

# nih record

*Stem Cell 'Game Changer'*

## NIH Launches Intramural iPS Center

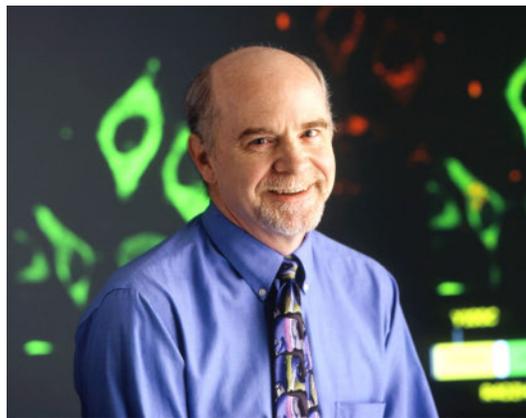
By Carla Garnett

Capitalizing on the unique resources of its Intramural Research Program, NIH will establish an induced Pluripotent Stem (iPS) Cell Center, NIH director Dr. Francis Collins announced recently. The new NIH iPS Cell Center, or NiPC, is one of seven new initiatives supported through the NIH Common Fund during fiscal year 2010.

"I'm very excited and think this will really be a game changer at NIH," said Dr. John O'Shea, NIAMS scientific director and lead coordinator of the work group to implement stem cell translational applications at NIH. "For a variety of reasons, stem cell biology is not as vigorous on the NIH campus as it could be. Nonetheless, there is outstanding work going on presently and we are clearly poised to move ahead quickly. Moreover, NIH has con-

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*Dr. John O'Shea of NIAMS leads group to implement stem cell applications at NIH.*



## Naturopathy Gaining Foothold, and Under Study by NCCAM

By Rich McManus

Unless you are a left coaster who graduated from Evergreen State College within the last 35 years, you cannot be faulted for knowing little about naturopathy, a branch of medicine that originated in the late 19th century in Europe, migrated to the United States in the 1890s in the person of German physician Dr. Benjamin Lust, went dormant for the better part of the 20th century and then re-emerged in the 1970s as young people sought natural alternatives to conventional medicine.

Evergreen State, in Olympia,



*Dr. Wendy Weber*

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## Rosling Advises 'Mind the Gap,' Touts Fact-Based World View

By Valerie Lambros

Statistics is filled with numbers and percentages, facts and figures and more charts than you can shake a stick at. It offers the scientific field a wealth of information and can be invaluable in planning new research goals and charting new methodologies.

Unfortunately, for the majority of both scientists and the general population, reviewing statistical information is often about as interesting as watching someone do their taxes.

Reading report after report or flipping through pie charts and graphs and instantly grasping what it all means is akin to reading a book of recipes and knowing which dish will be delicious. Or, to borrow the analogy NIH director Dr. Francis Collins used in his recent introduction of Dr. Hans Rosling to a Masur Auditorium audience, such skill is like looking at a Chopin score and remarking, "Oh, that's beautiful music."

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ABOVE • Not many people get to play their way offstage at NIH. See p. 5 for more on one who did.

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The NIH Record is recyclable as office white paper.



The NIH Record is published biweekly at Bethesda, MD by the Editorial Operations Branch, Office of Communications and Public Liaison, for the information of employees of the National Institutes of Health, Department of Health and Human Services. The content is reprintable without permission. Pictures may be available upon request. Use of funds for printing this periodical has been approved by the director of the Office of Management and Budget through September 30, 2010.

To receive alerts to our latest issue, send an email to [listserv@list.nih.gov](mailto:listserv@list.nih.gov) with the words "Subscribe NIHRECORD" in the message body.

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The NIH Record reserves the right to make corrections, changes or deletions in submitted copy in conformity with the policies of the paper and HHS.

## briefs

### STEP Forum on Overseas Clinical Studies

The staff training in extramural programs (STEP) committee will present an Administrative Strategies forum on the topic "Trials and Tribulations: Clinical Studies Overseas" on Tuesday, Apr. 13, from 8:30 a.m. to 12:30 p.m. in Lister Hill Auditorium, Bldg. 38A.

