary, BSA president Dr. Chad Womack (l) presents Founders Awards to (from l) Dr. Roland Owens, George Redmond, Dr. Alfred Johnson and Dr. Wayne Bowen.



bachelors' degrees; and large increases in retirements from the S&E workforce projected over the next two decades."

Langford applauded the efforts of the BSA and NIH, explaining that NSF identified as key the role that the federal government must play for its scientific enterprise to remain competitive and vital.

"I think it's admirable that [BSA] scientists are devoting their time and energy to issues demanding that there is representation from groups that are underrepresented in the sciences, particularly African Americans," said Langford, who since ending his appointed NSF term in May remains a consultant.

The yearly lecture honoring Diggs, a former NIH deputy director for extramural research who spent nearly 35 years in federal service and devoted his career to expanding the ranks of highly trained scientists and research administrators, has been a BSA staple since 1995. Diggs, who had met with and encouraged BSA founders shortly after the group began and had retired from NIH in 1993 to accept a post as vice president for biomedical research at the Association of American Medical Colleges, died of cancer in May 1995; the BSA established the lecture in his name that summer.

"Dr. Diggs was an exceptional role model—both for his professional achievements and his personal commitment to helping other scientists at NIH," said NIH deputy director Dr. Raynard Kington. "He was a leader, scientist and mentor in the best tradition of NIH. Throughout his career, he worked to improve education and career opportunities for underrepresented minorities and women."

BSA president Dr. Chad Womack, senior research fellow in the Viral Pathogenesis Laboratory at the Vaccine Research Center, opened the program by discussing the current status of black scientists at NIH and the association's goals to increase their numbers. Currently about 1 percent of African American scientists at NIH hold tenured (fewer than 10 individuals) or tenure-track (fewer than 5 individuals) posts.

"[We are working on obtaining] a bigger slice of the pie before the decade ends," Womack said, showing the data in pie-chart format. Near-term BSA initiatives include conducting a membership survey and establishing an informal scientific



Dr. Michele Evans of NIA pays tribute to the late Dr. Philip Browning.

advisory board to catalyze creative recruitment and retention ideas, capitalizing on connections to Office of the Director resources and further developing professional relationships with outside science and research organizations.

The BSA also presented a number of awards to mark its anniversary, including the newly named Dr. Philip J. Browning Scientific Pioneer Award, which honors the memory of a cancer researcher who spent several years in the NIH intramural science programs at NHLBI and NCI. In a moving tribute by Dr. Michele Evans, deputy scientific director of NIA's intramural research program in Baltimore, Browning was remembered as a "perfect blend" of intellectual curiosity, scientific achievement, personal warmth and uncommon professionalism. An NIAMS and NCI grantee, Browning, associate professor of medicine, cancer biology and cell and developmental biology at Vanderbilt University, died at age 51 on June 22 after a 4-year battle with colon cancer.

The inaugural Browning Award was given to two tenure-track investigators, Dr. Kevin Gardner of NCI and Dr. Sharon Jackson of NIAID. Two graduates of Benjamin Banneker High School in Washington, D.C., Monique Cobb and Dexter Lee Mackey, are the 2004 recipients of BSA's Cheryl Torrance-Campbell Scholarship Awards. Founders Awards were given to Dr. Wayne Bowen, Thelma Gaither, Dr. Alfred Johnson, Dr. Steve Massaquoi, Dr. Roland Owens and George Redmond. Finally, nearly a dozen "Friend of BSA" plaques were also distributed, recognizing support and encouragement offered by individuals and groups who have assisted the BSA in achieving its organizational goals. ■

Study of Genes, Aging and Cognition

Healthy volunteers, over the age of 55, are needed to study the genetics of aging and cognition. Participation requires a blood draw and non-invasive clinical, neurological and cognitive testing procedures. No overnight stays. No medication trials. Compensation provided. Call Bobby Das at (301) 435-4593 or email DasB@intra.nimh.nih.gov. Refer to protocol # 00-M-0085. ■

NIAID Needs HIV+ Volunteers

HIV-positive volunteers are needed for a phase I/II clinical trial testing the safety and effectiveness of a new interleukin-2 (IL-2) analogue called BAY 50-4798. This study will test whether BAY 50-4798 causes immunologic changes similar to conventional IL-2 but with milder side effects. Patients must be on HIV medications, have a viral load less than 10,000, CD4 count of at least 200, and not have had prior IL-2 therapy. Travel assistance may be provided. Call Jocelyn Voell, (301) 435-7913. ■



