



ABOVE • Many kids seem to grow out of ADHD; see Digest on p. 10.

nih record

Welcome to Planet Math

NIDDK Laboratory of Biological Modeling Turns 50

By Belle Waring

When you think lab, chances are you think of the “wet” variety, with bottles of reagents and glassware in the sink. But NIDDK’s Laboratory of Biological Modeling is different than most NIH labs. Instead of specialized plumbing and pipettes, here are computers with full-color graphs of computations bending like soccer nets. That’s because this lab uses mathematical models, and it’s been working this way for half a century. The hero of this story is math.

Yet “a lot of people don’t know about us,” says Dr. Arthur Sherman, LBM chief. “People don’t know much about math, or if they do, they have bad memories of it.”

For the layperson, he translates: “Math uses equations to describe how systems evolve in time, whether the systems are physical, biological or economic. If you know



Dr. Arthur Sherman

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NIH’s New ‘Council of Councils’ Learns Mission at Planning Session

By Rich McManus

Although its title sounds august enough to be accompanied by the swelling thunder of tympanis, the new Council of Councils, which convened for the first time Nov. 8, has a mission more methodic than musical. Created by the NIH Reform Act of 2006, the council is an advisory body to the NIH director with oversight of Common Fund expenditures, which pay for broad, trans-NIH initiatives that need support no single institute or center could offer.

The daylong meeting was technically a planning session—not all of the council’s 30 members have completed the requisite paperwork for an official inaugural meeting, which will take place sometime in the spring. Nonetheless, the new members, representing the advisory councils of all 27 ICs plus three ad hoc representatives, got an overview of their mission from Dr. Alan Krensky, director of the Office of Portfolio Analysis and Strategic Initiatives (OPASI).

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Heritage Program Offers Portrait of A Beautiful Land, Daunting Problems

By Rich McManus

Indian country. The phrase, used by nearly all speakers at a research symposium held in conjunction with NIH’s 7th annual observance of American Indian and Alaska Native Heritage Month, conjures images of pristine mountain vistas and endless skies.

But it also signifies a host of public health challenges, including high rates of diabetes, obesity, cardiovascular disease, alcoholism, tuberculosis, depression, violence and motor vehicle accidents.

Add to that widespread poverty and poor access to health insurance and health care, said Dr. James Herrington (Chickasaw) of the Fog-



Dr. R. Dale Walker

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

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

Editor
Richard McManus
rm26q@nih.gov

Assistant Editor
Carla Garnett
cg9s@nih.gov

Staff Writers
Jan Ehrman
je48b@nih.gov

Sarah Schmelling
ss1116y@nih.gov

Belle Waring
bw174w@nih.gov

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briefs

Diversity Council Celebrates 'Many Voices, One Mission'

Join the NIH Diversity Council in celebrating "A Time for Diversity: Many People, Many Voices, One Mission" through a series of events:

- Art of Diversity, a retrospective of posters from special emphasis observances and events. Posters are on exhibit through Dec. 12 in the lobbies of 6001 Neuroscience Center and 6701 Rockledge 2.
- The Face of Diversity, a gathering for NIH employees to meet and share information with members of NIH employee and affinity groups, will be held on Wednesday, Dec. 5 in the Clinical Center south lobby from 10 a.m. to 2 p.m.
- Science of Diversity, a retrospective of NIH intramural research posters, will be displayed Dec. 3-7 at the Lister Hill Center, Bldg. 38A. Informal 10-minute briefings on the impact of diversity and health disparities on scientific research will be held in Lister Hill Auditorium from 2:30 to 4 p.m.

For more information about these events, contact Dr. William Elwood, NIH Diversity Council chair, (301) 435-1503 or elwoodwi@mail.nih.gov. Sign language interpreters will be provided. For reasonable accommodation needs, call Carlton Coleman at (301) 496-2906 or via the Federal Relay Service, 1-800-877-8339.

2008 Open Season Reminder

The Benefits Open Season for federal employees began Nov. 12 and will continue through Dec. 10. The open season covers the federal health, dental and vision insurance programs as well as Flexible Spending Accounts (FSAs). Eligible employees now have the opportunity to start, change or cancel their enrollment during open season. Remember, to contribute to an FSA in 2008, you must enroll or re-enroll during the open season. For details about the Benefits Open Season, visit the Benefits and Payroll Liaison web site at <http://hr.od.nih.gov/Benefits/openseason/openseason.htm> or call (301) 496-4556.

Holiday Food Safety Urged

The holiday season is upon us and the Community Health Branch, Division of Occupational Health and Safety, Office of Research Services reminds everyone to take extra time and include food safety in holiday food preparations. Office parties, family gatherings and com-

munity celebrations can present unique food safety challenges. Cooking food properly and then holding and serving that food at the appropriate temperature is important, along with good hygienic practices, and can reduce the potential for food-related illnesses. For more information, visit www.foodsafety.gov/~fsg/holiday.html or contact the Community Health Branch, Food Safety Program manager at (301) 496-2960.

Democracy Plaza Gets Blood Pressure Machine

A blood pressure monitoring station is now available for NIH employees in Democracy Plaza. The device is located in Democracy II, Rm. 700LR (the seventh-floor lunch room). For more information about the machines, contact the Division of Occupational Health and Safety, (301) 496-2960.

NICHD Director Alexander Honored

NICHD director Dr. Duane Alexander recently received the Distinguished Service Award for 2007 from the American Society for Reproductive Medicine. He was honored for his significant contributions to the field of women's health. Under his leadership, the institute has sponsored research on HIV infection, transmission and treatment in women and children. NICHD studies of infertility treatment have advanced the field of reproductive medicine. Alexander was named NICHD director in 1986.



