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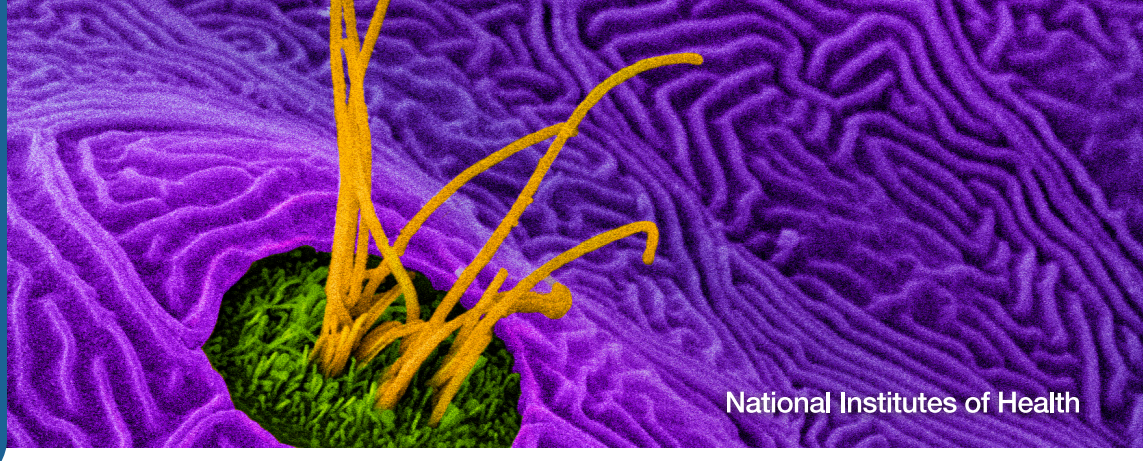


HISTORY MAY JUDGE HARSHLY

End of AIDS Pandemic in Sight, Fauci Says

BY RICH MCMANUS

It is the global pandemic that has defined his life and career, and NIAID director Dr. Anthony Fauci says it is now within the realm of possibility that society can bring HIV/AIDS to a close, if we "follow the science."

Speaking at Clinical Center Grand Rounds on the 35th anniversary of the first two reports about unusual infections killing gay men, Fauci credited NIH, and specifically its hospital, with having the latitude to let scientists drop everything and pursue a new field.

He reviewed "nothing short of breathtaking" advances in science since 1981 that have a made a historically unprecedented vista possible: a global infectious disease killing millions that is defined and corralled within a single generation.

NIAID director Dr. Anthony Fauci says HIV/AIDS changed his career and life.

But we are not there yet, he warned.

Fauci was working on the CC's 11th floor when he read the first two articles in *Morbidity and Mortality Weekly Report,* published within a month of each other, about a strange new disease affecting gay men in large U.S. cities.

"For the first one, I scratched my head," he said. "I didn't know what to make of it. I thought it might be some drug people were taking that affected their immunity." The second paper "really changed the tenor of my professional career and life."

Gradually erupting was a disease on a par with smallpox, measles and the flu. But as stunning as the research has been to define the virus and develop agents against it, there remains a stubborn level of HIV infection in the U.S. of 40,000 to 50,000 new cases annually that has persisted for the past 15 years.

"This is embarrassing and tragic and

SEE **FAUCI**, PAGE 6

Legendary Hawaiian hero Archie Kalepa

'STAR OF GLADNESS'

For Native Hawaiians, Canoe Instills Pride, Healing

BY DANA TALESNIK

What brought members of a Hawaiian canoe crew to NIH? It's a story of cultural revival and communal healing. It's a story of treacherous journeys into an unforgiving ocean to connect with their Native Hawaiian heritage and rekindle the spirit and pride of

SEE **CANOE**, PAGE 8

Warm-ups precede Take a Hike day events.

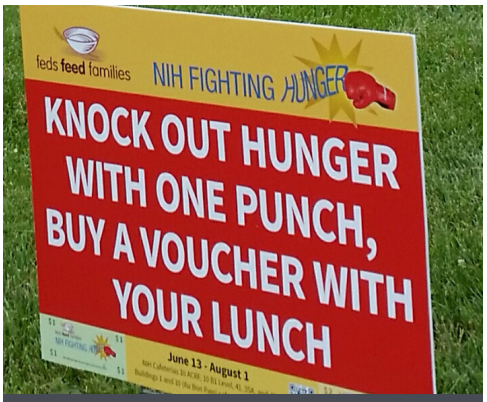
STEP IT UP

NIH'ers Take a Hike, Many Pledge to Keep Moving

BY DANA TALESNIK

"When NIH says Take a Hike, we really mean get yourself in shape," said NIH director Dr. Francis Collins as hundreds assembled in front of Bldg. 1 to walk or jog the 3.25-mile loop around campus for the 9th annual Take a Hike Walk/Fun Run. It was an overcast,

SEE **HIKE**, PAGE 4



It's time again for Feds to Feed Families, p. 12.

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New Credit Union Program Aimed at Visiting Fellows

NIH welcomes thousands of scientists and clinicians from around the world to participate in fellowships and advance their careers. However, many who arrive internationally do so with restricted access to financial services and a limited understanding of the U.S. banking system.

To address the situation, the NIH Federal Credit Union has launched its Fellows Advantage Program, a customized suite of products to help fellows gain access to needed credit and build a credit history that will make it easier for them to succeed financially in the future.

"The NIHFCU is here to serve the entire NIH workforce, including those visiting the NIH as fellows," said Rick Wieczorek, NIHFCU president & CEO. "We have recognized a real need within the NIH community and with support of our board of directors are proud to now offer the Fellows Advantage Program with unique borrowing opportunities to help visiting fellows with many of their basic financial needs."

The Fellows Advantage Program intends to allow fellows possessing a Social Security number but no credit history to borrow from NIHFCU for a variety of basic needs including Visa credit cards (up to a $2,500 credit limit), mortgages, auto loans and unsecured loans.