Dr. Michael Quinn-Patton will address the "Debate About Randomized Controls as the Gold Standard in Evaluation," on Tuesday, Sept. 14 from 2 to 3 p.m. in the Natcher auditorium, balcony C. Randomized experiments have been viewed as the gold standard in research. However, in real world evaluations, they are not always either possible nor even desirable. Quinn-Patton, former president of the American Evaluation Association, is currently on the faculty of the Union Institute and University. Sponsored by NCI and the NIH Office of Evaluation, the seminar will review the strengths and weaknesses of randomized experiments in evaluation and present rigorous alternatives for dealing with issues of attribution and generalizability.

Healthy Volunteers Needed

NIH seeks healthy male and female volunteers ages 18-40 years for a research study to determine whether lopinavir/ritonavir (anti-viral medication) has direct effects on how the lining of the arteries function before and after receiving 4 weeks of therapy. In order to participate, you must be a non-smoker in good health, not be HIV-infected and not be taking any chronic medications. Participants will be compensated. Call Jocelyn Voell, (301) 435-7913.

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at Clinical Center Grand Rounds recently. He holds out the hope of eventual stem cell or gene therapy as a cure for sickle cell disease, and illuminated gathering knowledge of the disorder, including recent studies by Schechter and his colleague Dr. Mark Gladwin of the Clinical Center implicating nitric oxide as a key contributor to the vascular constriction that is a hallmark of the disease.

"Sickle cell disease is one of the first diseases to be understood at the genetic level," said Rodgers. The disorder involves a reversible aggregation of sickle hemoglobin and eventual distortion of red blood cells, which can go back to their normal shape, and is caused by a single amino acid substitution.

"There is a kind of parachuting effect that red cells undergo as they enter the microcirculation and erythrocytes loaded with polymer can't perform this function," Rodgers explained. "Eventually, these cells can't traverse the microcirculation. Obstructions occur, affecting all organ systems." Rodgers called the disease's manifestations "protean"—they involve neurologic complications, lung and liver ailments and periods of unrelenting bone and joint pain known as "musculoskeletal crisis."

Not every patient experiences the same level of severity; there are modifying factors owing to genetic and physiologic differences among patients. With respect to the former, scientists have been able to trace the migration of the sickle cell gene from the Old World to the new, more than 4,000 years ago. It appears to have originated in perhaps four sites in antiquity: Senegal (from which the least harmful condition emerged), Benin (home of an intermediate phenotype), India/Saudi Arabia (a mild, almost inconsequential version) and Bantu (associated with the most severe cases).

Rodgers, an expert on hemoglobin, which is a key factor in sickle cell disease, described several decades of NIH studies on fetal hemoglobin and its genetic control mechanisms. He and colleagues found that a cancer drug—hydroxyurea—can increase levels of fetal hemoglobin, thus moderating the disease's consequences. They launched the NIH Hydroxyurea Trial at the Clinical Center, in which patients remained at the hospital for up to 3-4 months while physicians tried escalating doses of the drug in a search for the optimal amount.

"Most patients took 2 or 3 weeks to respond," Rodgers reported, and while most experienced benefits, about 25-30 percent did not. "Some began to feel better even before their fetal hemoglobin increased, so maybe there were other mechanisms at work."

In the 1990s, NHLBI funded a multicenter trial that was stopped early because, as a May 1995 article in the *New England Journal of Medicine* reported, hydroxyurea was associated with a 50 percent reduction in the frequency of painful sickle

Rodgers envisions widening opportunities to intervene with drugs, and sketched the beginnings of an approach to a cure for sickle cell disease.



cell crisis, required less frequent blood transfusion, and reduced instances of "chest syndrome," a common cause of death in sickle cell patients.

In 1998, the FDA approved hydroxyurea for use in sickle cell disease; it remains the only drug approved for that ailment.

Last year, the *Journal of the American Medical Association* published a 9-year followup study of patients taking hydroxyurea. It showed continued increase in fetal hemoglobin levels, less acute chest syndrome occurrence and improved survival. The drug is now being considered for use in children, said Rodgers.