STEP Forum on Autism, Dec. 11

The staff training in extramural programs (STEP) committee will present a Science for All forum on the topic, "Autism: What Do We Know Now?" on Tuesday, Dec. 11 from 8:30 a.m. to 12:30 p.m. in Lister Hill Auditorium, Bldg. 38A.

Recent studies suggest that autism spectrum disorders (ASD) may occur in about one out of 150 children. ASD is typically diagnosed in early childhood, although some of the related conditions may not be diagnosed until a child enters school. ASD manifests itself in many different ways that range from non-verbal learning disorders to pervasive developmental disorders, including Asperger's syndrome and frank autism.

What populations are most at risk for having ASD? How are autism spectrum disorders characterized? Is the prevalence of ASD truly increasing?

This forum will address the prevailing theories and current research on ASD, discuss early diagnosis, co-occurring medical conditions and options for interventions to lessen symptoms and improve functionality.



Enjoying the Emmy honors are (from l) NIAAA director Dr. Ting-Kai Li, NIH director Dr. Elias Zerhouni, NIDA director Dr. Nora Volkow and Dr. Mark Willenbring, an NIAAA division director.

Two Institutes Share Emmy Award

At the Creative Arts Emmy Awards ceremony, held recently in Los Angeles, the Academy of Television Arts and Sciences honored the National Institute on Drug Abuse and the National Institute on Alcohol Abuse and Alcoholism with the Board of Governors Award for their work with HBO on *The Addiction Project*. The award is the academy's highest honor and is given to individuals or organizations committed to important social causes. It marks the first time that NIH institutes have received an Emmy for television programming.

"This honor reflects our commitment to effectively communicate research results to the public," said NIH director Dr. Elias Zerhouni.

The *Addiction Project* is a 14-part documentary series and multimedia initiative revealing the science of addiction, treatment options, recovery and the costs of untreated addiction to families and society. The series, which featured a diverse group of people who were battling alcohol or drug addiction together with NIH scientists and addiction clinicians from around the country, originally aired Mar. 15 to an audience of more than 13 million viewers. An additional 1 million viewed the program through HBO on Demand.

In the months since then, almost 3 million viewed the content at www.hbo.com/addiction and affiliated sites, with 600,000 video streams. Still more have purchased the DVDs or a companion book, available commercially. In addition, support from the Robert Wood Johnson Foundation enabled addiction advocacy groups, including Community Anti-Drug Coalitions of America, Join Together, and Faces and Voices of Recovery, to promote the series through house parties and other grassroots activities.

In acceptance remarks, NIDA director Dr. Nora Volkow said, "I want to thank the Academy for its recognition, and HBO for its vision in developing this project, which has allowed us to reach millions with our message—that addiction is a chronic, relapsing brain disease. It does

not care if you are rich or poor, famous or unknown, a man or woman, or even a child. If science-based treatment principles are followed, addiction treatment can work and people can reclaim their lives." Volkow was featured prominently in the documentary, as was Dr. Mark Willenbring, director of NIAAA's Division of Treatment and Recovery Research, and NIH grantees from across the country.

Currently, addiction affects 23.2 million Americans—of whom only about 10 percent are receiving the treatment they need. "HBO's *Addiction Project* afforded us the opportunity to directly acquaint viewers with available evidence-based medical and behavioral treatments," said NIAAA director Dr. Ting-Kai Li. "This is especially important for disorders that for many years were treated outside the medical mainstream."

Each institute received an Emmy statuette. The centerpiece documentary can still be seen on HBO's web site, www.hbo.com/addiction/.

Collins Wins Presidential Medal of Freedom

President George W. Bush awarded the Presidential Medal of Freedom, the nation's highest civilian award, to NHGRI director Dr. Francis Collins for revolutionizing genetic research. The ceremony took place in the East Room of the White House on Nov. 5.

"Under his leadership, the Human Genome Project mapped and sequenced the full human genome and greatly expanded our understanding of human DNA," said Bush.

Collins was one of eight recipients of the award, which this year included Harper Lee, author of *To Kill a Mockingbird* and civil rights pioneer Benjamin Hooks.

Bush described Collins as "the man who led the federal [human genome] project to full and thrilling success. Many discoveries yet to be made, and many scientific triumphs yet to be achieved, will be directly traceable to the work of the human genome project."

He also called Collins "a well-rounded man. Though he routinely works a 90-hour week, he is an accomplished singer and guitarist. I know this because I once heard him at the National Prayer Breakfast. You see, when a man can get up and sing in front of 3,000 people at 8 in the morning, there's something special in his DNA."

NIH director Dr. Elias Zerhouni said, "The completion of the Human Genome Project will remain a landmark of scientific achievement for centuries to come. The multi-faceted leadership of Francis Collins was the essential ingredient for the success of this international endeavor that has brought honor to our country and to the NIH. I cannot think of a better way to recognize his extraordinary scientific talent and selfless dedication to public service than for President Bush to bestow the Presidential Medal of Freedom on Francis Collins."

The medal, established in 1963, may be awarded by the President "to any person who has made an especially meritorious contribution to the security or national interests of the United States, or world peace, or cultural or other significant public or private endeavors."



Dr. Francis Collins (l) shows his new medal, joined by NIH director Dr. Elias Zerhouni.