"With the Fellows Advantage Program, we hope to make the financial lives of NIH fellows just a bit easier so they can remain as focused as possible on their training goals," said Steve Levin, NIHFCU vice president of marketing. "In addition to the loans we are making available, the program offers free multilingual financial counseling and online financial education tools. We are also excited to be working with our friends at FAES and elsewhere at the NIH to create seminars on various financial topics of importance to NIH fellows."

To learn more, visit nihfcu.org/fellows, call (800) 877-6440 or stop by an NIHFCU branch.

NIAMS recently welcomed members of the D.C. Lupus Consortium.

PHOTO: SUSAN BETTENDORF

NIAMS Hosts First Local Lupus Consortium Meeting

The lupus clinical research team at the National Institute of Arthritis and Musculoskeletal and Skin Diseases recently welcomed lupus researchers and advocates from the metropolitan Washington, D.C., area to the Clinical Center for the inaugural meeting of the D.C. Lupus Consortium (DCLC). The purpose of the consortium is to foster collaborations between lupus researchers in the NIH Intramural Research Program and partners in the regional academic, private practice and patient advocacy communities.

Attendees learned about NIAMS lupus protocols from the institute's scientific director Dr. John O'Shea, clinical director Dr. Richard Siegel, senior investigator Dr. Mariana Kaplan and Dr. Sarfaraz Hasni, a staff clinician and director of the lupus clinical research program. They described the recent revitalization of lupus-related basic and clinical research at NIH and the expansion of interventional clinical trials in this area.

Other speakers included Tricia Coffey of the CC, who provided an overview of the patient and referring physician electronic portals, and Dr. Christopher Collins, a D.C.-based rheumatologist and former NIAMS clinical fellow. He led a discussion on local community-based lupus trials.

The DCLC will provide a platform for resource sharing, information exchange and patient referrals for clinical trials. The consortium will meet regularly with the hope of fostering an integrated clinical trials network that will benefit the region's lupus researchers and patients. Those interested in participating should contact Hasni directly at hasnisa@mail.nih.gov.

Volkow Honored at Launch of FORCE

On June 23 in Washington, D.C., NIDA director Dr. Nora Volkow was honored at the launch of a new non-profit organization, FORCE, for her contributions in the fight against opioid addiction.

FORCE—Female Opioid-addiction Research and Clinical Experts—announced its founding at an event held at the National Press Club. The organization is an alliance of women with scientific, health policy and medical expertise in opioid addiction who are well positioned to achieve FORCE's mission of reducing the stigma and treatment barriers that people with opioid addiction face every day.

In addition to Volkow, FORCE honored Dr. Leana Wen, commissioner of the Baltimore city health department.

AT LEFT: NIDA director Dr. Nora Volkow (c), is honored by two FORCE alliance members, Behshad Sheldon (l), president and CEO, Braeburn Pharmaceuticals, and Dr. Andrea Barthwell, past president of the American Society of Addiction Medicine and former deputy director of demand reduction, White House Office of National Drug Control Policy.

Harvard's Flanagan Discusses Axonal Regeneration

BY DUSTIN HAYS

"The loss of connections between cells of the central nervous system (CNS) is a devastating problem that currently has no effective treatment," said Dr. John Flanagan, who gave the third lecture in the NEI Audacious Goals Initiative Seminar Series in Neuroregeneration. A professor of cell biology at Harvard Medical School, he thinks that will change in the coming years, yielding potential therapies for a host of neurological and vision disorders.

"Axons are not inherently incapable of regenerating," he said, citing evidence that includes studies of frogs and other amphibians who do it naturally. Axons are the nerve fibers that carry signals from one cell to another. Eye diseases like glaucoma can degrade axons that extend from the retina to the brain via the optic nerve. Whereas a frog can regain visual function after its optic nerve has been cut, humans and other mammals cannot. For years, scientists have tried to learn why.

Neurons with severed axons can survive for years; however, proteins called chondroitin sulfate proteoglycans (CSPGs) that appear at sites of injury prevent these cells from re-growing and reconnecting their axons to appropriate targets. How CSPGs did this was unknown for many years. Work by Flanagan has helped elucidate how CSPGs

Dr. John Flanagan

exert their effects, showing they bind to a receptor protein on neurons called protein tyrosine phosphatase sigma (PTPσ). But curiously, PTPσ also binds to heparin sulfate proteoglycans (HSPGs), molecules that promote axonal growth. So how could activating the same signaling pathway render an opposite effect?

Flanagan and collaborators found that HSPGs cause clustering of PTPσ receptors; CSPGs do not. It is this clustering, according to Flanagan, that probably launches a signaling cascade toward axonal growth. "PTPσ acts as a ligand-dependent switch." Function is dictated by the type of molecule binding with the receptor. Both HSPGs and CSPGs are present in the CNS. And so it's the HSPG/CSPG ratio that controls the action—axonal growth or inhibition—of PTPσ. Flanagan is now exploring whether boosting the ratio toward HSPG can treat CNS injuries.

Of great interest to the Audacious Goals Initiative (AGI), Flanagan's work could have implications for optic nerve regeneration. The AGI is a sustained effort to catalyze vision research. Central to the AGI is the goal of restoring vision through regeneration of neurons and neural connections in the eye and visual system, which are affected by not only glaucoma but also other common eye diseases such as age-related macular degeneration and diabetic retinopathy. Today, when these diseases advance to the point of damaging neural connections, vision loss is almost always irreversible.

"Is restoring these connections an achievable goal?" asked Flanagan. An emphatic yes was his answer.

To learn more about the NEI AGI, visit www.nei.nih.gov. R

NIDA's Volkow Speaks at X-STEM, Hosts Activities at Festival

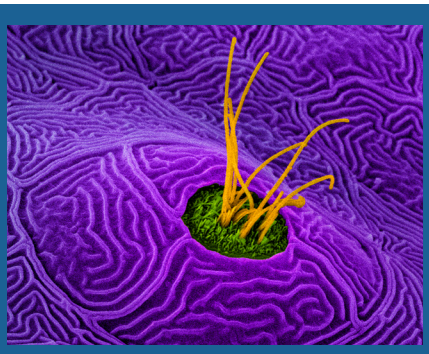
NIDA director Dr. Nora Volkow recently presented "Inside the Addicted Human Brain" to an audience of more than 500 students and parents at X-STEM, an Extreme STEM Symposium for middle through high school students.