Studies at the CC continue to refine the pathogenesis of hemolysis in sickle cell disease, and chemical factors affecting microvascular (or blood vessel) constriction. NIDDK's Schechter and Gladwin have shown how nitric oxide contributes to complications in the disease by regulating vasodilator tone and inhibiting platelet aggregation and adhesion, among other properties.

Rodgers envisions widening opportunities to intervene with drugs, and sketched the beginnings of an approach to a cure. "Hematopoietic stem cell transplantation is one option we plan to pursue, but only one-quarter of patients have a suitable donor," he said. "The holy grail for us is gene therapy, but unfortunately that path is still a ways off. We need improved methods to recognize true hematopoietic stem cells and to expand their number and ultimately to have the replacement gene function in cells destined to become red cells. At the moment that's a difficult proposition."

Cord blood might be useful as a source of hematopoietic stem cells for eventual gene therapy, he suggested, adding that he is working with Dr. Elizabeth Read and others at the Clinical Center's department of transfusion medicine to study this approach. Rodgers underscored the importance of the CC as a venue for breakthroughs in sickle cell disease: "The Clinical Center has been and continues to be enormously valuable to our studies and those of our colleagues. It is the jewel of the Department of Health and Human Services, and I truly believe that." ■

'Glass Cutters' Target Proverbial Ceiling

Federal Women's Forum 'Shares Success at One HHS'

Women who work for Uncle Sam should also try cultivating a certain specialized trade that can help more of their number thrive in the workforce, according to one guest speaker at "Sharing Our Success at One HHS," the agency forum held July 20 during the 2004 national training program hosted by Federally Employed Women (FEW) in Nashville.

"Through mentoring we can begin the process of a 'glass cutting' program," suggested forum guest presenter Dr. Yvonne Maddox, NICHD deputy director. "We can become a network, a powerful sisterhood that can destroy the glass ceiling forever. Let's call ourselves glass cutters."

The forum—a collaborative effort coordinated by NIH's Office of Equal Opportunity and Diversity Management—combined two guest presenters and two panel discussions to address four topics related to personal well-being and professional advancement. The theme of this year's FEW training program was "Sounds of Success." For the first time in several years, the NIH Federal Women's Program and the Bethesda chapter of FEW collaborated to plan a seminar that included representatives from HHS agencies, highlighting the department's "One HHS" concept.

With more than "10,000 women in the NIH workforce alone," noted Lawrence Self, OEODM director, "it's important that we have exchanges like this on quality of worklife, women's health and career development and mentoring so that we make sure our roadmap will take us where we want to go."

HHS deputy assistant secretary for health Dr. Wanda Jones, director of the department's Office of Women's Health, pointed out that HHS employs more than 67,000 people, and is one of the largest federal agencies in the nation. A 17-year veteran HHS'er, she recalled how the department's quality of worklife initiative was galvanized in late 1996 with efforts to address the needs of the "sandwich generation," employees looking for ways to manage their careers while also providing care for aging parents and growing children. Jones said the Employee Assistance Program and organizations like the Recreation and Welfare Association can help make worklife more livable—and productive—for many.

The forum also offered discussions on tackling menopause symptoms, hormone therapy and other wellness and fitness issues.

Highlighting the emphasis in the last decade or so on women gaining parity with men in career achievement—particularly within the scientific community—Maddox discussed the importance of mentoring and offered practical advice on professional advancement.

"Even though there may be different tracks and there may be many different approaches to how one is mentored or to developing one's career," she said, "the messages are the same. The infrastructure of developing a career and keeping it on track is the same, no matter what type of career you're pursuing."

She offered recommendations for empowering and maintaining a strong workforce for women as well as men: Institute new recruitment and retention efforts—"aggressive, targeted strategies are key"; assure comparable salaries; promote effective mentoring systems; improve the work environment by offering such amenities as day care and elder care programs as well as lactation facilities; support



career flexibility ("the tenure clock can be interrupted"); heighten the visibility of women; and increase accountability by tracking the success of programs with evaluation tools.

"Even though we have made enormous strides in improving the workplace for women," she concluded, "we know that there is much more to do. The federal workforce is not something that stays the same. It's dynamic. It keeps moving. So the things we've been saying over the years need to be repeated for new employees and women entering the workforce."

Forum organizers hope to repeat the success of the event, and to keep the momentum going among all the department's components.