COUNCIL

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“Our purpose is to hear what you have to say,” said Krensky, who offered a brief overview of the Reform Act to orient counselors to their task. He also described OPASI and its three subdivisions (all of which are currently recruiting directors) and the new Division of Program Coordination, Planning, and Strategic Initiatives (DPCPSI, or as it is affectionately known, “D-Poughkeepsie”), which he called a bit less defined than OPASI at the moment. The division, to be organized by NIH deputy director Dr. Raynard Kington, will encompass six OD program offices: Office of AIDS Research, Office of Research on Women’s Health; Office of Behavioral and Social Sciences Research; Office of Disease Prevention (including the Office of Medical Applications of Research); Office of Dietary Supplements; and Office of Rare Diseases.

By law, the Common Fund has been established at 1.7 percent of the total annual NIH appropriation, or somewhere around \$500 million for the current year. It can go no lower than that, explained John Bartrum, director of NIH’s budget office, who attended the meeting as a guest, and also has a cap of no more than 5 percent of the NIH budget. NIH director Dr. Elias Zerhouni considers the fund an intellectual venture space whose projects will incubate for 5 to 10 years before either being dropped or ripening into fields fundable by other mechanisms.

Thus the C of C becomes an umbrella group advising the NIH director about which cross-cutting initiatives to support. Other input will be invited from the advisory committee to the NIH director, the IC directors, the directors of OD program offices, the NIH steering committee, the OPASI working group and key stakeholders.

Noting that NIH relies on some 31,000 outside advisors, Zerhouni told the council, “We couldn’t do our jobs without you...This is essentially a council of the whole of NIH, and I hope you will see it that way. This is an experiment in the making.”

Zerhouni offered the council an anecdote he hoped would be instructive. When he left Johns Hopkins in 2002 to become NIH director, he was already aware of future Nobel laureate Dr. Andrew Fire’s work on RNA interference, and was convinced that the field “needed to be pursued at 100 m.p.h. I could not redirect resources then, but I would be able to now, using the Common Fund.”

He challenged the council to pick projects the way the late NIH intramural Nobel laureate Dr.

Julius Axelrod did—to assure that the experiments it chooses, whether they succeed or fail, yield answers to important questions.

The Common Fund, he explained, takes advantage of “an era of convergence” in fundamental scientific concepts (he cited cell signaling as a field underlying many diseases), the staggering complexity of modern science, and powerful new tools such as genomics and proteomics. “The opportunities have never been better,” he assured.

The planning session concluded with a discussion of initiatives on the horizon, including ways to keep the pipeline of new investigators full, and advances in the science of phenotyping. 📌

Greene Named NIDDK Executive Officer

Dr. Lucy Greene was recently named associate director for management, NIDDK. She will act as executive officer and advise the NIDDK director and other senior officials on all phases of administrative management.

“Dr. Greene is an experienced administrator, manager and supervisor,” said NIDDK director Dr. Griffin Rodgers, who made the appointment. “Her extensive knowledge of federal management principles and practices, as well as her expertise in NIH policies and processes, makes her an ideal candidate and a great asset to the NIDDK.”

Greene has served as deputy executive officer at NIDDK since April 2006 and as acting EO since April 2007. Prior to joining NIDDK, she was deputy EO and associate director for administrative operations at the National Cancer Institute. She has 31 years of experience as an administrator in government.

“I am honored and excited to be a part of the NIDDK team and to have the chance to contribute to NIDDK’s future successes,” said Greene.

She earned a doctorate in planning and development studies from the University of Southern California, an M.A. in museum studies from George Washington University and a B.A. *cum laude* in Latin from Gettysburg College.





PECASE honors Dr. Alexandra C. McPherron, a tenure-track investigator in NIDDK.

NIDDK's McPherron Among 11 PECASE Winners

Eleven NIH grantees and one intramural scientist have been selected by the White House Office of Science and Technology Policy to be among this year's 58 researchers to receive the Presidential Early Career Award for Scientists and Engineers (PECASE).

"NIH is extraordinarily proud of supporting 12 PECASE winners who have, early in their research careers, shown exceptional potential for scientific leadership during the 21st century—the essence of this award," said NIH director Dr. Elias Zerhouni. "We look forward to continued innovation from these outstanding investigators as they push the frontiers of medical research during this pivotal time for scientific discovery."

The intramural scientist is Dr. Alexandra C. McPherron, a tenure-track investigator in the Genetics of Development and Disease Branch, NIDDK. She was honored "for outstanding research in regulation of muscle growth."

Her research focuses on myostatin, a protein produced by skeletal muscle. Myostatin regulates muscle size and growth and the lack of myostatin leads to dramatic and widespread increases in skeletal muscle mass. McPherron and colleagues have worked with myostatin knock-out mice, as well as "double-musled" cattle, to discover the role of myostatin in metabolism. Research on myostatin may eventually lead to a better understanding of muscle-wasting diseases such as the muscular dystrophies and cachexia caused by cancer or AIDS, and other metabolic diseases such as diabetes and obesity.

The extramural honorees include: Dr. Katerina Akassoglou, NINDS, University of California, San Diego; Dr. Jeanmarie Houghton, NCI, University of Massachusetts; Dr. Jay R. Hove, NCRR, University of Cincinnati; Dr. Sven-Eric Jordt, NIEHS, Yale University; Dr. Susan M. Keach, NIAID, Yale; Dr. Bruce D. McCandliss, NIDCD, Cornell University; Dr. Gus R. Rosania, NIGMS, University of Michigan; Dr. J. Peter Rubin, NCI, University of Pittsburgh; Dr. Ravindra N. Singh, NINDS, UMass; Dr. Michelle P. Winn, NIDDK, Duke University; Dr. Adam T. Woolley, NIBIB, Brigham Young University.

