

nih record



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Goal Is \$2.2 Million

Collins, NIA Kick Off 2012 Combined Federal Campaign

By Judy Folkenberg

After two days of rain, the sun finally came out Oct. 4, along with several hundred NIH employees, to kick off this year's NIH Combined Federal Campaign. Joined by representatives from some 40 charities, the crowd gathered under a tent in front of Bldg. 1 to focus on the official theme of the 3-month campaign—"Give Hope."



Dr. Francis Collins kicks off CFC.

NIH director Dr. Francis Collins, an enthusiastic supporter of the CFC, said he couldn't be more pleased with that theme. "We at NIH know a little something about hope because of your efforts in research, which bring hope to millions of people all over the world," he said.

Collins also noted with pride NIH's role year-after-year in this charitable endeavor. The CFC is the largest workplace-based charity in the world, the Department of Health and Human Services is the largest federal agency contributor to the CFC, and NIH, he emphasized, is the largest contributor within HHS. "So we are the center of

SEE CFC 2012 BEGINS, PAGE 6

Top 10 Reasons to Love LactMed

NLM Smartphone App Helps Lactating Mothers with Medications

By Belle Waring

From mighty databases, smartphone apps grow.

Do you have questions about medications and breastfeeding? The LactMed app can help. It's packed with information about maternal and infant drug levels, possible effects on lactation and on breastfed infants and alternative drugs to consider.

"LactMed has 3,000 unique references linked to PubMed and 900 records for drugs, vaccines, biologics and supplements," says Florence Chang, branch chief for Biomedical Files Implementation in NLM's Specialized Information Services Division. LactMed was developed by a drug information specialist with the consultative assistance of medical experts under contract with NLM.

The LactMed app has a distinguished lineage. It's the direct descendant of NLM's Drugs

SEE LACTMED, PAGE 4

New Studies Prove Aging Can Be Slowed, Miller Says

By Christine Guilfooy

Just one of Dr. Richard A. Miller's photos told the story of his anti-aging research: A well-groomed laboratory mouse played with a piece of chalk while its listless littermate lay in a disheveled heap nearby.



The perky mouse had received a methionine-restricted diet beginning when it was 1 year old. The bedraggled sibling had been fed a normal diet and was reaching the end of a normal lifespan. Miller showed the photo as he described how he and other researchers have extended the life of rodents by as much as 40 percent, using a variety of approaches including diet and drugs.

Miller may be best known for a study in which he and his colleagues found that mice receiving

SEE SLOWING AGING, PAGE 8



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NIH...Turning Discovery Into Health

briefs

First Annual Veterans Day Celebration, Nov. 8

The NIH community will honor employees who have served or are serving in the armed forces during the first annual NIH Veterans Day Celebration on Thursday, Nov. 8 from 9 to 10 a.m. in Natcher Conference Center. Veterans' organizations and companies will present exhibits until 12:30 p.m.

Deputy Director for Management Colleen Barros and NIH principal deputy director Dr. Lawrence Tabak will recognize NIH veterans at the event. The keynote speaker is Maryland Lt. Gov. Anthony Brown, who is a colonel in the U.S. Army Reserves. While in office, Brown deployed with his unit to serve a tour of duty in Iraq. He will speak about how his military experience contributes to his leadership skills today.

The celebration is organized by the Veterans Recruitment and Retention Force. VRF was founded in November 2011 with the goal of improving recruitment and retention of veterans at NIH. VRF members hail from the Army, Marine Corps, Navy and Air Force and from most of NIH's 27 institutes and centers. To learn more about it, visit www.jobs.nih.gov/veterans/vrf.htm.

Family Caregiver Day at the Clinical Center

In recognition of National Family Caregiver Month, the Clinical Center will host Family Caregiver Day on Tuesday, Nov. 13. A Caregiver Information Fair & Expo will be held from 10 a.m. to 2 p.m. on the 7th floor of the Clinical Research Center. CC departments and outside exhibitors will offer resources for family caregivers.

No registration is required. For more information on the event, visit www.cc.nih.gov/wecare/ or contact Dr. Margaret Bevans (301-402-9383) or Leslie Wehrlen (301-451-4077).

Women's Health Research Symposium, Nov. 15

The Office of Research on Women's Health will host the ninth annual Interdisciplinary Women's Health Research Symposium on Thursday, Nov. 15, from 8 a.m. to 4 p.m. in Kirschstein Auditorium, Natcher Conference Center.

The program showcases research from two of ORWH's signature initiatives: Building Interdisciplinary Research Careers in Women's Health and the Specialized Centers of Research on Sex Differences.

ORWH director Dr. Janine Austin Clayton will give opening remarks and Dr. Douglas Lowy, deputy director, National Cancer Institute, will deliver

the keynote address, "Prevention of HPV-Associated Cancers: Advances, Challenges and Opportunities."

Sign language interpretation will be provided. To register, visit www.orwhmeetings.com.

Symposium on Post-Imprisonment Re-entry

The Office of Behavioral and Social Sciences Research has organized a symposium examining the entanglement of community health and record rates of imprisonment in the United States. "Re-entry: Where Public Health and Mass Incarceration Collide" will be held on Thursday, Nov. 15, 2-4 p.m. in the Neuroscience Center, 6001 Executive Blvd., Rm. C.

Incarceration rates in the U.S. are presently higher than any country worldwide. With an approximate 2.3 million Americans incarcerated and an estimated 700,000 offenders released annually, the issue of re-entering communities is critical to address. This event will feature three presentations covering NIH-funded research projects that explore aspects of re-entry and community health's intersection including: HIV/AIDS, viral hepatitis, substance abuse, mental disorders, clinical research, health services, health disparities, social environment, sexual behavior and public policy.

Speakers include Kim Blankenship, American University; Jeffrey Draine, Temple University; and Adeline Nyamathi, University of California, Los Angeles.

Use or Lose Reminder

Don't forget to officially schedule your "use or lose" annual leave no later than Saturday, Dec. 1. Questions about "use or lose" leave should be directed to your administrative officer.