Are you developing a site for a clinical trial to be conducted abroad? If you are not doing it now, you may be doing it soon. Are you ready for the challenges? Your knowledge and experience of the ethical, regulatory and legal issues may determine the difference between success and failure. Come to this forum to learn the basic steps necessary for navigating the stormy waters of implementing a clinical trial overseas.

### Myers To Give Next DDM Seminar

The third DDM (Deputy Director for Management) seminar of the 2009-2010 series "Management and Science: Partnering for Excellence" will be held Thursday, Apr. 15, from 11 a.m. to 12:30 p.m. in Masur Auditorium, Bldg. 10. It will feature Betsy Myers in a discussion of organizational success strategies based on "lessons in authentic leadership." Myers is former executive director of the Center for Public Leadership at Harvard's Kennedy School of Government. She also served as chief operations officer of the Obama presidential campaign.

Videocasting and sign language will be provided. Individuals who need reasonable accommodation to attend should call (301) 496-6211 or the Federal Relay Service at 1-800-877-8339. For more information about the DDM Seminar Series, visit [www.ddmseries.od.nih.gov](http://www.ddmseries.od.nih.gov) or call (301) 496-3271.

### Sessions on Parental Challenges

April is National Month of the Young Child. The NIH child care board and the Division of Amenities and Transportation Services, ORS, will be offering three sessions on Wednesdays during the month of April on topics and challenges facing parents today. All sessions are from noon to 1 p.m. in Bldg. 31, 6C10.

Apr. 7, "Introduction to Developmental Milestones and Delays in Young Children," by Dr. Audrey Thurm, NIMH.

Apr. 14, "Legal Issues Facing the 'Sandwich Generation,'" by Barbara E. Bullman, Elder and Family Law, LifeWork Strategies.

Apr. 21, "It's a Noisy Planet. Protect Their Hearing." by Robert Miranda-Acevedo, NIDCD.

For those unable to attend in person, the seminars will be carried on NIH Videocast: <http://videocast.nih.gov>. Individuals who need sign language interpreters and/or reasonable accommodation to participate should contact Tonya Lee at (301) 402-8180.

### Bike to Work Day, May 21

Join NIH director Dr. Francis Collins and the NIH Bicycle Commuter Club (NIHBCC) in celebrating National Bike Month and Bike to Work Day on Friday, May 21, from 7 to 9:30 a.m. at Bldg. 1, 6701 Rockledge Dr. and Executive Plaza. These buildings will be featured among many local pit stops supported by the Washington Area Bicyclists Association in a salute to bicycle commuting.

For the past 4 years, NIH has been one of the area's largest employers of Bike to Work Day participants. Help us have another huge turnout this year by completing your free registration at [www.waba.org](http://www.waba.org). Be sure to select NIH or Executive Plaza as your pit stop. All pre-registered participants will receive a Bike to Work Day 2010 T-shirt.

At the NIH pit stops, all employees and contractors who show up riding a bicycle and wearing a helmet may enjoy breakfast snacks and participate in a raffle drawing for prizes. We will also be promoting our NIH Bike Bucks mileage rewards program, bicycle-commuter mentoring contacts, bike and trail maintenance resources and seasonal group rides. For more information about NIHBCC and NIH Bike to Work Day, visit [www.recgov.org/r&w/nihbike/bike.html](http://www.recgov.org/r&w/nihbike/bike.html).

### Cancer Survivorship Series via Telephone

Tuesday, Apr. 13 is the start of a free 4-part telephone workshop—the eighth annual Cancer Survivorship Series: Living With, Through & Beyond Cancer. The series, made possible by support from NCI and Livestrong, offers cancer survivors, their families, friends and health care professionals practical information to help them cope with concerns that arise after treatment ends. The first installment is titled "Trouble Sleeping? Sleep Better to Feel Better—Tips You Can Use" and takes place from 1:30-2:30 p.m. EDT on Apr. 13. Registration and other information can be found at [www.cancercare.org/connect](http://www.cancercare.org/connect).

The featured speakers for this program include Dr. Elizabeth D. McKinley, assistant professor of medicine, Case School of Medicine, Case Western Reserve University; Dr. Sonia Ancoli-Israel, director, Gillin Sleep and Chronomedicine Research Center, University of California, San Diego; and Dr. Stewart B. Fleishman, director, Supportive Services, Beth Israel Medical Center, St. Luke's-Roosevelt Hospital.