Since the program began in 1996, NIH has funded a total of 129 PECASE recipients. 🍎

WHO's Chan To Give Barmes Lecture

Dr. Margaret Chan, director-general of the World Health Organization, will deliver the David E. Barmes Global Health Lecture on Monday, Dec. 10 at 3 p.m. in Masur Auditorium, Bldg. 10. Her talk is titled "Climate Change and Health."

Chan, who is from the People's Republic of China, earned her medical degree from the University of Western Ontario in Canada. She joined the Hong Kong department of health in 1978. In 1994, she was appointed director of health of Hong Kong. In her 9-year tenure as director, she launched new services to prevent the spread of disease and promote better health. She also introduced new initiatives to improve communicable disease surveillance and response, enhance training for public health professionals and establish better local and international collaboration. She effectively managed outbreaks of avian influenza and severe acute respiratory syndrome.

In 2003, Chan joined WHO and rose to the position of representative of the director-general for pandemic influenza as well as assistant director-general for communicable diseases. She was subsequently appointed to the post of WHO director-general in November 2006; her term runs through June 2012.

The annual lecture series honors the late David E. Barmes, a long-standing WHO employee, special expert for international health in the NIDCR Office of International Health and ardent spokesman for global health. The lecture is jointly sponsored by NIDCR and the Fogarty International Center.

All are welcome to attend the lecture, which will also be videocast live at <http://videocast.nih.gov/>.



HHS Limits Color-Coding on New NIH ID Badges

A potentially contentious issue regarding the issuance of a unique NIH identification card to identify employees who are non-U.S. citizens has suddenly become a non-issue. As part of HHS's compliance with Homeland Security Presidential Directive 12 (HSPD-12)—the federal mandate requiring a government-wide identification process including employment suitability for all federal employees, contractors and affiliates—HHS originally proposed including a blue-striped ID badge to identify all non-U.S. citizens working at NIH as "foreign nationals." Their rationale was that it would serve as an added security measure.

Following discussions with NIH, the department agreed to drop the "foreign nationals" designation for all HHS agencies, leaving only two badge categories—employee and contractor. The new badges, also known as Personal Identity Verification (PIV) cards, will be distinguishable by a white stripe for federal employees and a green stripe for contractors and organizational affiliates. Badges of employees designated as "emergency responders" will also include a narrow red stripe toward the bottom of the card.

The foreign-national designation was originally part of guidance released by the National Institutes of Standards and Technology, the agency responsible for crafting the department's standards for PIV cards.

Testing of the new PIV card is currently under way in other HHS agencies. Some NIH employees could begin receiving these new ID cards before the end of 2007; however, rollout at NIH will begin in earnest at the beginning of the new year. The expectation is that all employees and contractors will be issued their new PIV cards by October 2008.



Karen Ong, IRTA fellow, created a presentation documenting LBM's 50-year history.

PLANET MATH

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something's current state and the laws of how it evolves, you can track how it moves." That's what gives math its predictive power, as in Newton's laws of motion.

To Karen Ong, math is cool. Now entering her second year as a post-baccalaureate IRTA fellow, she has created a presentation for LBM's 50-year anniversary. From its origins in 1957, she says, the lab linked mathematicians and biologists to collaborate in groundbreaking ways.

"This is what is magical about what we do," says Ong. "We take reality, abstract it into math, construct a model and manipulate it."

And, she says, the work is dynamic: "You can get data from experiments and go back to

math. You can start with theory and go to the experimental model. Then you verify, or modify the model."

Such research can mathematically do many more experiments in the time it takes to do a single "real" experiment. For example, screening molecules computationally, rather than in a wet lab, can reduce the time needed to find promising drug candidates. Doing experiments "in silico"—on a computer or by computer simulation—can also shape the direction and interpretation of experiments *in vitro* and *in vivo*.

Mathematical biologist Joel E. Cohen of Rockefeller and Columbia universities has described how we depend on math for understanding cells and their signaling; the brain, behavior and emotion; genes, genomes and prions; the biospheres and global processes; epidemics and ecology; and how these systems interact. Math, like any living language, not only adapts to the challenge of what it's describing, but also gives insight. Mathematizing inspires conceptual leaps.

"It's like a piece of art," Ong says. "You can't model every detail, but you can paint the key aspects and from that picture make statements about the original system."

"Moreover," she adds, "this [biological] system is a lot more complicated than what you can figure out intuitively. Using math, you can find out things you wouldn't have thought to look for."

These things include a spectrum of interests. "The main application for me," says Sherman, "has been the biophysical basis of insulin secretion in pancreatic beta-cells." He joined the lab as a postdoc in 1986 and became chief in 1997.

LBM's four principal investigators and one research scientist, plus (depending on the academic cycle) around 12 postdoc and 2 postbac fellows, are working on a variety of theoretical and computational approaches to diabetes, obesity and neuroscience, including mitochondrial function and insulin action; insulin resistance and food intake regulation; obesity clinical trials; and structure-based drug design. Investigations range from extremely applied (drug discovery and clinical data from subjects in the metabolic lab) to extremely theoretical.

One of the current principal investigators, Dr. Carson Chow, stresses the foresight of Dr. Frederick S. Brackett, a member of NIAMD's Laboratory of Physical Biology. Early on, Brackett understood how important computers would become [see sidebar].