Next Protocol Navigation Lecture Set, Nov. 5

The sixth lecture in the IRP Protocol Navigation Training Program Seminar Series will be held Monday, Nov. 5 from 1 to 2 p.m. in Bldg. 50, Conf. Rm. 1227/1328. The program is a trans-NIH effort to develop resources and provide training for intramural staff involved in protocol development, writing, coordination and management. Dr. Fiona Callaghan of NLM's Lister Hill Center for Biomedical Communications will present "Biostatistics 101: Introduction to Power and Sample Size." For more information, contact Beverly Barham, (301) 594-2494, bbarham@mail.nih.gov or Marcia Vital, (301) 451-9437, vitalm@mail.nih.gov.

IntraMall Showcase Set for Nov. 7-8

The 14th annual NIH IntraMall Harvest Showcase will be held in Bldg. 10's South Lobby on Nov. 7 and 8 from 9:30 a.m. to 2 p.m. Since opening in 1998, the IntraMall has become a leading NIH web site for government purchase cardholders to buy from hundreds of suppliers. If you require reasonable accommodation to participate, call (888) 644-6255 during business hours at least 7 days prior to the event.



Dr. Robert J. Lefkowitz takes part in the Nobel symposium "3M: Machines, Molecules and Mind" in Stockholm, Sweden, May 2011. He was a clinical associate at NIH from 1968 to 1970.

PHOTO: ORASISFOTO

Two NIH Grantees Win 2012 Nobel Prize in Chemistry

The 2012 Nobel Prize in chemistry has been awarded to NIH grantees Dr. Robert J. Lefkowitz of the Howard Hughes Medical Institute and Duke University Medical Center (and a former NIH clinical associate) and Dr. Brian K. Kobilka of Stanford University School of Medicine for studies of protein receptors that let body cells sense and respond to outside signals.

The Royal Swedish Academy of Sciences said the researchers had made groundbreaking discoveries on an important family of receptors known as G-protein-coupled receptors.

"About half of all medications, including beta blockers, antihistamines and various kinds of psychiatric medications, act through these receptors," said NIH director Dr. Francis Collins. "NIH is proud to have supported this work, which began as basic science and ultimately led to dramatic medical advances."

The National Heart, Lung, and Blood Institute began supporting Lefkowitz in 1974; it has provided almost \$15 million in support. As a clinical associate in the National Institute of Arthritis and Metabolic Diseases from 1968 to 1970, Lefkowitz laid the foundation for his studies of adrenergic receptors. He and colleagues Dr. Ira Pastan of NCI and Drs. Jesse Roth and William Pricer demonstrated directly for the first time the existence of hormone receptors on target tissues, with the measurement of ACTH receptors on adrenal tissues.

This seminal work showed the essential role of cell surface receptors in activating cells and showed that there are rapid changes in the number and avidity of receptors in response to changes in the environment and in disease states. The concept of

cell surface receptors represented an entirely new way of understanding the action of hormones on target cells. Lefkowitz joined the faculty at Duke in 1973.

Kobilka has received more than \$14 million in support from the National Institute of Neurological Disorders and Stroke, NHLBI and the National Institute of General Medical Sciences since 1990.

He also serves as a reviewer for the Center for Scientific Review and was preparing to go to a CSR review meeting right before he learned of winning the Nobel Prize. Though he couldn't attend in person due to all the excitement, Kobilka nevertheless participated via phone so as not to disrupt or slow down the review process.

"NINDS is pleased to have supported the basic scientific achievements recognized by the Nobel committee," said Dr. Story Landis, NINDS director. "Dr. Kobilka's research has shed light on cell-to-cell signaling in the nervous system and has provided exceptional insights into their molecular underpinnings."

"The groundbreaking research by Dr. Lefkowitz and Dr. Kobilka opened the door to understanding how blood pressure and heart rate are regulated in response to hormones such as adrenaline," said NHLBI director Dr. Gary Gibbons. "It led to the development of beta-adrenergic receptor blockers that treat such conditions as high blood pressure, angina and coronary heart disease. The NHLBI is proud to have supported these researchers, whose work continues to yield promising insights into improving public health." 🗨️

Kendler To Give Keller Lecture, Nov. 15

Dr. Kenneth Kendler will deliver the 2012 Mark Keller Honorary Lecture on Thursday, Nov. 15 at 1:30 p.m. in Lipsett Amphitheater, Bldg. 10. The title of his talk is "The Genetic Epidemiology of Alcohol Use Disorders: A Current Perspective."

Kendler is a world-renowned expert on the genetics of psychiatric and substance abuse disorders. He pursues research on how genes and the environment contribute to the development of alcohol use disorders, as well as other psychiatric problems. His research has transformed how we understand the relationships between all of these factors.

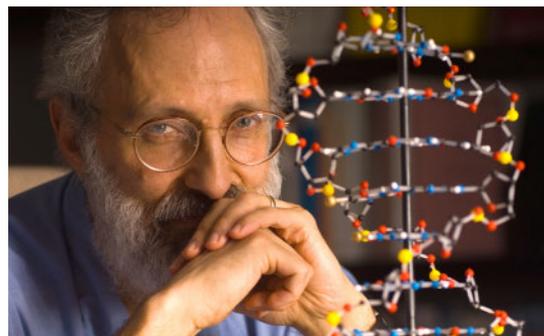
Kendler received his medical degree at Stanford School of Medicine and trained in psychiatry at Yale University. His research and teaching home since 1983 has been Virginia Commonwealth University, where he currently serves as director of VCU's Institute for Psychiatric and Behavioral Genetics. He is also the Rachel Brown Banks distinguished professor of psychiatry and professor of human genetics and director of the psychiatric genetics program at VCU and co-director of the VCU Alcohol Research Center.

NIAAA established the lecture series as a tribute to Mark Keller, a pioneer in alcohol research. Honorees have made significant contributions to our understanding of alcohol's effects and how we can prevent and treat alcohol problems.



Dr. Brian K. Kobilka

PHOTO: STANFORD UNIVERSITY



LACTMED

CONTINUED FROM PAGE 1

and Lactation online database—LactMed db for short—which is part of the mighty TOXNET cohort.