The symposium, whose goal is to advance STEM education and inspire the next generation of scientists and engineers, kicked off the 4th annual USA Science & Engineering Festival—the largest and only national science festival.

At the festival, NIDA hosted two activities: "Brains Up Close," which provided students the opportunity to observe, hold and learn about real brains; and the "NIDA Brain Derby," a fast-moving and interactive game in which participants tested their knowledge about the brain and how drugs can affect it.

NIH estimates that there were about 50,000 people who visited the NIH Pavilion at the event.

Students participate in NIDA's "Brains Up Close."



ON THE COVER: *Zebrafish neuromast*

IMAGE: PATRICIA ZERFAS, ORS & MAY MALICDAN, NHGRI

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NIH National Institutes of Health
Turning Discovery Into Health

Hike

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muggy day on June 2, but that did not deter NIH'ers of all fitness levels and one labradoodle—Zilly, the Children's Inn therapy dog—from making the trek.

The Public Health Service Brass Ensemble played the National Anthem, Collins blew the starting whistle and off they went, with bright green water bottles in hand, courtesy of the NIH Federal Credit Union. Along the route, staff at hydration stations cheered on walkers and joggers and refilled their bottles with water. The route got altered slightly, due to construction near Cedar Ln., but officers were standing by to direct hikers and traffic.

Some walkers discussed how this approximately 6,500-step hike would help them

The PHS Brass Ensemble performs at Bldg. 1.

reach their daily Fitbit or other health-tracker goal. Others talked about how they rarely get out to take a walk and would like to make exercise more routine in their lives.

"The walk was a nice way to see how beautiful our campus is," said Michele Woolbert of the Clinical Center's Office of Administrative Management. "It was nice to get outside with coworkers."

Her colleague Sandra Ali echoed her sentiments. "Many of us are at our desks all day. This was a great way to get moving." She added, "I didn't have much opportunity to walk like this when I was on the clinical side. This is my first Take a Hike in 8 years of working here."

Take a Hike is a fun, popular activity to enjoy with colleagues. The event also has a grander purpose—to remind us to move more and incorporate regular exercise into our lives.

"We're all on a fitness journey, whether this is the first day you've come out to walk

Smiles were common at the starting line.

this year or whether you walk or jog or run every single day," said Shellie Pfohl, executive director of the President's Council on Physical Fitness, Sports and Nutrition, during opening remarks. "Whatever your activity is, wherever you are on your fitness journey, we want to support you."

In honor of the President's Council's 60th anniversary, Pfohl announced the 0 to 60 campaign, designed to inspire and educate people of all ages to exercise more every day. Take the stairs, park farther from the store, she suggested. There are many ways we can regularly be more active.

Have you seen the Take the Stairs signs by elevators in your building? This year's Take a Hike Day served as the launch for the NIH-wide Take the Stairs campaign in response to the surgeon general's national call to action to promote walking and walkable communities, said Dr. Peter Kilmarx, deputy director of the Fogarty International Center. Commissioned Corps officers have posted the signs at elevator and stairwell doors around NIH and will conduct a survey to gauge the campaign's reach and effect.

"We anticipate a triple benefit from this," Kilmarx told the crowd. "In addition to improving health, increased stair usage

Walkers always outnumber runners on Take a Hike Day, and many show up in a fine mood.

PHOTOS: ERNIE BRANSON

Shellie Pfohl opens the event.

will save energy by reducing elevator use and will also save money."

NCI fellows Nadia Jaber and Kelley Murfin said they enjoyed taking a break and getting outside. They didn't know about the paved trail surrounding campus and enjoyed the hills and nice views.

Dominique Evans, an engineer in Bldg. 13, also didn't know about the perimeter path around campus. "This was extremely fun and challenging," he said. "The hike inspired me. I walked with my coworkers and we've decided to walk the path weekly now."

PHS Officers Support NIH Hike

NIH's June 2 Take a Hike Day marked success of another collaborative effort: the White House initiative promoting a healthier federal workforce and the U.S surgeon general's call to action in support of walking and walkable communities.

Among those attending the hike was Radm. Susan Orsega, chief nurse officer, Public Health Service, and NIAID staffer. In addition, Commissioned Corps officers sponsored one of the water stations along the event's path.

"As Commissioned Corps officers, we are proud to support such a worthy effort—not only because it is in line with our mission to protect, promote and advance the health and safety of the nation, but also because it is part of the National Prevention Strategy put forth by the Office of the Surgeon General," said one participant.

Shown staffing the Commissioned Corps water station during NIH's Take a Hike Day are Lcdr. Tatyana Worthy (l) and Capt. Felicia Andrews.
PHOTO: BRENDA HARVEY

LUPUS CAUCUS

NIAMS Presents Plan for Lupus Research at Congressional Briefing

NIAMS director Dr. Stephen Katz and deputy director Dr. Robert Carter recently participated in a congressional briefing to highlight the NIH Action Plan for Lupus Research. The plan, a trans-NIH effort led by NIAMS in response to a request from the Congressional Lupus Caucus, was released in January. It represents a synthesis of input from the NIH community, as well as the lupus researcher, clinician and patient advocacy communities, on promising future research directions to improve the lives of people with lupus.

On hand at the briefing were (from l) Dr. Stephania Gallucci, Dr. Stephen Katz, Margaret Dowd, Dr. Robert Carter and Molly McCabe.
PHOTO: LUPUS RESEARCH INSTITUTE

Lupus is an autoimmune disease in which the immune system mistakenly attacks its own organs, tissues and cells. It often strikes women in their prime, interfering with the ability to work, have or raise a family or, in some cases, even care for themselves.

The Capitol Hill briefing was sponsored by the Congressional Lupus Caucus. It was presented by the Alliance for Lupus Research and the Lupus Research Institute (LRI) and moderated by Margaret Dowd, president and CEO of the LRI. More than 70 congressional office and committee staff, lupus advocates and other guests attended the event.