"While the current NIH Roadmap is emphasize-

NIH's First Computers

NIH has not always been so enthusiastic about using computers in research. In the late 1950s, Dr. Frederick S. Brackett and other members of the electronic data processing committee faced overwhelming opposition to their proposal to acquire an IBM 650 for scientific purposes. Then-NIH director Dr. James Shannon approved the EDP committee's plan in January 1957, but the division chiefs banded together to prevent its realization. They argued that general-purpose digital computers like the 650 could not be kept sufficiently busy by NIH researchers who, they believed, lacked the knowledge of mathematics and electronics to gainfully employ computers.

To overcome such doubts, Brackett organized the Mathematics Panel to prepare researchers for computer use by helping them mathematize their work. Nevertheless, funding for computer work remained scarce until 1960, when Shannon was able to circumvent the objections of the division chiefs by acquiring money for biomedical computing directly from the U.S. Senate, then concerned that the United States was trailing the U.S.S.R. scientifically.

Biomedical computing's most vocal patrons were Senators Hubert H. Humphrey (D-MN) and Alexander Wiley (R-WI). Between 1956 and 1959, NIH spent less than \$2 million on computers in research (intra- and extramurally), but for the period between 1960 and 1963, that figure jumped to over \$40 million.—Joseph November

ing systems and computational biology,” Chow says, “I think very few people know that the LBM has actually been in the game for 50 years. Wilfrid Rall, one of the pioneers of computational neuroscience and cable theory for dendrites, was an early member of the lab. Other notables include John Hearon and Mones Berman, both of whom were instrumental in developing the theory of compartmental modeling and tracer kinetics. Much of the mathematics of modeling electrical activity in neurons and endocrine cells was developed [here], especially when John Rinzel was chief.” He adds that scientific director Dr. Marvin Gershengorn, a strong supporter, added PIs to “build the lab up.”

In 1957, Brackett chaired a committee that recommended forming a Mathematics Panel. As this became a branch in its own right—the Mathematical Research Branch (MRB), now known as LBM—it could explore theoretical biology without being limited to consulting as a service to NIH.

“We now have collaborations with other ICs and outside NIH,” Sherman says. “NIDDK produces ligands, guided by calculation or computer screening, or drawing from a large library of 100,000 compounds...and we use computers to accelerate drug discovery.”

A ligand is an atom, ion or molecule that shares its electrons with another (central) ion. Just as ships dock at a pier, ligands are said to “dock” on receptors in a cell.

Drug discovery became a component of the lab only recently. Much of the history of LBM was involved in developing and analyzing mathematical models of various physiological systems such as neurons, the pancreas, mitochondria, human metabolism, cortical circuits, etc.

As for how LBM came to be housed in NIDDK: “It’s a historical accident, a historical development,” Sherman explains. “It was originally suggested to be within the OD because of the expected cross-institute nature of the mathematical research, but since no research was permitted in the OD, NIDDK—NIAMD at the time—agreed to take it on for administrative convenience.”

He and Chow stress that other ICs also have mathematical modeling labs: NICHD’s Laboratory of Integrative and Medical Biophysics; NIAID’s Program in Systems Immunology and Infectious Disease Modeling; CIT’s Mathematical and Statistical Computing Laboratory; and “of course,” Chow adds, “the NCBI [NLM’s National Center for Biotechnology Information] is partly a mathematical biology insti-

tute. It’s just that [our group] has been around for 50 years and most people don’t know that.”

And the genome connection?

“Other ICs have computational groups,” Sherman says. “But we gave birth to NCBI.” NCBI director Dr. David Lipman spent postdoc time in the MRB, where, Sherman adds, ideas for bioinformatics and the NCBI took flight.

“When the genome project took off,” he says, “it outgrew the lab here. It was time for the cuckoo to leave the nest, and now it dwarfs its parents.”

As for the future, “I’m not good at prognostication...my bias is that answering big questions will come out of answering small questions, and patterns will emerge. The place where there has been success in math models has been traditional hypothesis-driven science.

“We have a long way to go to understand how modules work,” he continues. “Maybe they have grand unifying principles. But biology does what it does because it pyramids a thousand different components together. We’re still at the stage of understanding it, component by component.”

Three Generations Made NIH Work a Family Affair

Is working at NIH in the genes? Case in point: Belle Smith worked at NIH as a property liaison officer in the Office of the Director, retiring in January 1983 with a career in the federal government that spanned roughly 31 years. Recently she celebrated her 90th birthday with her daughter and granddaughter, who both work at NIH in the Office of the Director.



NIH retiree Belle Smith (c), flanked by daughter Bonnie Tuma (r) and granddaughter Amanda, began her family’s legacy of working at NIH.

“My family thought it may be neat to have us in the paper as three generations working for NIH,” wrote daughter Bonnie Tuma, recently.

Tuma began her career in various federal agencies after graduating from the University of Maryland in 1980. In 1990, she took time off to rear two children and in 2002 came to NIH as a clerk-typist in human resources. Now, she is a lead HR specialist in Branch E of OHR’s Client Services Division, serving the Clinical Center. This winter, Tuma will receive her master’s degree in HR management from UM’s University College.

Her daughter Amanda began working here in 2003, during summers as a high school student. The younger Tuma worked in OD’s Executive Office for 4 years, assisting with the OD Honor Awards Ceremony and emergency preparedness. She currently works in human resources, helping with acquisition of an OHR-wide courier service. Amanda will graduate this May from the University of Maryland.

Can any employees match or beat that? The *Record* wants to know of other multi-generational NIH families. Send a note with details and a photo, if possible, to crg@nih.gov.

INDIAN COUNTRY

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Top Right:

Dr. Tassy Parker (Iroquois-Seneca) and Dr. Eugene Millar were two of three featured speakers at the research symposium held in conjunction with NIH's 7th annual observance of American Indian and Native Alaska Heritage Month.