Launched in fall 2011, the app has already logged 69,000 downloads—a robust response for a new

application—and kudos from health providers and nursing mothers.

Both the online and smartphone versions are peer-reviewed and fully referenced compendiums of drugs to which breastfeeding mothers may be exposed, so the value added is tremendous.

“Without proper evidence-based information,” says

Jim Knoben, a pharmacist who helped develop the project, “mothers are unnecessarily discontinuing medications.”

At the same time, he says, some medications that show up in breast milk are harmful to the infant.

Let’s say you’ve taken Naproxen after knee surgery. Is it safe to breastfeed?

LactMed reports that in breastfed infants, “Naproxen possibly caused prolonged bleeding time...Other agents may be preferred while nursing a newborn or preterm infant.”

For those without smartphones, the NLM online version, launched in 2006, will still be freely available. In the past year alone, it’s logged over 1 million searches.

Meanwhile, NLM staff are tracking public inquiries and social media forums for breastfeeding community advocates (a.k.a. “lactivists”) and breastfeeding mothers. The team finds a marked disconnect between these groups and their health care providers.

“We see a communication gap,” says Jamie Peacock, who manages the NLM 4Caregivers Facebook page, “and what you see playing out in social media is uncertainty.”

So they’re meeting the trend. The app lays down the best science inside the new tools—Android, iPhone and iPod.

The database has been mobilized.

“You need to know what you don’t know,” says librarian Colette Hochstein. “We encourage people to use LactMed and other NLM tools so that they can take more responsibility for their health care.”



The LactMed app team includes (from l) Jennifer Dong, Ying Sun, Colette Hochstein, Florence Chang, Jim Knoben and Jamie Peacock. Stephanie Publicker is not pictured.

Top Ten Reasons to Love LactMed

Here are the top 10 reasons to love the LactMed app:

- ✔ Each entry supplies a reliable summary of use, drug levels, effects in infants and on lactation, alternative drugs and drug class.
- ✔ The American Academy of Pediatrics endorses it: “The most comprehensive, up-to-date source of information regarding the safety of maternal medications when the mother is breastfeeding is LactMed.”
- ✔ Physicians and midwives can access it on their phones at the office, hospital or clinic.
- ✔ Originally designed for health care providers, Lact-

Med use has spread to breastfeeding community advocates (“lactivists”) and breastfeeding mothers. Social media users across multiple platforms rate it highly.

- ✔ In “native” apps, the data is already in the phone, so you don’t need a connection to use it. Just pull up the data to start the discussion with your doctor or midwife.
- ✔ Your smartphone will tell you when an update is available and will integrate it into the existing application. There’s a link inside the app to report any technical problems.
- ✔ There’s a smartphone voiceover option for the visually impaired.
- ✔ A work in progress, LactMed will continue to add

drugs and other substances such as industrial chemicals and radiation.

- ✔ Remember our NIH mission—the part about the development and dissemination of science and health information? You got it.
- ✔ It looks cool on your phone. Even more reasons to love LactMed are freely available at <http://lactmed.nlm.nih.gov>. You can also download it to your iPhone or iPad from the app store or to your Android device via Google Play.
- For those without smartphones, LactMed online is accessible, free of charge, via TOXNET at <http://toxnet.nlm.nih.gov>.



The husband and wife scientific team of Dr. Leonid Gavrilov and Dr. Natalia Gavrilova see an association between longevity and month of birth.

Born in the Fall? You May See 100

There's something to say about being a "fall guy" (or gal) and it's something positive. That is, if you were born during autumn, you stand a better chance of reaching the century mark than do folks born during other times of the year, note researchers supported by the National Institute on Aging.

Currently, your chances of placing 100 candles on your birthday cake, while still slight, are better than ever before. Figures from the U.S. Census Bureau show that the number of centenarians has doubled in the past 20 years. In the meantime, according to the 2010 census, more than 53,000 men and women were age 100 or older, nearly a 6 percent increase from the year 2000.

For the current investigation, scientists examined the relationship between the month of birth and the odds of surviving to 100 by delving into the records of more than 1,500 men and women born between 1880 and 1895 and comparing them to the birth records of their shorter-lived siblings raised in the same household. Similar spousal effects were also looked at.

"What we came away with from our research is that if you were born during a fall month, this had a very positive impact on survival to advanced age—in other words, how long you would live," explained Dr. Leonid Gavrilov, a gerontologist with the Center on Aging at the University of Chicago. "For example, we found that the odds of becoming a centenarian were about 40 percent higher for persons born in September, October or November than for someone born in March."

Gavrilov conducted the study along with his wife Dr. Natalia Gavrilova of the same Chicago insti-

tution. Results were published in a recent issue of the *Journal of Aging Research*.

The noteworthy findings notwithstanding, the obvious question is "Why did babies born in autumn outlive others?" While the findings are robust, the reasons are not as obvious. Gavrilov suggested that a number of factors may be responsible.

"Maternal or child nutrition, pediatric infections, climate/sun exposures and other seasonal impacts not yet identified could explain in part or whole the life-span differentials," he said, adding that "it may well be that seasonal infections in early life create long-lasting damage to human health. It's an interesting theory that we hope to follow up on," Gavrilov added.

Besides the practical aspects of their findings, the scientists note that the results may be useful for public health policymakers who argue that further investments in child health may have not only immediate positive consequences, but also critical, long-lasting implications for the health of future seniors. In addition, the information may be useful for researchers in their attempts to understand the mechanisms of human longevity.

A more recent protocol undertaken by the Chicago scientists follows similar avenues of research on birth and longevity. In particular, the Gavrilov team has shown that individuals born to younger mothers (25 years old or less) have about an 80 percent increased likelihood of living to 100 years of age, compared to their siblings born to older mothers.

For more on their research, visit www.ncbi.nlm.nih.gov/pmc/articles/PMC3236478/.—Jan Ehrman

2012 Final Bluebird Count Is In

The NIH campus's final bluebird fledging counts are in and "we did as good as last year with 36 young birds flying away," said NIH landscape architect Lynn Mueller of the Office of Research Facilities in a recent note to bird enthusiasts.