Lupus Caucus co-chairs Rep. Bill Keating (D-MA) and Rep. Ileana Ros-Lehtinen (R-FL) offered brief remarks, noting the progress made in lupus treatments and support for continued research. Rep. Tom Rooney's (R-FL) video message reiterated a commitment to improving the quality of life for individuals with lupus. Katz discussed development of the action plan and future areas of opportunity elaborated in it. Carter highlighted recent scientific progress and current research efforts that will lead to new insights for lupus.

Other presenters included NIH-supported lupus researcher Dr. Stephania Gallucci of Temple University and lupus patient advocate Molly McCabe of Molly's Fund Fighting Lupus. A video message from NIH director Dr. Francis Collins, highlighting the Accelerating Medicines Partnership, concluded the briefing.

Dickersin Is Next 'Mind the Gap' Speaker, July 25

Dr. Kay Dickersin, professor and epidemiology director at the Center for Clinical Trials and Evidence Synthesis, Johns Hopkins Bloomberg School of Public Health, will speak on "The Opportunities and Challenges of Using Systematic Reviews To Summarize Knowledge About 'What Works' in Disease Prevention and Health Promotion" at the Office of Disease Prevention's next Medicine: Mind the Gap seminar. It will be held Monday, July 25 from 11 a.m. to noon via NIH VideoCast, http://videocast.nih.gov/.

Dr. Kay Dickersin

Whether discussing priorities for comparative effectiveness research (CER) from a funder's or researcher's perspective, understanding knowledge gaps or setting guidelines for care, systematic reviews of existing research hold the promise of scientifically summarizing "what works" at any point in time. Dickersin will review models of how systematic reviews are being used globally to plan, implement and derive recommendations from CER. She will then review some of the existing challenges to using systematic reviews and methods being used to address these challenges.

Dickersin will accept questions about her presentation via email at prevention@mail.nih.gov and on Twitter with #NIHMtG.

Longtime Fauci friend and colleague CC director Dr. John Gallin introduces the nation's AIDS authority,

PHOTOS: ERNIE BRANSON

Fauci

CONTINUED FROM PAGE 1

sad," said Fauci. Of an estimated 1.2 million Americans infected with HIV, 13 percent are unaware they are infected; this population is responsible for transmitting about 30 percent of new HIV infections each year.

And the number of people who are diagnosed with HIV infection but are not being treated for it is responsible for transmitting more than 61 percent of new infections each year.

"We have a real implementation [of therapy] situation going on," Fauci said. Botswana and Rwanda are managing their HIV burdens better than we are, he added.

"There is a degree of complacency in the U.S.," Fauci said. "We really still have a major problem."

Bearing the greatest burden of HIV/AIDS in the U.S. are young black men who have sex with men. "If you are a gay African-American, you have a 1 in 2 chance of HIV infection within your lifetime," Fauci said. "That is a totally unacceptable public health statistic."

Because June rounds lectures include so many summer students, Fauci's talk served as both exhortation and history lesson. Here was an authority on hand in the early 1980s—when all 11 of the world's experts on what was then known as GRIDS (gay-related immune deficiency syndrome) could meet on the sixth floor of the HHH Bldg.—and who now attends international HIV/AIDS gatherings involving 22,000 scientists.

When Fauci began seeing AIDS patients, most survived 8-15 months, he said. Today's newly diagnosed 20-year-old patient, if he or she "follows the science," can expect to live for 50 more years.

"That has to go down as one of the most transforming advances in the history of medicine," said Fauci.

His formula for closing the curtain on the pandemic is founded on proven methods.

"Number one is test everybody," said Fauci, and repetitively test those at risk of acquiring HIV.

Those who test positive follow a defined care continuum. Likewise, those who test negative follow a strict prevention continuum.

"Where we slip is in implementation of medical care that we know works," he lamented. Only continuous therapy can affect the kinetics of the epidemic.

"There is no excuse whatsoever for not treating everybody," Fauci said.

• • •

"We have the opportunity of being the generation that was there when the disease was first recognized, and we could be there when it is over."

-DR. ANTHONY FAUCI

• • •

He described the UNAIDS 90-90-90 target for 2020 to end AIDS by 2030: 90 percent of all people living with AIDS knowing their status; 90 percent of those testing positive being on sustained antiretroviral treatment (ART); and 90 percent of those on ART having undetectable viral load.

If you follow that formula, 73 percent of all infected people would have an undetectable viral load and the trajectory of the epidemic would decrease dramatically, Fauci said, but globally we are only at around 32 percent. Botswana is now at 70.2 percent. "We can do better than that," Fauci insisted.

But the fact that 1 in 3 primary care physicians in the U.S. have not even heard of pre-exposure prophylaxis dampens Fauci's optimism.

"There really are no more excuses," he said. "We are never going to be able to eradicate HIV, but we can end the epidemic as we know it."

His current faith is bolstered by fresh scientific advances in several arenas—toward an HIV vaccine, the promise offered by new gene-editing techniques and efforts toward a "cure," which really means an effective way to address viral persistence. A cure, he emphasized, would have to be simple, safe and scalable. "You would have to treat people very early in order to control viral rebound. However, right now, if you discontinue therapy, virtually all patients rebound."

As for vaccines, he said, "There are some really very interesting approaches, but you have to remember that this is one of the most daunting scientific challenges we have ever faced in the field of vaccinology."

The kind of vaccine that worked so well for polio, measles, mumps and smallpox by mimicking natural infection is not going to work for HIV, Fauci explained. A different approach involves understanding the physical features of the virus so well that vaccines could be developed that properly engage the B cell lineage and induce broadly neutralizing antibodies to HIV.

"It may be that we will need sequential immunizations to coax along the immune response," said Fauci. Whereas the measles vaccine is 98 percent effective with a shot at age 1 year and again at age 4 to 5 years, "we are not going to get that with HIV," Fauci said. He concluded, "I think maybe 50 to 60 percent vaccine efficacy is within our purview.