## Earth Day 2010 Is Coming to the Neighborhood

As the last frozen evidence of the snows of 2010 disappears and spring is finally in the air, everyone's thoughts are turning to things green—like Earth Day. This year, we will celebrate it in conjunction with Take Your Child to Work Day on Thursday, Apr. 22.

It is also time to reveal some clues about the Office of Research Facilities' annual "Name IT" contest mystery creature or plant. Each year "IT" is an organism, sometimes threatened or endangered, that has something to do with medicine and emphasizes the importance of protecting biodiversity.

In the first years of the contest, the mystery organisms were from far off lands—*Hoodia* and *Sceletium* plants from the Great Karoo in southern Africa and *Moringa* trees from the foothills of the Himalayas in northwestern India. Last year brought the first "IT" native to the U.S.—gila monsters from Arizona. This year IT will be from even closer to home—right in NIH's neighborhood. If television's Mr. Rogers were here today, we would ask him to provide the contest clues. He would probably begin by putting on his sneakers, zipping up his famous cardigan sweater and then providing a few clues about things made from IT:

▲ You can make many things from IT: food, beer, wine and even an organic insecticide for head lice.

▲ Development and the clearing of mature trees have eliminated IT from many of our urban areas, but IT is not endangered.

▲ IT is so well known that it has a town named after IT. You can get there by driving exactly 104.40 miles from the NIH campus.

Unfortunately, the real Mr. Rogers (Fred McFeely Rogers) was diagnosed with stomach cancer and passed away in 2003. Overall, the 5-year survival rate for stomach cancer in the U.S. is still only about 20 percent. One of the reasons that this and other forms of cancer may resist treatment is that while the chemotherapeutic drugs can kill most of the cells in tumors, a small percentage of them may be multidrug resistant (MDR) cells. These are not destroyed by chemotherapy and can multiply after treatment and eventually form new tumors that are entirely MDR. What does this have to do with our mystery organism? Chemicals called acetogenins in extracts from IT and some of IT's cousins have shown effectiveness against MDR cells—in fact they are the only substances to do



Photo of IT—care to guess what IT is?

PHOTO: ED RAU

so. That's why, over the last 20 years, NCI has funded research on IT.

Submit your guess on what IT is to [green@mail.nih.gov](mailto:green@mail.nih.gov). You can also volunteer your green ideas, time and talents to the Earth Day planning committee by contacting Danita Broadnax at [broadnax@mail.nih.gov](mailto:broadnax@mail.nih.gov). Common or scientific names for IT will be accepted. From those submitting correct answers, ORF's Division of Environmental Protection will randomly select winners for special prizes.

A full listing of Earth Day activities will soon be posted at <http://nems.nih.gov>. Won't you be our neighbor and plan to attend Earth Day too?—Ed Rau

## Collins Receives Albany Medical Center Prize

NIH director Dr. Francis Collins was recently named a co-winner of the Albany Medical Center Prize in Medicine and Biomedical Research for his leading role in mapping the human genome. While accepting the honor, Collins declined his portion of the \$500,000 prize in order to comply with government ethics rules. He shares the award with Dr. Eric Lander, director of the Broad Institute at the Massachusetts Institute of Technology and Harvard University, and Dr. David Botstein, director of the Lewis-Sigler Institute for Integrative Genomics at Princeton University. They will be recognized during an Apr. 23 celebration at Albany Medical Center in Albany, N.Y.

"These three scientists undoubtedly will hold a special place in the history of science and medicine as primary initiators of a profound revolution in human development," said Dr. James Barba, president and chief executive officer of Albany Medical Center. "This is because they unlocked and opened the door that had previously barred us from understanding disease processes at the most basic genetic level."

"The Human Genome Project has made it possible for us to identify genetic causes of illness in a fraction of the time it used to take," Collins said. "This was truly a collaborative, international effort involving more than 2,000 scientists in 6 countries, working together to make that first human sequence possible. It is important to note that the Human Genome Project gave away all the data immediately. That kind of free and rapid data release has now become the standard for many other large-scale collaborative projects, speeding up the application of these discoveries to clinical medicine."