"This was a powerful meeting, rich with how-to tools for self-determination—being in charge of your health and your career, as well as advice from the best in the business," said NIH Federal Women's Program Manager Rose Pruitt, OEODM senior advisor for outreach and recruitment and chair of the HHS agency forum planning committee. "This event for women was a well-rounded and meaningful forum because of the participation of women throughout the department."

For more information about the forum, visit the NIH Federal Women's Program web page at <http://oeodm.od.nih.gov/fwp/> and access the forum video for lunchtime training. ■

At the FEW government forum in Nashville, participants representing a cross-section of HHS include (from l) Rose Pruitt and Larry Self of NIH; Palmeda Taylor of the Indian Health Service; HHS deputy assistant director for health Dr. Wanda Jones; Deborah Kallgren of FDA; Angela Washington of the Health Resources and Services Administration; Sandra Haldane of IHS; Yvonne Greene of CDC; and Alisa Green of NIH.

NIH History Day 2004

What's Your NIH 'Firsts' HQ (Heritage Quotient)?

People make history. That's the point of the second annual NIH History Day to be held on Tuesday, Sept. 21, by the Office of NIH History. The highlight of the day will be a lecture by Dr. Thomas Söderqvist, professor of the history of medicine and director of the Medical Museion at the University of Copenhagen. The lecture, "The Seven Virtues of Biography, or What's the Use of Biographies of Life Scientists?" will be held at 3 p.m. in Lipsett Amphitheater, Bldg. 10. All are welcome.

This year's theme is "Scientific Biography," and the goal is to point out how advances in biomedical research depend on individual curiosity, perseverance and creativity, augmented occasionally by



Test yourself: These three NIH "firsts" are identified in the quiz below.



serendipity. The Office of NIH History encourages senior NIH scientists to send digital or paper copies of their CVs along with photos, both candid and posed, to be added to the office's biographical reference files. On History Day, collection stations will be staffed in the lobbies of Bldgs. 10, 50 and 37 for those who want to donate in person. For more information about the event or special accommodation, contact Dr. Sarah Leavitt, leavitts@od.nih.gov or (301) 496-8856 or consult <http://history.nih.gov>.

Take the HQ Quiz

Now test yourself. The following people achieved important "firsts" in NIH history. How many names can you link to particular achievements?

- | | |
|-----------------------|--|
| 1. Ida Bengtson | a. first federal scientist to win a Nobel prize |
| 2. Philip Chen | b. first to demonstrate that pellagra was a dietary-deficiency disease |
| 3. Alice Evans | c. first Asian American on the senior NIH staff |
| 4. Joseph Goldberger | d. first director of "Laboratory of Hygiene" |
| 5. David Johnson | e. first NIH winner of a Lasker award |
| 6. Joseph Kinyoun | f. first female NIH member of the National Academy of Sciences |
| 7. Ruth Kirschstein | g. first African American senior scientist and laboratory chief |
| 8. Elizabeth Neufeld | h. first to demonstrate relation of brucellosis to unpasteurized milk |
| 9. Marshall Nirenberg | i. first female professional on staff of Hygienic Laboratory |
| 10. Joseph E. Smadel | j. first female director of an institute |

ANSWERS: 1. i 2. c 3. h 4. b 5. g 6. d 7. j 8. f 9. a 10. e

HIRE EDUCATION



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>.

Browsing Genomes with the UCSC Genome Project	9/1
Security Features of Microsoft Desktop Programs	9/1
Introduction to ISPF	9/1
Data Warehouse End-of-Year Processing	9/1
Introduction to Statistics	9/1, 8, 15
NCBI's Identification and Correlation of Disease Genes to Phenotypes	9/2
Using Edison Report-Lite to Verify Extramural Invention and Patent Reporting	9/2
LISTSERV Electronic Mailing Lists: Hands-On Workshop for General Users	9/8
LISTSERV Electronic Mailing Lists: Hands-On Workshop for List Owners	9/9
MatchMiner and GoMiner: Software Resources for Analysis of Microarray Data	9/10
STATISTICA and STATISTICA Data Miner for Analyzing and Finding Hidden Information in Messy Medical Data Sets	9/13
Public Key Infrastructure (PKI) 101	9/14
Analyzing Microarray Data using the mAdB System	9/14-15
Introduction to FrontPage 2002	9/14
Disaster Recovery	9/15
Social Sciences Resources	9/15
Data Warehouse Query: Technology Transfer	9/15

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>.