"With the numerous stresses on nesting this year with record heat, lack of rain for weeks, a severe wind storm, construction activity and the possibility of West Nile virus still affecting songbirds, our birds did surprisingly well," he continued. "Thank you all again for your time and dedication to this project that has now seen 11 years of bluebird husbandry on the campus and the fledging of at least 283 new bluebirds into the environment.

"Hopefully, most of you will be able to return next April to again keep an eye out for our beautiful bluebirds and the other cavity nesters that use the boxes," he said. "Together they consume enough insect pests that our grounds maintenance has not had to spray pesticides on trees, shrubs and grass for over 10 years now. These birds are really a game-changer for the care and balance of our campus environment."

Mueller launched the virtually natural approach to pest management at NIH in February 2001 with 30 birdhouses, 3 roosting houses and even a couple of bat houses erected around campus in hopes of attracting bug-eating species to keep mosquito populations low.

Here are fledged bluebird counts by year: 2002-13, 2003-16, 2004-31, 2005-36, 2006-37, 2007-14, 2008-29, 2009-20, 2010-15, 2011-36, 2012-36.

National Centers for Biomedical Computing Showcase, Nov. 8-9

Hear about the activities and impact of the NIH Common Fund's National Centers for Biomedical Computing at a meeting on Nov. 8-9 in the Natcher Conference Center's Kirschstein Auditorium. Registration is not required. See <http://meetings.nigms.nih.gov/meetings/ncbc/> for an agenda and details.



CFC 2012 BEGINS

CONTINUED FROM PAGE 1

Above, l:

Helping kick off the 2012 CFC were (from l) Dr. Marie Bernard, NIA deputy director; Patrick Shirdon, NIA director of management; Collins; NIA director Dr. Richard Hodes; and Dr. Mark Bergel, founder of A Wider Circle.

Above, r:

A representative of the American Red Cross (l) shares material with visitors to her table.

Below:

Singer-songwriter Owen Danoff entertains at the CFC kick-off.

PHOTOS: ERNIE BRANSON



the center of the center,” he said.

The kick-off was hosted by the National Institute on Aging, which leads this year’s campaign at NIH. Its director, Dr. Richard Hodes, announced a fundraising goal of \$2.2 million. “We are privileged to lead this year’s campaign,” he said, “particularly because NIH has a tradition of generosity.” That generosity, he expects, will allow NIH to meet and likely exceed its goal.

Emceed by NIA Director of Management Patrick Shirdon, the kick-off was a celebration of hope and charity. Along with speeches by Collins and Hodes, the event’s charity speaker was Dr. Mark Bergel, founder of A Wider Circle, an organization that not only fulfills direct needs by giving food, shelter and clothing, but also provides more integrated and sustained support through programs in stress management, financial planning and self-esteem.

In the decade since its founding, A Wider Circle has furnished the homes of more than 13,000 children and adults, delivered nearly 600 educational programs and recycled more than 1,500,000 pounds of furniture and home goods.

Bergel brought his message home when he asked the crowd to count off, every other person, leaving half the crowd standing and half sitting. The exercise dramatically demonstrated his point that one out every two children in the District of Columbia starts every school day at risk of hunger.

He illustrated how this might affect learning and future success: at one elementary school in Southeast Washington that Bergel recently visited, every third grade student received an “F” on a math assessment test and all were reading below grade level. Third grade reading and math are predictors of success in academics and beyond, he noted. To turn things around and provide hope, A Wider Circle has partnered with the school, offering group and individual tutor-

ing to students. The goal? To bring all students up to third grade reading level by June 2013.

Bergel concluded with a sincere salute to NIH: “Nobody does the CFC like NIH—nobody!”

While he spoke, information tables of the dozens of charities were busy educating about their missions. Their message was consistent—giving just a few dollars on a regular basis can make a huge difference in the lives of the people they serve.

The examples were compelling. David Chalfant, director of development at Whitman-Walker Health, provider of HIV/AIDS services in the Washington, D.C., area, pointed out how a few dollars per month can provide free medical services to those in need. “Whitman-Walker can give 11 of your neighbors free HIV tests for the equivalent of giving up one latte per week, for a year,” he said.

Also present was Hero Dogs, a 3-year-old organization that trains service dogs for veterans. Dependent on donations and volunteers, the organization says it costs about \$30,000 and 2½ years to train the dogs. “We give the dogs to veterans at no charge because we feel they’ve given so much to their country,” said Ilene Glassman, a Hero Dogs board member.

She brought Maverick, a 2-year-old golden retriever, to the kick-off. Maverick is trained to open and close doors, wake up a veteran who might be suffering from a nightmare and fetch such items as keys, glasses and dropped credit cards. The dog can even lift grocery items from shelves into a shopping cart and retrieve clothes from the dryer. Currently, the organization is training 15 dogs.

Throughout the program, the crowd was treated to the music of singer-songwriter Owen Danoff, the 2012 Strathmore artist in residence. A graduate of Berklee College of Music and a native Washingtonian, he performed a composition of his own, “Never Been Kissed,” and displayed guitar virtuosity throughout the program.



Above, 2012 NIH campaign director Hodes announces this year's fundraising goal of \$2.2 million. Below, Bergel of A Wider Circle, declares, "Nobody does the CFC like NIH—nobody!"



Collins, Hodes and Shirton promised the crowd that they will be hearing more about the CFC in the coming weeks as the campaign moves into high gear. Several fun events at various NIH locations, hosted by individual institutes and centers, are planned.

For example, the Office of the NIH Director is leading this year's Health and Human Services Combined Federal Campaign, and Collins invited the crowd to enter an HHS CFC "poetry" contest. The poem could focus on hope as the theme and he greatly encouraged writers to use meter and rhyme. It would also be helpful, he said, if the poem had several verses and even a "bridge." The winner will be co-author of a song with Collins, who has volunteered to set the words to music and perform it.