"We have followed the science to where we are now. We do have the tools, but we need to implement the science, and do more science and discovery to reach a durable end to the pandemic."

He continued, "We have the opportunity of being the generation that was there when the disease was first recognized, and we could be there when it is over. That has never been done before with a disease of this magnitude. I believe that history will judge us harshly if we do not take advantage of that opportunity."

The full talk is available at https://videocast.nih.gov/summary.asp?Live=19231&bhcp=1.

Some Women with PCOS May Have Adrenal Disorder

A subgroup of women with polycystic ovary syndrome (PCOS), a leading cause of infertility, may produce excess adrenal hormones, according to an early study by researchers at the National Institute of Child Health and Human Development and other institutions.

PCOS is a group of symptoms related to high levels of hormones known as androgens. In many women with the condition, the ovaries contain numerous small, cyst-like sacs. Women with PCOS may have irregular, missing or prolonged menstrual periods, excessive facial and body hair, insulin resistance and problems with fertility. Treatment may include drugs that block androgens and oral contraceptives, which contain the hormones estrogen and progesterone.

"Traditionally, treatment for PCOS has included modifying ovarian hormones," said Dr. Constantine Stratakis of NICHD and senior author of the study. "Our findings indicate that a subgroup of patients could conceivably benefit from modification of adrenal hormones as well."

The study was published online in the *Journal of Clinical Endocrinology and Metabolism.* The study's first author is Dr. Evgenia Gourgari of Georgetown University, who was a research fellow at NICHD when the study was conducted.

Manufactured Stem Cells To Advance Clinical Research

Researchers supported by NIH have developed a clinical-grade stem cell line, which has the potential to accelerate the advance of new medical applications and cell-based therapies for millions of people suffering from such ailments as Alzheimer's disease, Parkinson's disease, spinal cord injury, diabetes and muscular dystrophy. The stem cells were developed by isolating human umbilical cord blood cells following a healthy birth and coaxing them back into a pluripotent state, or one in which they have the potential to develop into any cell type in the body. Cells developed in this manner are called induced pluripotent stem cells. With NIH support, these cells were manufactured by Lonza, Walkersville, Md., and described in a publication by Dr. Behnam Baghbaderani and colleagues in *Stem Cell Reports.*

These clinical-grade stem cells are different from the more common laboratory-grade cells—those used in most scientific publications—because unlike laboratory-grade stem cells, clinical-grade stem cells can be used for clinical applications in humans. The distinctive feature of this cell line is that it was developed under current good manufacturing practices (cGMP), a set of stringent regulations enforced by the Food and Drug Administration that ensures each batch of cells produced will meet quality and safety standards required for potential clinical use. The NIH Common Fund's regenerative medicine program supported the manufacturing of this cell line.

"The Common Fund aims to accelerate research progress by developing new tools and resources for the biomedical research community through strategic investments in high-impact research," said Dr. James M. Anderson, director of NIH's Division of Program Coordination, Planning and Strategic Initiatives, which houses the Common Fund. "Since meeting cGMP guidelines is very time-intensive and costly, providing access to clinical-grade stem cells removes a significant barrier in the development of cell-based therapies."

Almost 10 Million U.S. Adults Report Misusing Prescription Opioids

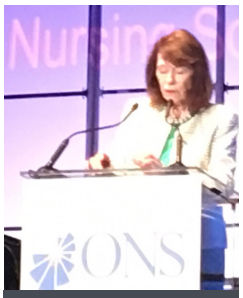
Nonmedical use of prescription opioids more than doubled among adults in the United States from 2001-2002 to 2012-2013, based on a study from the National Institute on Alcohol Abuse and Alcoholism. Nearly 10 million Americans, or 4.1 percent of the adult population, used opioid medications—a class of drugs that includes OxyContin and Vicodin—in 2012-2013 without a prescription or not as prescribed (in greater amounts, more often or longer than prescribed) in the past year. This is up from 1.8 percent of the adult population in 2001-2002.

More than 11 percent of Americans report nonmedical use of prescription opioids at some point in their lives, a considerable increase from 4.7 percent 10 years prior.

The number of people who meet the criteria for prescription opioid addiction has substantially increased during this timeframe as well, with 2.1 million adults (0.9 percent of the U.S. adult population) reporting symptoms of "nonmedical prescription opioid use disorder," according to the *Diagnostic and Statistical Manual of Mental Disorders*, Fifth Edition.

Grady Discusses Future of Nursing Science at ONS

NINR director Dr. Patricia Grady recently spoke at the Oncology Nursing Society (ONS) 41st annual Congress. Her presentation, "Looking Toward the Future," highlighted new directions in nursing research that could guide nursing science over the next decade.



NINR director Dr. Patricia Grady speaks at the ONS 41st annual Congress.

The conference, held this year in San Antonio, brought together more than 3,000 nursing professionals to learn about the latest developments in oncology nursing. Grady began by discussing the role of nursing science in health research. She emphasized that nurse scientists can lead change through evidence-based practice and by fostering cross-disciplinary teams. Collaboration across teams—which include nurses as vital participants—is the way of the future, she noted.

Grady pointed out that as a group, nurses are determining best practices. "We used to say 'research not published is research not done.' But now, 'it's research translated into practice.'" She went on to discuss how NIH's Clinical and Translational Science Awards Program addresses many of the factors needed to make translational research successful and the ways in which nurse scientists have been integral to the CTSA program—44 of the 64 CTSAs are affiliated with nursing schools.

Grady also gave examples of new directions in nursing research, including creating a blueprint for genomic nursing science, data science opportunities in nursing, the Precision Medicine Initiative Cohort Program and NINR's development of a new 5-year strategic plan.

Grady also received the ONS Research Advocacy Award. She noted that ONS's current research agenda coincides with NINR's areas of scientific focus. She shared examples of NINR-supported cancer research including pursuing the underlying mechanisms of symptoms in association with cancer treatments and the impact a cancer patient's quality of life has on the caregiver's well-being.