PHOTOS: ERNIE BRANSON



arty International Center and a native Oklahoman, and it becomes a very good thing indeed that American Indians are known for three traits: love of laughter and humor, the capacity to suffer long, and tenacity, or stubbornness.

The symposium at Natcher auditorium on Nov. 7, featuring two investigators funded through NARCH—Native American Research Centers for Health, a collaboration between NIH and the Indian Health Service—and a keynote talk by an NIAAA grantee offered reasons for hope.

Dr. Tassy Parker (Iroquois-Seneca), a medical sociologist at the University of New Mexico Health Sciences Center, has studied the characteristics of teens jailed in that state for a variety of offenses. Overwhelmingly male, and typically having begun substance abuse by age 11, the kids also typically faced trouble in school, demonstrated behavioral problems and ran a high risk of physical abuse.

But what struck Parker and her team most was that the typical detainee had few or no visits from family members during an average incarceration term of 2 years. That kind of abandonment and alienation is a strong risk factor for future incarceration, she said.

How do we reacquaint these youngsters with a rich cultural tradition that will support and nourish them, she wondered.

Parker's team tested an intervention—recruitment of adults in the community who could mentor the kids and involve them in such structured activities as a drum group and sweat lodges.

"Once these activities started, the amount of acting-out behavior among the kids was reduced," she reported. The state detention system has now hired two adult liaisons with local communities to help reorient the youngsters in a more positive direction. The goal? "To promote more accountability and responsibility for our children," Parker said.

While the mentoring project is a step in the right direction, she suggested, it is still daunting that 63 percent of the kids who leave New Mexico juvenile jails do not go home to their parents.

A more startlingly effective public health inter-

vention was next described by Dr. Eugene Millar, an infectious disease epidemiologist at the Johns Hopkins Center for American Indian Health. He reported on the benefits of a vaccine in reducing "exceedingly high rates of invasive pneumococcal disease" among kids age 2 and under in Arizona's Indian country.

Millar showed that the pneumococcal conjugate vaccine Prevnar has dramatically lowered the incidence of pneumonia, meningitis and bacteremia in the pediatric population of the White Mountain Apaches of northeastern Arizona.

The day's keynote speaker, Dr. R. Dale Walker (Cherokee), professor of psychiatry and public health and preventive medicine at Oregon Health and Sciences University, emphasized the need to "combine American Indians' indigenous knowledge with evidence-based knowledge to yield best public health practices...camaraderie with the community is essential," he said.

A native Oklahoman, Walker noted that "Indians have the same disorders as the general population, but greater prevalence [of disease], greater severity and much less access to therapy...cultural relevance issues are also much more challenging."

The American Indian population, about 1 percent of the total U.S. population, is quite diverse; 60 percent do not reside on reservations, Walker said. And according to IHS, there are more than 560 different tribal entities in the U.S.

Walker envisions a model of community-based health care that takes advantage of Indians' tribal and community strengths. He predicted that "school-based health care delivery is the wave of the future" in Indian country.

Walker also called the Indian Health Service "tragically underfunded," an observation underscored by Dr. Jared Jobe (Cherokee) of NHLBI, also an Oklahoman and president of the NIH American Indian and Alaska Native Council who offered concluding remarks: "The per-capita federal expenditure on health for American Indians and Alaska Natives is about half of what is spent per capita on federal prison inmates. That is a violation of treaties." 🗣️

milestones

Former NIH Deputy Director Itteilag Mourned

Anthony L. Itteilag, 65, whose budgetary and management acumen helped improve the efficiency of NIH and HHS, died Sept. 11 of liver failure.



He served for more than 38 years in federal government, including as deputy director for management and chief financial officer at NIH from 1996 to 2001. He also had senior positions with HHS and the Department of Interior, among other agencies, and was credited with establishing administrative and budgetary processes that continue to aid their effective functioning.

Dr. Ruth Kirschstein, acting director of NCCAM, notes that Itteilag was “always looking for and finding a way to get things accomplished that were essential but difficult to do, and he always succeeded. He was a close ally and a very good friend.”

At NIH, he led efforts to develop a formal information management policy and established the Center for Information Technology. His leadership also led NIH to receive “clean audit opinions” in 1999 and 2000. As deputy assistant secretary for health from 1991 to 1995, Itteilag oversaw the management and budget of the Public Health Service. Some of the improvements he put into practice while serving as deputy assistant secretary for budget at HHS, from 1980 to 1984, remain in effect. He overhauled the organizational structure and enhanced the way the budget was prepared and presented, allowing policy officials to better advocate for their proposals.

After retiring in 2002, he continued to serve NIH as a senior consultant with CPS Human Resource Services, providing guidance to NIAID’s Office of Clinical Research on budget and facilities development matters and participating in a management study of NIAID’s administrative services.

Itteilag received the Presidential Rank Award in 1983. He received numerous other awards as well, including a second Presidential Rank Award for Distinguished Senior Executives in 1992 and the Clifford R. Gross Award for Feder-

al Public Service of the American Society for Public Administration in 2001.

While his professional contributions were many, he also contributed to the development of many of his colleagues by modeling ideal attributes of a public health servant. “I had the privilege of calling Tony my first boss at NIH,” recalls Anita Linde, now director of the NIAMS Office of Science Policy and Planning. “Tony was a wonderful mentor and role model. Tony taught me the concept and practice of ‘servant leadership.’ I had many opportunities to see Tony put the NIH’s institutional interests ahead of his own individual beliefs or biases—this proved to be a very powerful example, especially for someone who was new to public service.”