At the heart of the campaign are hundreds of coordinators and keyworkers, many of whom attended this year's kick-off. Many have repeated this role for several years. Janie Robak of the National Library of Medicine, who has been deputy coordinator for 3 years and a keyworker for 2 years, said she enjoys working on the CFC, "because I love giving back."

You can join her in giving hope by giving to the campaign. Visit cfc.nih.gov to get the latest news on this year's campaign and to donate, paperlessly, online. 🗣️



The Executive Leadership Program class of 2012 includes (front row, from l) Megan Columbus, OD; Katy Perry, OD; Lillian Shum, NIDCR; Rochelle Long, NIGMS; Michael Mowatt, NIAID; Elaine Collier, NCATS; Paul Sheehy, NIGMS. In second row are (from l) Mary Wolfe, NIEHS; Ivor D'Souza, NLM; Joshua Rosenthal, FIC; Avi Nath, NINDS; Henry Masur, CC; Stefano Bertuzzi, NIMH; Gaya Dowling, NIA; Hill Harper, NIAID; and Donna DiMichele, NHLBI.

Executive Leadership Program Graduates Honored

Participants in NIH's Executive Leadership Program for 2012 graduated from the 7-month training experience recently. Highlights of the ceremony included messages about the importance of leadership and characteristics of leaders from Norm Augustine, chair, NIH Scientific Management Review Board and retired chairman and CEO, Lockheed Martin Corp.; Dr. Michael Gottesman, NIH deputy director for intramural research; and Dr. Thomas Insel, NIMH director.

"The old adage is that management is about doing things right; leadership is about doing the right thing," said Insel. "But really leadership is about people. In real estate it may be location, location, location. Sometimes at NIH it seems we are about parking, parking, parking. But for leaders, the focus really is people, people, people."

Participants presented results of their action learning projects with their project sponsors, IC directors, executive officers and other guests. The projects represent significant challenges currently having an impact on NIH.

Details and application information about the 2013 ExLP will be available soon at <http://trainingcenter.nih.gov/exlp.html>.

'Computational Origami' Expert Demaine To Speak at NIH, Nov. 2

Dr. Erik Demaine, a professor of computer science at MIT who has conducted seminal work in the field of "computational origami," will deliver two talks—one general, the other technical—on Friday, Nov. 2.

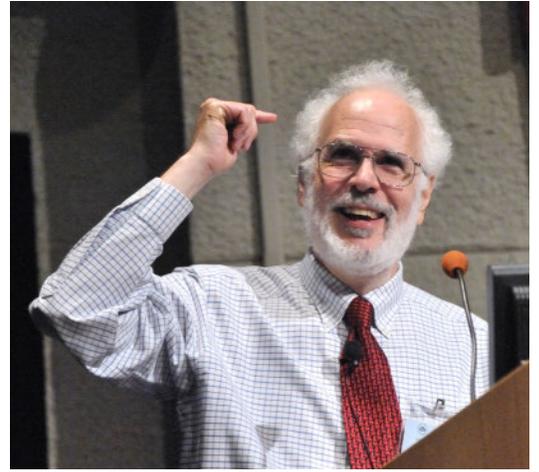
A dynamic speaker, Demaine joined the MIT faculty in 2001 at age 20, reportedly the youngest professor in MIT's history. In 2003 he was granted a MacArthur "genius" fellowship. His research interests range across the field of algorithms, from data structures for improving web searches, to the geometry of understanding how proteins fold, to the computational difficulty of playing games.

Demaine's technical talk, "Modern Graph and Network Algorithms: Minors, Bidimensionality & Decomposition" will be given at 9 a.m. in the Visitor Center's Little Theater, Natcher Bldg. His general-audience talk, "Geometric Folding Algorithms: Linkages, Origami, Polyhedra," will be given at 2 p.m. in Masur Auditorium, Clinical Center.

For more information, contact Dr. Stephen Marcus at marcusst@mail.nih.gov or Dr. Teresa Przytycka at przytyck@ncbi.nlm.nih.gov.

SLOWING AGING

CONTINUED FROM PAGE 1



Right:

“The smart way to do medical research is to focus on aging and its links to the diseases that afflict us as we grow older,” Miller said following the meeting.

PHOTOS: ERNIE BRANSON

rapamycin—a drug used to keep the body from rejecting organ and bone marrow transplants—lived 20 percent longer than mice that did not receive the drug. To Miller’s surprise, the mice achieved this longevity even though they received the drug starting when they were 20 months old, the equivalent of 60 human years.

“It used to be unthinkable that aging could be slowed,” said Miller, a professor of pathology and director of the Nathan Shock Center on Aging at the University of Michigan. Dr. Felipe Sierra, director of NIA’s Division of Aging Biology and founder of the geroscience interest group introduced Miller’s talk, “Anti-Aging Medicines: The Beginning of the End of the Beginning.”

Disease Risk Increases with Age

Understanding the biology of aging may be the most efficient way to understand and delay a variety of diseases, including two leading killers—cancer and heart disease. Age is the primary risk factor for these and most other adult diseases, Miller said.

To have a real impact on the healthy human lifespan, you need to tackle the aging process itself, rather than working on one disease at a time, Miller said. Eliminating cancer and heart disease would extend the life expectancy of the average 50-year-old woman by a mere 6 years; slowing the aging process could, in principle, produce much greater gains.

If the results reached with mice in the rapamycin experiment could be achieved with people, average human life could reach 110–120 years, and those additional years would be healthier, Miller said. Postmortem examinations of the longer-lived mice show they have fewer diseases such as cancer and kidney disease and their organs are much healthier than normal mice. (He cautions, however, that rapamycin may have serious side effects that make it much too risky for long-term human use.)

Restricted Diet Extends Rodent Lifespan

A rodent’s life can be extended 30–40 percent by reducing the amount it eats. Like the mice that received rapamycin, calorie-restricted rats aged at a slower rate. After 6 months, they were running 3 miles per night on their exercise wheels, a performance that continued most of their lives. The rats that were on an unrestricted diet became couch potatoes. Another study showed that restricting the calories of mice during the first 3

weeks of life and then restoring regular feeding improved longevity by 15–20 percent.