In addition to Grady's presentation, Dr. Wendy Henderson of NINR's Division of Intramural Research spoke in a session on epigenetics and cancer and Dr. Martha Matocha led a roundtable discussion on NINR research funding opportunities. For more about the conference, visit http://congress.ons.org/.

The voyaging canoe Hōkūleʻa tied up at Potomac Boat Club in D.C. in May. At right is a detail from the ocean-going vessel. At bottom left, Kalepa relaxes before the canoe resumes its globe-circling journey.

PHOTOS: BILL BRANSON

Canoe

CONTINUED FROM PAGE 1

an endangered population.

Nainoa Thompson, president of the Polynesian Voyaging Society, gave an impassioned talk to an overflowing crowd in Lister Hill Auditorium recently. He described the hope and tragedy of his voyages aboard the canoe Hōkūleʻa, meaning Star of Gladness, which coincided with the cultural renaissance of Native Hawaiians in the 1970s.

They'd been second-class citizens in their own land for decades, their language and culture suppressed. And they were dying out. When Capt. Cook sailed to Hawaii 250 years ago, there were up to 1 million Native Hawaiians, descended from the original Polynesian settlers. But the 1922 Census recorded only 22,000, many having succumbed to malaria, smallpox, influenza and other diseases.

"We know what extinction smells like. We know when we're going down the uncomfortable road of loss," said Thompson.

But with improved medical care, the tide began to turn and the population continued to grow throughout the 20th century. The 1970s saw a flourishing of native art, music and dance. By 1980, Hawaiian language was again taught in the state's schools.

"Renaissance was beyond blood; it was about values and courage," said Thompson. It was a time of rebirth and Hōkūleʻa was an integral part of that story.

For centuries, voyaging canoes had traveled around the Polynesian islands. But these double-hulled canoes that brought the first Hawaiians to Polynesia disappeared. In 1968, artist Herb Kāne designed a replica of the canoe his ancestors had sailed and by 1975, Hōkūleʻa was built, the first of its kind in 600 years. But the voyaging canoe had no instruments so they needed a navigator, recounted Thompson. They found a renowned one in Micronesia: Mau Piailug, a traditional navigator who used the stars, sun, moon and ocean swells as his compass.

Hōkūleʻa set sail on her maiden voyage in May 1976 with a full crew, some scientists and several *National Geographic* photographers eager to document the journey. A month after setting sail, they reached Tahiti and an estimated 17,000 Tahitians excitedly swarmed the pier to greet them.

"It was the first time I felt whole," said Thompson. "My gravity to the ocean and my love for my culture to instinctually know as a young man, you're part of something very special...that being in the wake of your ancestors was a way you felt healed."

In 1978, the crew set sail again from Oahu but they were ill-prepared and soon encountered rough currents and gale-force winds. The 62-foot canoe capsized.

One brave crew member, Eddie Aikau—an accomplished surfer—without hesitation grabbed his surfboard, as a crewmember tied a bag of oranges and a dagger onto his waist, and set out to find help. Salt kicked up from the gale creating a fog and Aikau's eyesight was poor, but he went anyway.

"If you want to know Renaissance, for his people this man paddled to an island he couldn't even see," Thompson tearfully recounted. The Coast Guard came and rescued the crew, but Aikau was lost at sea.

The crew felt paralyzed after Aikau's death, said Thompson, but they knew they had to sail again. "If Hōkūleʻa was the flame and the light of hope, if it was like the flashlight in the darkness of the depression, then if its legacy would only be defined by its tragedy, how many generations would be set back?"

For the third voyage, they trained well and Thompson became a student navigator

Nainoa Thompson

Kalepa was given the "Eddie Aikau" award for ocean safety. He now crews aboard Hōkūleʻa.

under Piailug. They set sail in 1980 and reached Tahiti in 31 days. The canoe continued on successive voyages, sailing more than 140,000 nautical miles across the Pacific.

Native Hawaiians are still navigating their way toward improved health and education. The 2000 Census recorded nearly 300,000 native Hawaiians; it is projected there will be more than 1 million by the mid-21st century. In the 1970s, said Thompson, there were only 11 Hawaiian doctors. Today, there are more than 300. "That's an indication of health."

Education is also changing. Immersion and charter schools are helping preserve Hawaiian language and culture. The University of Hawaii is teaching, alongside science and technology, indigenous knowledge and sustainability.

Several original crew members were in the NIH audience that day, as was Alaska Lt. Gov. Byron Mallott who, in 1990, gave Thompson's group Alaskan spruce from native villages to build the hull of a new voyaging canoe called Hawaiʻiloa. "What Byron did was connect us," said Thompson, "to find out the story is the same across the planet for all native people."

For Native Hawaiians, the cultural revival continues and the voyaging canoe is an important part of an ongoing renaissance.

"Renaissance was a time when there were those pioneers that would stand up for justice," said Thompson, "take the ultimate risk for what they believed in, those who were centered and navigated by the core values, even if they stood by themselves, even if they paddled by themselves, even though they went to a place they couldn't see. Renaissance, essentially in the end, meant knowing who you are, where you come from and what you believe in. Renaissance, in the end, is all about love and compassion and care for the things that mean the most." R

18TH YEAR

Rodbell Lecture Spotlights Role of Hormones in Cancer

BY ROBIN ARNETTE

The NIEHS Dr. Martin Rodbell Lecture Series Seminar honors the former NIEHS scientific director, who gave the first talk in 1998 just weeks before his death. The 1994 Nobel Prize in physiology or medicine was awarded jointly to Rodbell and Dr. Alfred Gilman "for their discovery of G-proteins and the role of these proteins in signal transduction in cells."

NIEHS and National Toxicology Program director Dr. Linda Birnbaum (l) and Dr. Ken Korach (r) present Dr. Myles Brown with the Rodbell Lecture sculpture.