Colleen Barros, NIH deputy director for management and chief financial officer, remembers Itteilag’s “wonderful breadth of experience [that he brought] to the NIH, garnered through service at many levels in the department and elsewhere in government. He was widely respected for his insight and ability to find common ground in resolving difficult or contentious problems, and he conducted himself with great kindness towards others and respect for their viewpoints. He will be sorely missed.”

Itteilag was born in Westerly, R.I., and graduated *summa cum laude* from the University of Rhode Island. He is survived by his wife, Nadine Markham-Itteilag of Silver Spring; three children from his first marriage, Laurie Itteilag-Sturgill of Hagerstown, Md., Tracy Hoffman of Columbus, Ohio, and Kristin Coleman of Baltimore; three children from his second marriage, Amelia Itteilag, Zachary Itteilag and Amber Itteilag, all of Silver Spring; a brother; and two grandchildren.




Meissner Joins OBSSR as Senior Advisor

Dr. Helen Meissner has been named senior advisor in the NIH Office of Behavioral and Social Sciences Research. She will be responsible for social, public health and population science-based initiatives.

“Dr. Meissner brings a wealth of experience and expertise in social and population approaches to health promotion and disease prevention,” said OBSSR director Dr. David Abrams. “Her knowledge of the complex factors that influence health will be critical to achieving our vision of addressing the most pressing public health issues and improving our nation’s health and well being.”

Meissner served as chief of NCI’s Applied Cancer Screening Research Branch since 2000. She provided scientific leadership in support of social, behavioral and communications research to promote the use of effective cancer screening tests in both community and clinical practice.

Meissner’s research interests include social, socioeconomic and environmental influences on health care delivery, development of methods and refinement of measures to improve evaluation of interventions and eliminate health disparities. She has served on many NIH, scientific and professional organization committees including the NCI extramural advisory board and the American Association for Cancer Research task force on behavioral science. She has been recognized with four NIH Merit Awards, a Public Health Service Special Recognition Award and an HHS Special Service Award.

Prior to joining NCI in 1988, Meissner worked at the American Public Health Association, providing technical assistance to state and local health departments. She received both her Sc.M. in public health education and her Ph.D. in social and behavioral sciences from Johns Hopkins University’s Bloomberg School of Public Health. 

Growing Out of ADHD

Researchers have learned that in youth with attention deficit hyperactivity disorder (ADHD), the brain matures in a normal pattern—it's just delayed in some regions for 3 years on average, compared to youth without the disorder. This finding, reported by NIMH researchers and published online in the *Proceedings of the National Academy of Sciences*, was possible thanks to a new image analysis technique that allowed scientists to pinpoint the thickening and thinning of thousands of cortex sites in hundreds of children and teens. Leaders of the study said it should be reassuring news to families of children with ADHD and could



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help explain why many youngsters eventually seem to grow out of the disorder.

Being Aware of Chronic Kidney Disease

Though a growing number of Americans have chronic kidney disease, most remain unaware of it, according to a new study funded by NIH and published in the *Journal of the American Medical Association*. The new report raises the previous estimate of 20 million people with the disease in 1994 to 26 million people, or about 13 percent of the U.S. population. Using data from the National Health and Nutrition Examination Survey, conducted by the CDC's National Center for Health Statistics, researchers found that only 11.6 percent of men and 5.5 percent of women with moderate (stage 3) kidney disease were aware they had it. Awareness was highest among people with severe (stage 4) kidney disease, but still, only 42 percent of this group knew they had the condition. This lack of awareness hampers efforts to prevent irreversible kidney failure requiring dialysis or a transplant, researchers said. If the disease is found early, much can be done to prevent kidney failure.

Gauging Ovarian Cancer Aggressiveness

The elevated levels of certain proteins typically associated with keeping cancer cells alive may correspond with improved patient survival in

ovarian cancer. An international scientific team led by researchers at NCI found that these proteins—all members of cellular networks that regulate programmed cell death, or apoptosis, and responses to stress—together form a prognostic protein signature that provides key information about the tumor. If additional research verifies these findings, published in *Clinical Cancer Research*, clinicians may be able to use this protein signature to gauge the aggressiveness of a woman's ovarian tumor at the time of diagnosis and to identify patients who could benefit from various therapies. This year in the U.S. an estimated 22,430 women will be diagnosed with ovarian cancer. Because there are few therapeutic options available to women with the disease, any research leading to therapeutic targets would be a great advance.

A Reason for Community-Associated MRSA Severity

NIAID scientists have identified a key factor in the severity of community-associated methicillin-resistant staph infections, or CA-MRSA. According to a study published online in *Nature Medicine*, proteins in drug-resistant strains of the *Staphylococcus aureus* bacterium attract and then destroy protective human white blood cells, a process that ensures the bacterium's survival while also causing severe disease. *S. aureus* disease is a global public health concern because some strains, including CA-MRSA, have developed resistance to antibiotics. The study's scientists hope to use this finding to advance the development of new treatments.—compiled by Sarah Schmelling



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

Have Enlarged Gums?

Do you have enlarged gums and are you taking dilantin, cyclosporine or calcium channel-blockers? Take part in an NIH study.

HIV+ Volunteers Needed

HIV+ volunteers off anti-HIV medications, CD4+ count 300 or greater, needed for research study at NIH. Compensation is provided.

Adults with Neurofibromatosis

Adults with neurofibromatosis type 1 are asked to consider participating in NIH studies. All study-related tests are provided at no cost.