However, calorie-restricted mice have very little stored energy in the form of fat and this limits their ability to respond to environmental challenges including infections and wounds. They can quickly regain these abilities when they are restored to a regular diet, Miller said.

As part of the NIA-sponsored Interventions Testing Program, Miller collaborates with other laboratories, choosing new drugs that hold promise for extending life. Among the drugs they have studied are aspirin, acarbose (which inhibits sugar uptake from the gastrointestinal tract) and 17-alpha-estradiol, a form of estrogen. The researchers have also begun studying how some of these drugs work in combination.

Sex Differences Observed

This research has shown there are sex differences in rodents’ response to various drugs. Rapamycin extended the lives of both male and female mice. But other drugs such as aspirin, nordihydroguaiaretic acid (NDGA), acarbose and 17-alpha-estradiol have been effective with male mice, but not female. The females cleared the aspirin and NDGA more quickly from their systems, apparently losing the benefit seen in the male mice.

Miller speculated that 17-alpha-estradiol had no effect on females because they already have estrogen in their systems. “We can guess that what we’re doing is producing in males the good stuff that the females already have as their natural birthright.”

Miller’s team has been investigating the underlying mechanisms of the aging process. One intriguing finding has been that the same sets of genes in the liver were activated among long-lived mice, regardless of the intervention used to extend their lives.

“The fact that you can slow the aging rate and in so doing postpone a vast range of age-sensitive diseases suggests to me that the smart way to do medical research is to focus on aging and its links to the diseases that afflict us as we grow older,” Miller said following the meeting. 12

feedback

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

Feedback: MLP-8 nightmare—during the evening rush, traffic backs up in the garage and extends up the entire length of its ramps. Takes me 25-30 minutes to exit the garage. A solid line of traffic lines up all along Lincoln Dr. until it reaches Old Georgetown Rd. I have seen and have verified with NIH Police numerous road rage incidents and accidents between autos and near misses with people on foot. Why not make Lincoln all lanes one way out during rush hour? Or will ORS/ORF wait until a serious incident occurs?

Response from the Office of Research Services and Office of Research Facilities: The Division of Facilities Planning within the Office of Research Facilities is presently engaged with a planning and transportation engineering consultant on an intersection and crosswalk study for the Bethesda campus in order to limit potential risks at locations where pedestrian and vehicles come in contact. Part of this study includes the area on Lincoln and Convent Dr. near MLP-6 and MLP-8.

Safety is clearly one of the many concerns that are considered when ORF and ORS would make such a routing design change. We will ask the traffic consultant to assess the feasibility of making Lincoln a one-way exit during rush hour, knowing many factors would need to be considered in addition to safety. These include: exit points from the garages; existing traffic patterns; shuttle routing; emergency response from police and fire departments; pedestrian movements and crossings; dynamic lane indicators; employee populations in the area; the future opening of Porter II; and, coordination with the State Highway Administration for the signal timing.

The present situation at Lincoln is exacerbated by the temporary closure of Convent Dr. between Lincoln and South Dr. This closure is the result of required utility access associated with the construction of the expansion of the Porter Neuroscience Research Center. As you may have witnessed, the temporary closure prohibits right turns from Lincoln onto Convent and therefore forces all westbound garage traffic to exit to Old Georgetown Rd. via Lincoln. Once access to Con-

vent Dr. is restored in December 2012, congestion should decrease.

We encourage drivers and pedestrians to be patient and exercise caution when traveling through these highly congested areas.

Feedback: The ramp that leads from just in front of the Gateway Center to the pedestrian entrance leading to Natcher is already falling apart, although it was just recently completed. Several of the stone blocks are cracked and dislodged and several of the fittings around the lights are loose. The appearance is pretty shabby. Will this be repaired and will NIH have to pay for it or will the contractor be held responsible for what appears to be shoddy work?

Response from ORF: Thank you for bringing this problem to our attention. You're absolutely right that the stone masonry on the ramp is cracked and broken, mostly around the railing posts. In addition, the railings themselves are now misaligned and there are problems with the light fixtures. We have investigated in some detail and found that this damage originated from the weather conditions and snow removal activities during and after the major snowstorms two winters ago. The broken lights resulted from being struck by snow removal equipment and from the freeze/thaw cycle, where water penetrated the stonework, froze and expanded. This caused significant damage to the stonework and subsequently also caused the railings to misalign. Some of the damage may come from other causes as well, but the original construction does not appear to be the only, or even most important, factor. ORF has initiated a repair project. The timing of the project will depend on several factors, including weather, so we anticipate repairs to be completed this fall or next spring. 🗨️



Going 'Over the Edge' for Charity

To raise money for Special Olympics, NCI researcher Dr. Dolph Hatfield (r) and his colleague Brad Carlson (l) recently did a 345-foot rappel down the side of the Financial Center in Des Moines, Iowa, with Hatfield's daughter, who is athletic director at Drake University. "Brad had never rappelled before, so this was an extra 'special' event for him," said Hatfield. "Over the last few years, I have taken him running with the bulls in Pamplona, Spain, doing the world's longest bungee jump in Blokrans, South Africa, going skydiving and climbing Kilimanjaro. He is now a seasoned adventurer." The "Over the Edge" fundraiser drew more than 50 people, each of whom raised at least \$1,000 for the opportunity to descend the skyscraper to benefit the nearly 11,000 Special Olympians in Iowa. No stranger to climbing feats, Hatfield once held the world record for the longest single-rope rappel for his descent of El Capitan in Yosemite National Park.

After Diabetes During Pregnancy, Healthy Diet Linked to Reduced Type 2 Diabetes Risk

By sticking to a healthy diet in the years after pregnancy, women who develop diabetes during pregnancy can greatly reduce their risk of developing type 2 diabetes, according to a study that appeared online in the *Archives of Internal Medicine*. Previously, it was not known how much the risk for type 2 diabetes in these women could be lowered through adhering to a healthy diet.

In about 5 percent of U.S. pregnancies, women who do not have diabetes before becoming pregnant develop high blood sugar levels in pregnancy. This condition, called gestational diabetes, raises a woman's risk of developing type 2 diabetes later in life up to seven-fold, compared to pregnant women who don't have gestational diabetes.