PHOTO: STEVE MCCAW

The year-long celebration of the NIEHS 50th anniversary included recognition of the 18th year of the series and featured Dr. Myles Brown of Dana-Farber Cancer Institute, who has changed the way researchers think about the role of hormones in breast and prostate cancer. In his recent talk, "Hacking the Hormone Code," Brown said he read that Rodbell's experience as a signalman in the Navy inspired his discovery of the first biochemical evidence for how G-proteins transport hormonal signals from the surface of a cell to secondary messengers inside the cell.

"Rodbell sent radio signals, and he was thinking about how cells communicate with each other," Brown said. "Much of what he taught us continues to be true today, and we've been spending the last 30 to 40 years filling in the details."

Brown is interested in why hormone-dependent cancers are so responsive to steroid hormones and why endocrine therapies that target these hormones or their receptors work only in some patients while others develop resistance. He said recent scientific research points to mutations that cluster in the estrogen receptor ligand-binding domain, which binds estradiol and is responsible for sending the strongest transcriptional signal.

A member of Brown's lab found that one mutation, known as Y537C, is the most common resistance mutation in patients with such relapses. This may explain why resistance develops and provides a basis for development of a pharmaceutical compound that targets the mutation.

"We found it in about 17 percent of our cohort, but using more sensitive techniques, others are finding it in 25 to 30 percent of patients," Brown said. "I think it's strong evidence that in at least a third of those tumors, the cancer cells are ER+ and depend on the presence of the mutation."

Other scientists have identified prostate cancer mutations in a protein called SPOP. The prevailing theory is that SPOP stabilizes a group of proteins involved in DNA repair and cell signaling. The mutations remove the scaffolding from these important molecules, setting prostate cells on a path to cancer.

One target of SPOP, a gene called TRIM24, promotes the growth of prostate cancer cells. By removing TRIM24 in castration-resistant prostate cancer cell lines, Brown was able to slow growth of the cancer. Although medicines that more effectively block the effect of androgen have been approved for castration-resistant prostate cancer, patients almost invariably relapse. Brown believes compounds that target TRIM24 could be developed.

"Myles Brown was a perfect choice as the 2016 Rodbell lecturer, since he exemplifies the same outstanding research and insights as Marty Rodbell," said Dr. Ken Korach, chief of NIEHS's Reproductive and Developmental Biology lab, who hosted the talk.

On hand at the Society Oftalmologica Italiana induction are (from l) SOI President Matteo Piovella; Prof. Benedetto Falsini, Universita Cattolica del S. Cuore; NEI director Dr. Paul Sieving; and SOI General Secretary-Treasurer Teresio Avitabile.

Sieving Receives Italian Honorary Award

The Societa Oftalmologica Italiana (SOI) recently recognized National Eye Institute director Dr. Paul Sieving with the SOI Honorary Award in Ophthalmology.

Since 2008, the SOI has used the award to acknowledge individuals who have made extraordinary contributions to the field of ophthalmology.

Based in Rome, the SOI was founded in 1869 and is the oldest society of ophthalmologists in Europe. It currently includes nearly 5,000 members.

Sieving has directed NEI since 2001. He is known for clinical and basic studies of degenerative retinal disorders. His studies of pharmacological approaches to slowing degeneration in retinal transgenic animal models led to the first human clinical trial of ciliary neurotrophic factor for retinitis pigmentosa. In 2015, he initiated the first gene therapy trial for x-linked retinoschisis.

Sieving is a member of the National Academy of Medicine and of the German National Academy of Sciences.

ORWH Council Welcomes Three

Three new members were recently named to the NIH advisory committee on research on women's health.

New members of the ORWH advisory council include (from l) Dr. Chloe Bird, Dr. David Page and Dr. Carolyn Mazure.

PHOTO: ROSALINA BRAY

Dr. Chloe Bird is a senior social scientist at the RAND Corp., professor of policy analysis at Pardee RAND Graduate School and author of *Gender and Health: The Effects of Constrained Choice and Social Policies*. Her work assesses and maps gender differences in the quality of care for cardiovascular disease and diabetes.

Dr. Carolyn Mazure is a professor of psychiatry and psychology at Yale University's School of Medicine, where she created and directs the interdisciplinary research center on health and gender. She developed new approaches for examining risk factors for depression and was the first to demonstrate how stress is a more potent pathway to depression in women than men.

Dr. David Page is director of Whitehead Institute, a professor of biology at Massachusetts Institute of Technology and an investigator at Howard Hughes Medical Institute. He reconstructed the evolution of today's X and Y chromosomes from an ancestral pair of chromosomes that existed 300 million years ago and discovered molecular evolutionary mechanisms by which the Y chromosome became functionally specialized in spermatogenesis.

Dr. Nara Gavini

Gavini Named Chief of NINR Office of Extramural Programs

Dr. Nara Gavini recently joined the National Institute of Nursing Research's Division of Extramural Science Programs as chief of the Office of Extramural Programs. He will be responsible for overseeing all activities related to NINR funding for research that occurs outside of NIH in institutions across the country and internationally.

Before joining NINR, Gavini served as a health scientist administrator at the National Heart, Lung, and Blood Institute, where he led many scientific, training and diversity initiatives.

Gavini has held a professorship at Bowling Green State University, Ohio, served as head of the department of biological sciences at Mississippi State University and as cross-cluster program director at the National Science Foundation. He has served as principal investigator on grants from the National Science Foundation, NIH and U.S. Department of Agriculture. His scientific expertise spans molecular and cellular biosciences, chemical and computational sciences and quantitative and analytical sciences.

NIGMS's Dr. Helen Sunshine recently bid farewell to her 38-year NIH career.

Head of NIGMS Scientific Review Sunshine Retires

BY JILLIENE DRAYTON

Dr. Helen Sunshine, who recently retired as chief of NIGMS's Office of Scientific Review (OSR), feels a bit like she's on summer vacation. For the first time in decades, she doesn't have—or want—a script for her life. She recently said farewell to her 38-year career at NIH without trepidation.

"Many worry about the future as they approach retirement, but I didn't," said Sunshine. "There is no shortage of interesting things to do."

A seed planted early in life by her high school teacher is what eventually led Sunshine to a career in science and ultimately to NIH. "I was inspired by my chemistry teacher who had a Ph.D.," she said. "She encouraged me to pursue a Ph.D. in chemistry."