Do You Have Ankylosing Spondylitis?

Consider volunteering for an NIH research study. Compensation is provided.

Have Trouble Swallowing?

Are you 20-90 years old and have problems swallowing? Swallowing studies are being conducted at NIH. Transportation is available.

NIH Turner Syndrome Study

For girls and women with Turner syndrome—comprehensive evaluation (including cardiac, ovarian function) is offered at no cost to participants.

Fibroid Study Seeks Women

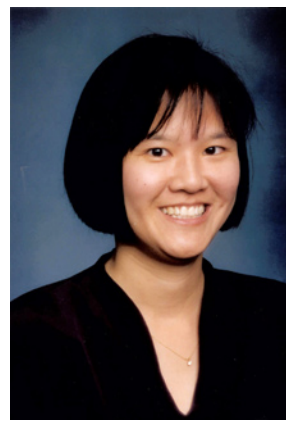
Women ages 25-50 suffering with fibroids are asked to consider participating in an NIH study. Compensation is provided. Refer to study 06-CH-0090.

Sister Study Seeks Additional Women

The Sister Study, a long-term study of women ages 35 to 74 whose sisters had breast cancer, is seeking additional women to join the nearly 45,000 already enrolled. Along with volunteers who meet the general criteria, the NIEHS Epidemiology Branch is recruiting women who fall into several underrepresented groups—women over 65 or with less than a college education, those from racial and ethnic minorities and those from specific geographic regions. To learn more, visit www.sisterstudy.org or www.estudiodehermanas.org or call toll-free, (877) 474-7837 (TTY 1-866-889-4747).

Neck Pain Study Needs Volunteers

The Clinical Center's rehabilitation medicine department is seeking individuals with neck pain and healthy volunteers between the ages of 21-65 to participate in a natural history study of neck pain (02-CC-0245). Participation involves 4 monthly visits (about 1 hour each) for a comprehensive cervical musculoskeletal examination. No compensation is provided. Contact neckpainstudy@gmail.com or (301) 451-7514.



Lee Takes Post as NIGMS Executive Officer

NIGMS has a new executive officer—the fourth in its 45-year history and a home-grown talent.

Institute director Dr. Jeremy Berg selected Sally Lee for the position. She has been the institute's deputy executive officer since December 2000 and its acting associ-

ate director for administration and operations since September 2006.

"Ms. Lee is a seasoned administrator who has the vision, personality and leadership skills needed to oversee the institute's administrative functions, including financial management, information technology and management analysis," said Berg. "Her extensive knowledge about NIGMS policies, programs and administrative operations will enable her to advise me and other senior officials on a wide range of management issues and their implications for NIGMS scientific programs."

Lee joined NIGMS as an administrative technician in 1988 and became a management analyst in 1991. She participated in the Women's Executive Leadership Program in 1997 and 1998, with rotational assignments in the NIH Office of Administrative Services and Resources and at the National Partnership for Reinventing Government.

"I've worked at NIGMS for 19 years. During that time, I've watched the institute evolve and had the opportunity to help shape it in some ways," Lee said. "I look forward to continuing to play a role in the decision-making processes that impact the superb science we support."

A strong advocate for enhancing the quality of work life for NIGMS employees, Lee has spearheaded development of telework and alternative work schedule programs. She has also played instrumental roles in workforce planning, promoting workplace diversity and developing staff in a teamwork environment.

Lee has served on several NIH committees, including the administrative training committee and its mentoring subcommittee, which she chaired. She was a founding member of the NIH management analyst working group. She currently serves as chair of the NIH focus group on telework.

Lee earned a B.A. in history from the University of Maryland. Her honors include the NIH Merit Award in 1994 and 2006.—**Jilliene Mitchell**



Leavitt Hosts Meeting of Global Health Ministers at NIH

During the week of Oct. 29-Nov. 2, NIH was home for the 8th annual ministerial meeting of the Global Health Security Initiative (GHSI). The group includes the health ministers of eight allied nations, the European Union and the World Health Organization. The meeting concluded Nov. 2 with a press conference in Natcher auditorium.

That day, ministers first breakfasted at Stone House with HHS Secretary Mike Leavitt and DHS Secretary Michael Chertoff. At the press event, Leavitt moderated the questions. He also touted the gathering as an essential cooperative effort among allies: "It shows the importance of renewing our commitment...and continuing to provide a very important forum for preparedness."

The GHSI, established in October 2001, is an international partnership to strengthen public health emergency preparedness and response. This year's meeting reviewed biological, chemical, radio-nuclear terrorism, pandemic influenza and other public health emergencies, as well as food and product safety.

Participants included health ministers from Canada, France, Germany, Italy, and the United Kingdom; the secretaries of health from Japan, Mexico and the United States; as well as the health commissioner of the EU and the director-general of WHO.

This was the first time the ministerial meeting was held in the U.S. and hosted by the HHS secretary. Past meetings have been held in Tokyo, Rome, Paris, Berlin, Mexico City, London and Ottawa. The final ministerial statement is available at www.ghsi.ca/english/statementWashington2007.asp.



Above: On the final day of the Global Health Security Initiative meeting, HHS Secretary Mike Leavitt (standing) leads a press event in Natcher auditorium.

Below: Kenta Matsunami (l), health secretary of Japan, and Donato Greco (c), head of the department of prevention and communications, Italy Ministry of Health, respond as Leavitt moderates the questions.



Offering replies at the press conference are United Kingdom Health Minister Dawn Primarolo (l) and Germany Health Minister Ulla Schmidt.

PHOTOS: ERNIE BRANSON