Federal Supply Schedules	9/7
Consolidated Purchasing Through Contracts	9/8
Buying from Businesses on the Open Market	9/9
Purchase Card Training	9/13
Travel for NIH Travelers	9/16
Intercultural Communications at the NIH	9/20
Intercultural Communications for the NIH Scientist	9/20

HIV+ Volunteers Needed

HIV+ volunteers with CD4 T cells greater than 500 cells/mm³ and viral loads less than 50 copies/mL are needed for a treatment-interruption study. Participants may be eligible for this study if they have never received IL-2, have never had a CD4+ count under 200 cells/mm³, do not have any significant medical problems, and are willing to halt their antiretroviral medications with close supervision. Travel assistance may be provided. Call Rosanne Burke, (301) 435-7937. ■

Nobelist, Co-Discoverer of 'Blueprint' Genes

Long-Time NICHD Grantee Lewis Dies

By Robert Bock

Dr. Edward B. Lewis, a long-time NICHD grantee who received the Nobel Prize for discovering the genes that serve as "blueprints" for the formation of limbs and organs in the early embryo, died recently of cancer at age 86. His contributions came from studying the fruit fly *Drosophila melanogaster*, an important research model in the field of genetics. He was a 32-year recipient of NICHD support.

"Edward Lewis moved the study of human development a giant step forward," said NICHD director Dr. Duane Alexander. "His work opened a new field of inquiry into the genetic mechanisms underlying many classes of birth defects."



Dr. Edward B. Lewis

Lewis made his discoveries long before the tools of molecular biology had become available. He identified a mutant fruit fly with two sets of wings, instead of the normal single set, and demonstrated that the genetic defect caused the abnormality. Through the years, Lewis isolated other mutants, eventually mapping genes controlling such traits as eye and limb development to specific locations on the third chromosome. These genes were later named "homeotic selector genes," from the Greek word "homeos," meaning "likeness." He determined that these genes appear on the chromosome in an order corresponding to the position of the body parts they control.

In 1995, Lewis shared the Nobel Prize in Physiology or Medicine with Drs. Christiane Nüsslein-Volhard and Eric F. Wieschaus, who identified the genes controlling the development of the fruit fly's body segments. Wieschaus is also a long-term NICHD grantee. The genes the three researchers discovered were later found to have counterparts in mammals and have critical functions in the development of mice and humans.

"Dr. Lewis' work in the fruit fly had a major impact on the understanding of normal development in humans," said Dr. Max Muenke, chief of the Medical Genetics Branch at NHGRI. "Numerous birth defects can now be explained by mutations in human genes analogous to those Dr. Lewis first identified in the fruit fly."

One such birth defect, craniosynostosis, affects roughly one in every 2,500 infants, Muenke added. The disorder results in a premature fusing of the bones in the skull. Human counterparts to other

genes Lewis discovered are involved in disorders of the brain, spine and eyes. Still others have been implicated in cleft lip and palate and in polydactyly (extra fingers and toes).

"Dr. Lewis was very frugal in his requests and resourceful in his use of NIH grant funds," explained Dr. Tyl Hewitt, chief of NICHD's Developmental Biology, Genetics and Teratology Branch. "Considering the impact of his findings, he made remarkable discoveries on a shoe string budget."

Lewis received his first grant from NICHD in 1972, and it was renewed each time he applied for support. In 1997, he received a MERIT (Method To Extend Research In Time) Award, which supported his work until his death.

Born in 1918, in Wilkes-Barre, Pa., Lewis developed an interest in fruit fly genetics as a high school student. He was awarded a bachelor's degree from the University of Minnesota in 1939 and earned his doctorate in genetics from the California Institute of Technology in 1942. Except for 4 years in the U.S. Army Air Corps during World War II, he remained with Caltech for his entire career. He became chairman of the biology program in 1966, a position he held until he retired from the faculty in 1988.

Although he gave up his faculty position, Lewis continued his research until shortly before his death. With NICHD support, he took advantage of new techniques and advances in molecular genetics and used them to gain a greater understanding of the genes he had discovered.