The study found the greatest reductions in type 2 diabetes risk were for women who followed diets rich in whole grains, fresh fruits, vegetables and legumes and included poultry, seafood and nuts, with limited intake of red and processed meats.

"Our findings indicate that women with gestational diabetes aren't necessarily preordained to develop type 2 diabetes," said senior author Dr. Cuilin Zhang of NICHD, where much of the analysis was conducted. "It appears they may have some degree of control. Sticking to a healthy diet may greatly reduce their chances for developing diabetes later in life." NIDDK and NCI provided funding support.

Researchers Provide Detailed View of Brain Protein Structure

Researchers have published the first highly detailed description of how neurotensin, a neuropeptide hormone that modulates nerve cell activity in the brain, interacts with its receptor. Their results suggest that neuropeptide hormones use a novel binding mechanism to activate a class of receptors called G-protein coupled receptors.

"The knowledge of how the peptide binds to its receptor should help scientists design better drugs," said NINDS's Dr. Reinhard Grisshammer, an author of the study published in *Nature*.

Binding of neurotensin initiates a series of reactions in nerve cells. Previous studies have shown that neurotensin may be involved in Parkinson's disease, schizophrenia, temperature regulation, pain and cancer cell growth.

Grisshammer and colleagues used X-ray crystallography to show what the receptor looks like in atomic detail when it is bound to neurotensin. The study was supported by NINDS, NIDDK and other institutions.

Risk Gene for Alzheimer's Associated with Lower Brain Amyloid

Researchers investigating a known gene risk factor for Alzheimer's disease discovered it is associated with lower levels of beta amyloid—a brain protein involved in Alzheimer's—in cognitively healthy older people. The findings suggest that a mechanism other than one related to beta amyloid accumulation may influence disease risk associated with the gene. The study, by researchers at NIA, was published online Sept. 27 in the journal *Biological Psychiatry*.

The scientists studied a variation in the complement receptor-1 (CR1) gene, a newly identified gene associated with risk for late-onset Alzheimer's disease, in cognitively normal older volunteers. Participants with this gene variant were found to have less brain amyloid than those without the risk variant. In addition, the CR1 gene variant was found to interact with APOE, the most robust genetic risk factor for Alzheimer's disease, to influence the amount of brain amyloid.

Study Reveals Genomic Similarities Between Breast Cancer, Ovarian Cancer

One subtype of breast cancer shares many genetic features with high-grade serous ovarian cancer, a cancer that is very difficult to treat, according to researchers supported by NCI and NHGRI. The findings suggest that the two cancers are of similar molecular origin, which may facilitate the comparison of therapeutic data for subtypes of breast and ovarian cancers.

The researchers, using data generated as part of the Cancer Genome Atlas, described new insights into the 4 standard molecular subtypes based on a comprehensive characterization of samples from 825 breast cancer patients. The study was published online Sept. 23 and in print Oct. 4 in *Nature*.—compiled by Carla Garnett



By sticking to a healthy diet in the years after pregnancy, women who develop diabetes during pregnancy can greatly reduce their risk of developing type 2 diabetes.

The NIH 'Toolbox' Is Open

A new set of tools to help scientists measure the ways we think, move, feel and sense the world is ready for use in studies assessing neurological and behavioral outcomes.

The NIH Toolbox for Assessment of Neurological and Behavioral Function “will help set a standard for the research enterprise,” Dr. Molly Wagster told 250 scientists attending a recent conference at NIH where the Toolbox was unveiled. Wagster, chief of NIA’s Behavioral and Systems Neuroscience Branch, helped lead the team of 250-plus scientists and staff from 13 ICs and offices and nearly 100 academic institutions that developed the Toolbox.



Dr. Richard Gershon

The principal investigator was Dr. Richard Gershon, associate professor and vice chair for research at Northwestern University’s department of medical social sciences.

“When the idea for this project was first brought forward, we saw the tremendous value in designing a toolbox of standardized measures for neurological and behavioral research,” said NIA director Dr. Richard Hodes. “It is designed to fulfill a unique need for a battery of online and royalty-free measures in this area, a resource especially important for the increasing numbers of large-scale epidemiological studies or clinical trials.”

Six years in the making, the NIH Toolbox seeks to arm investigators with standard sets of instruments to assess cognitive, sensory, motor and emotional function in U.S. study participants between the ages of 3 and 85. It includes 45 brief, royalty-free measures in English and Spanish that measure functions as diverse as language, memory, executive function, vision, smell, pain, strength, movement and psychological well-being. The entire battery can be administered in 2 hours—a shorter time than for many comparable instruments—reducing the burden on both researchers and participants.

“We are really excited about the creation of the NIH Toolbox and will encourage all of our investigators to use it,” said Dr. Story Landis, NINDS director.

Training to administer the NIH Toolbox measures is available for intramural and extramural scientists through a free e-learning module at www.nihtoolbox.org, a web site that also includes the instruments, training manuals and videos. Northwestern University held 3 days of hands-on training following the conference.

The NIH Toolbox addresses a common issue in scientific research—the difficulty of comparing results of studies using different outcome measures for similar functions, like cognition. “There’s been little uniformity in measures. This hinders our ability to interpret data and to share and integrate study results,” Wagster said. The Toolbox gives researchers a “common currency” for measuring neural and behavioral health and will be particularly useful for large-scale research such as longitudinal studies, epidemiological studies, prevention studies and intervention trials, Wagster said.

NIH scientists noted, too, that they are particularly interested in feedback about the use of these assessments in patient populations. It might be possible to build upon these assessments so they can be used for patients with disorders ranging from schizophrenia to Parkinson’s.

The Toolbox team evaluated more than 1,400 instruments for possible use. In many instances, already-existing instruments were included if they met a number of criteria: available for people over a wide age range; royalty-free; brief and easy to use; psychometrically sound; and applicable in a variety of settings and populations, including people with disabilities, young children and Spanish speakers. Most existing instruments did not meet all the requirements and had to be modified or expanded to meet Toolbox criteria.