Sunshine went on to earn a B.A. in chemistry from Barnard College followed by a B.Sc. in inorganic chemistry from Oxford University in England. She then returned to New York to pursue a Ph.D. in bioinorganic chemistry at Columbia University.

For the next few years, Sunshine tried out different career options. In 1974, she joined Howard University as a visiting lecturer in chemistry. A couple of years later, she took a position as an instructor at Prince George's Community College. Although the college offered her a tenure-track position, her heart was in research. So in 1976, Sunshine joined the NIH intramural program, working first as a postdoctoral fellow and then as a senior research scientist in the Laboratory of Chemical Physics at NIDDK.

Sunshine joined NIGMS in 1981 as a scientific review officer in OSR. She briefly served as a program director and then chief of the biophysics section in the former Biophysics and Physiological Sciences Program. In 1989, Sunshine returned to OSR as its chief, a position she would hold for the next 27 years.

"OSR was a pretty small office when I first joined," she said. "The reviews primarily involved research training grant applications and there were virtually no RFAs. The work has changed enormously since then."

Known by colleagues for her intellect and wit, Sunshine worked throughout her career to uphold the highest standards of peer review. She was particularly focused on ensuring high-quality research training within NIGMS-supported programs.

"Helen shaped the way we review research training grants here at NIGMS," said NIGMS director Dr. Jon Lorsch. "Her knowledge and expertise, along with her passion for training future researchers, made her a great asset to our institute."

Sunshine was also an influential figure within the broader NIH community.

"Helen was a pillar of the NIH review community for many years and an encyclopedia of knowledge on peer review, particularly with respect to training grant mechanisms," said Dr. Sally Amero, NIH review policy officer. "She trained a whole cadre of scientific review officers, was an active member of the review policy committee and always made time to help out a colleague or work on a project."

Until recently, Sunshine even handled the review of some grant applications personally. "I had to shift gears and focus more on guiding and overseeing the day-to-day operations of the office, as the institute expanded and gained additional programs from NCRR," she said. "We also had to make a lot of changes in our review process."

While NIGMS has grown and evolved since Sunshine joined, one thing that has remained constant is her love for mentoring others and her appreciation for the relationships she developed over the years.

"I will miss my colleagues and our interactions as well as the intellectual challenges of my job," Sunshine said. "But for now, I look forward to having time to myself. I will try to be more structured after the summer."

NIAID in Search of Healthy Volunteers

NIAID study seeks healthy adult volunteers, 18-64 years old. Researchers want to better understand the effects of glucocorticoids on the body. These medications are commonly used to treat conditions that cause inflammation on the skin and in the body like lupus, asthma and eczema. This research may help us find better treatments for people with conditions that cause inflammation. Participants will receive one intravenous dose of a glucocorticoid and a glucocorticoid cream will be applied to a small area of the skin. Blood and skin samples will be collected. Two outpatient visits at the Clinical Center are required. Compensation is provided. For more information, contact the Office of Patient Recruitment, 1-866-444-2214 (TTY 1-866-411-1010). Refer to study 16-I-0126.

Study Seeks Healthy Older Adults

Healthy older adults ages 55-75 are invited to participate in an outpatient research study investigating the benefits of omega-3 oil and blackcurrant supplements on vascular health. The goal of the study is to determine whether the supplements improve blood flow and blood vessel function that can affect your heart. Eligible participants must be medication-free and in good general health. The study will be carried out in an outpatient clinic and includes 4 visits over 6 months. Compensation is provided. For more information, call 1-800-411-1222 (TTY 1-866-411-1010) and refer to study 14-NR-0034.

NIMH Recruits Healthy Volunteers

NIMH is studying how two commonly prescribed medications affect attention and anxiety while a person is performing computer-based tasks under stress. Researchers are seeking healthy volunteers, 18-50 years old without mental health disorders. Study requires 2 outpatient visits to the Clinical Center. Compensation will be provided. For more information, call (301) 451-5087 or email bari.fuchs@nih.gov. Refer to study 14-M-0114.

Stress Study Looking for Participants

NIMH is studying how the brain and body respond to stressful events. Researchers are seeking healthy volunteers without mental health disorders. Study requires 1-4 outpatient visits to the Clinical Center. Compensation will be provided. For more information, call (301) 451-5087 and refer to study 01-M-0185.

NIH FFF coordinator Corey Welcher answers questions at the 2016 Safety, Health and Wellness Day event hosted by ORS and NIAID.

PHOTO: COURTNEY BELL

Feds Feed Families Campaign in Full Swing

The 8th annual Feds Feed Families summer food drive is in full swing after kicking off on June 15. NIH staff are encouraged to donate non-perishable food items to knock out hunger through Wednesday, Aug. 31. All donations will be directed to the Children's Inn at NIH, the Safra Family Lodge and the Capital Area Food Bank.

Area food banks see a decrease in donations in the summer months, so now is the perfect time to help.

Drop-off boxes are located in 11 on-campus and 18 off-campus buildings. In addition, staff can support the program by buying "Fighting Hunger" vouchers at Eurest cafeterias in Bldgs. 10 ACRF, 10 B1, 31, 35A, 41 and 45. All proceeds will be used to buy food items for donation.

Last year, NIH employees donated more than 26,000 pounds of food, and we will no doubt top last year's generosity this summer. For more information on the campaign and how to donate, visit www.ors.od.nih.gov/FedsFeedFamilies/Pages/default.aspx or email FedsFeedFamilies@nih.gov.

ABOVE: ORS Police, Fire and OD staff as well as NIDCR staff help kick off the program in front of Bldg. 1, which brought in 200 pounds of food.

PHOTOS (EXCEPT WHERE OTHERWISE NOTED): COREY WELCHER

Bldg. 1 is a Fill the Truck site for NIH's campaign against hunger.

NIH Donation Collection Manager Spike Harrison promotes the NIH Fighting Hunger campaign in the Bldg. 45 cafeteria.

PHOTO: ENRIQUE FLORES