Lewis was a member of the National Academy of Sciences, the American Academy of Arts and Sciences, the Royal Society (London), and many other organizations. In addition to the Nobel Prize, Lewis received numerous awards for his scientific contributions, including the Albert Lasker Award for Basic Medical Research in 1991 and the National Medal of Science in 1990. In 2003, he was inducted into the NICHD Hall of Honor, an award presented by the institute in recognition of scientists it has supported who have made outstanding contributions to their research fields. ■

Healthy Volunteers Needed

Doctors at NIH are conducting a study that examines the tongue. Call 1-800-411-1222, TTY 1-866-411-1010. Refer to study 01-CC-0044. Compensation is provided. ■



Lewis was a long-time NICHD grantee who received the Nobel Prize for discovering the genes that serve as "blueprints" for the formation of limbs and organs in the early embryo.

Grateful Patient Brings His Troupe to NIH

Musical-drama group Jeunes Agape (“young unconditional love”) will appear on stage in the Clinical Center’s Masur Auditorium at noon on Thursday, Sept. 2. The award-winning youth choir, with more than 50 members ranging in age from 7 years to their early twenties, hails from Point Fortin, Trinidad and Tobago in the West Indies. The group is celebrating its 10-year anniversary but is also coming to NIH to



Jeunes Agape performed at the Trinidad & Tobago Music Festival in March 2004.

celebrate their lead choreographer’s life.

Ian Baptiste, 24, is a musician and dancer from Port-of-Spain, the capital of Trinidad and Tobago. About a year ago, he was feeling ill with bleeding gums, exhaustion, headaches and other symptoms. A local physician sent him to a hematologist who diagnosed severe aplastic anemia, a bone marrow disease in which no red or white blood cells or platelets are being produced. Baptiste was referred to NIH for further evaluation. He learned he needed a blood stem cell transplant to survive; his identical twin brother Deon, also a choreographer and member of Jeunes Agape, was identified as the suitable donor. The successful procedure took place on Christmas Eve 2003. To Ian, it was his experience on the blood and marrow transplant 2-West unit that makes Jeunes Agape’s NIH visit a natural followup to his stay here.

“I want to do this concert in appreciation for my NIH medical treatment, for it being successful and all. The staff was very welcoming and warm. They

know I am a musician and dancer. I want them to be able to see me doing this. They saw me when I was sick,” he said.

Jeunes Agape performs contemporary, calypso, folk, gospel and classical music. While in Washington, D.C., they will also appear at the Kennedy Center. Mark your calendar to join them Sept. 2 as they salute their Caribbean-island heritage and give thanks to NIH for one of their own. For more information contact the NIH Visitor Information Center at (301) 496-1776.—Dianne Needham ■

Wednesday Afternoon Lectures

The Wednesday Afternoon Lecture series—held on its namesake day at 3 p.m. in Masur Auditorium, Bldg. 10—features Dr. Joanna S. Fowler on Sept. 8; her topic is “Translational Neuroimaging in Drug Research.” She is senior chemist and program director, Center for Translational Neuroimaging, Brookhaven National Laboratory.

On Sept. 15, Dr. Joan S. Brugge will present, “Morphogenesis and Oncogenesis in 3D Epithelial Cultures.” She is professor and chair, department of cell biology, Harvard Medical School.

The WALs talks mark their 10th year on campus in October.

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



Identical twins Deon Baptiste (l) and Ian Baptiste are members of the musical-drama group Jeunes Agape. Ian, a Clinical Center patient, was the recipient of Deon’s blood donor stem cells in a successful transplant procedure conducted at NIH.

NIH Chamber Singers Auditions

The NIH Chamber Singers are seeking a bass and a soprano to round out its merry band of troubadours. In September, the group will begin rehearsing for its December concert. If you are interested in joining the Singers, contact Susan Hauser at hauser@nlm.nih.gov for details. ■

Tae Kwon Do Beginner’s Class

The NIH Tae Kwon Do School is offering a beginner’s class for adults and mature teens starting Sept. 15. The curriculum combines traditional striking arts, forms and sparring with emphasis on self-defense. No experience is necessary. Class will meet in the Malone Center (Bldg. 31C, B4 level, next to the NIH Fitness Center) from 6 to 8 p.m. on Mondays and Wednesdays, and will continue for about 2 months until participants can be integrated into the regular school training. Dues are \$40 per quarter and a uniform costs \$30. Interested persons are welcome to watch regular training sessions. For information call Andrew Schwartz, (301) 402-5197 or visit <http://www.recgov.org/r&cw/nihtaekwondo.html>. ■