Where necessary, novel instruments were created. “If we developed an instrument from scratch, we went out of our way to develop it against whatever was the gold standard in that area,” Gershon said. A rigorous process of field testing and validation was performed in more than 16,000 people. Norming was conducted in almost 4,900 people of different ages, races and economic status.



Overweight Volunteers Needed

NICHD is looking for men and women ages 35-70 who are overweight and have abnormal glucose levels. After an initial screening visit for general health assessment, participants will undergo treatment with a cortisol-blocking medication (mifepristone) or a non-active pill (placebo) for 7 days. Each participant will take both study agents with a gap of 6 to 8 weeks between the two. Testing before and after treatment with the study medications will include blood drawing over 24 hours, urine collection, an oral and an intravenous glucose tolerance test and 1- to 2-day overnight inpatient stay. Compensation will be provided. For more information, call 1-800-411-1222 (TTY 1-866-411-1010) and refer to study 11-CH-0208.

Reproductive Disorders Research Study

Research study on reproductive disorders in patients with early (precocious) puberty or age 14 and older with delayed or absent pubertal development and/or low levels of testosterone or estrogen. This study seeks to learn how gonadotropin-releasing hormone (GnRH) controls puberty and fertility. This research will study the range of abnormalities in GnRH-secretion disorders and how they are inherited. Call 1-866-444-2214 (TTY 1-866-411-1010). Se habla español. Refer to studies 12-CH-0049 and 12-CH-0050.

Pioglitazone Severe Asthma Clinical Trial

Patients with severe asthma may be eligible to participate in a study at the Clinical Center. The purpose of this study is to determine if a widely used agent for diabetes can improve asthma. Eligible patients will receive a comprehensive evaluation. There is no cost for participating in the study. For more information, contact our research coordinator, toll free, at 1-877-NIH-LUNG (1-877-644-5864), ext. 2 or via email at LungStudy@nhlbi.nih.gov. You may also contact the NIH Patient Recruitment and Public Liaison Office via TTY 1-866-411-1010.

Do You Have Asthma?

Participate in a study at NIH. Call 1-800-411-1222 (TTY 1-866-411-1010). Se habla español. Compensation will be provided.



In photo at left, nonprofit representatives meet informally with NINDS program directors. In center photo, three FDA representatives (from l) Dr. Nicholas Kozauer, Andrea Tan and Dr. Michelle McMurray-Heath serve as panelists during lunch discussions. At right, Dr. Robert Finkelstein, NINDS associate director for extramural research, talks about opportunities for nonprofit groups to work with NIH.

PHOTOS: ERNIE BRANSON

NINDS, Nonprofits Discuss Building Collaborations

By Shannon E. Garnett

NINDS recently held its sixth nonprofit forum with a focus on “Building Collaborations for Research.” More than 50 nonprofit groups attended the meeting that provided an opportunity to network with colleagues and participate in discussions with NINDS staff.

The running theme throughout the meeting was the role that nonprofits play in building collaborations to advance research. The agenda featured plenary talks, breakout sessions, informal chats with NINDS program directors and an independent brainstorming and networking session.

“This is one of the most important meetings we put on throughout the year,” said NINDS director Dr. Story Landis. She provided an overview of NIH that included an update on the new NINDS initiative NeuroNEXT (Network for Excellence in Neuroscience Clinical Trials). She also announced the new trans-NIH clinical trials web site Clinical Trials and You.

Dr. Robert Finkelstein, NINDS associate director for extramural research, set the tone for the day. “If you remember one thing, it’s that we are really here to work with you,” he said, stressing key ways NIH and NINDS can work with nonprofit groups to advance research including identifying new research opportunities, finding common themes across diseases, capitalizing on our strengths and exchanging information.

“We do not want to become isolated and you are the experts from a patient perspective,” he said. “You know what the patients’ needs are. You have the best understanding of the clinical needs of your disorders.”

Next, Dr. James Onken, special assistant to the NIH deputy director for extramural research, led a presentation on how to mine information from the NIH RePORTER—an online tool that provides access to data and

analyses of research activities. “The best way to learn about RePORTER is to use it,” he urged.

The meeting then split into two concurrent breakout sessions. In NIH 101, attendees were given basic information about NIH and NINDS including the missions of each, a description of NINDS’s disease portfolio and how the institute supports research, as well as information about NINDS’s advisory council and its importance. NIH 201 highlighted opportunities to develop and advance therapeutics. Brief overviews of such programs as Therapeutics for Rare and Neglected Diseases, Bridging Interventional Development Gaps, Anticonvulsant Screening Program, Countermeasures Against Chemical Threats and the Blueprint Neurotherapeutics Network comprised the session.

“When I think about therapeutic development, projects tend to go awry when the developers have not thought about the patient or who the project is intended for,” said Dr. Rajesh Ranganathan, NINDS associate director for translational research. “Your engagement with the patients is absolutely critical in that respect.”

A plenary session focused on two topics: “Building Resources to Be Ready,” which looked at resources needed to bring new treatments, and “One Voice or Many to Advance a Disease Mission,” which discussed whether groups should stand singly or align with other groups devoted to a particular neurological disorder to move their missions forward.

“I am not advocating that everyone merge into one group...but anything you can do to partner together so we are not wasting our precious resources is good,” said Amy Comstock Rick, chief executive officer of the Parkinson’s Action Network.



The forum’s planning group included (standing, from l) Marian Emr of NINDS; Dean Suhr, president of the MLD Foundation; Paul Gross, chairman of the Hydrocephalus Association; NINDS director Dr. Story Landis; Dr. Petra Kaufmann of NINDS; and Gardiner Lapham, member of the board of directors of the Citizens United for Research in Epilepsy. Seated are (from l) Ronald Bartek, president of the Friedreich’s Ataxia Research Alliance; Dr. Cynthia Rothblum-Oviatt, science coordinator of the Ataxia Telangiectasia Children’s Project; Amy Comstock Rick, chief executive officer of the Parkinson’s Action Network; and NINDS deputy director Dr. Walter Koroshetz.