This is the 10th year the Albany Medical Center Prize, known as "America's Nobel," has been awarded and the second time an NIH winner has been named. NIAID director Dr. Anthony Fauci won the honor in 2002.

## NATUROPATHY

CONTINUED FROM PAGE 1

Wash., is at the geographic epicenter of interest in naturopathy, which is most popular on the west coast and Canada, where the majority of the six accredited schools that teach the discipline are located.

A graduate of one of those schools [Bastyr University] now works at NIH as a program officer at the National Center for Complementary and Alternative Medicine.

Dr. Wendy Weber offered a primer on naturopathy Mar. 8 in Lipsett Amphitheater.

A Ph.D., M.P.H. and N.D. (“No, that’s not a typo,” she joked. “I am a doctor of naturopathy.”), Weber studied the requisite 4 years for her degree—the same as an M.D.—and practiced naturopathy, mainly seeing children and adolescents, before taking over an NCCAM portfolio that includes research

on traditional medicine, pediatrics and clinical studies in mental health, cardiovascular and gastrointestinal diseases.

Naturopathy is based on the premise of a “nature cure,” she explained. “Clean water, balanced diet, fresh air and exercise” are essential tenets of an approach that relies on the human body’s basic inclination toward self-repair. “The body has an innate capacity to heal itself,” Weber said. “Naturopathy takes advantage of the healing power of nature (*vis medicatrix naturae*), and treats the whole person.” N.D.s, like physicians, believe “first, do no harm” and relish their role as teachers.

Though Weber could only speculate about whether naturopathy is gaining adherents in the U.S., she did say the number of trained naturopaths is growing. “About 40 percent of Americans use some form of complementary or alternative medicine,” she reported. “Less than 1 percent of the population uses naturopathy, but usage varies according to region.” Washington state is a relative hotbed of naturopathy; South Carolina and Tennessee prohibit the practice.

Weber outlined the most common modalities employed by naturopathy: dietary and clinical nutrition; botanical medicine (where how substances taste is as important as knowing how to make them); homeopathy; hydrotherapy (no smirking—you use it yourself when you

apply ice to a swollen ankle); physical medicine (akin to physical therapy and chiropractic treatment); behavioral change techniques (this may be where naturopathy earns its adherents, suggested NCCAM deputy director Dr. Jack Killen, who thinks patients appreciate the time N.D.s spend in conversation with them); prescriptive medicine (pharmacology) and minor office procedures including drawing blood and placing intravenous lines.

Licensed N.D.s must pass a national board exam, Weber said, and currently practice in 15 states, the District of Columbia, Puerto Rico, the U.S. Virgin Islands and four provinces in Canada. “Many states offer N.D.s authority to prescribe medicines,” she added.

Weber described a clinical case that allowed her to explain the “therapeutic order” or ladder of options that naturopaths typically pursue with patients. This includes establishing conditions for health (removing irritating or disturbing factors, adjusting diet, addressing physical activity levels, assuring adequate sleep); stimulating the healing power of nature; addressing weakened or damaged organs or systems (in the case she presented, a teen with stomach aches benefited from a herbal tea containing slippery elm and chamomile); correct structural integrity (by use of orthotics to treat a fallen arch, for example); address pathology using natural substances or modalities (sea cucumber and curcumin are among the armamentarium) or via prescription.

Naturopathy is not so doctrinaire that it eschews standard medical practice, Weber emphasized. “If you have a compound fracture, it needs to be set. If you have arrhythmia, you need to see a cardiologist.”

Weber concluded her presentation by describing some characteristics of the practice of naturopathic medicine and summarizing a handful of clinical studies where the benefits of a naturopathic approach seemed clear, both to patients and their pocketbooks. Providers tend to be women, as do patients. Few patients are smokers, most self-refer and 80 percent are between 15 and 64—they know hemp from granola.

NCCAM currently funds two studies of naturopathic medicine, one on diabetes and another on unexplained chronic fatigue. To see Weber’s talk in full, visit <http://videocast.nih.gov>. 



*NCCAM’s Weber gave an overview of the practice of naturopathy in a Mar. 8 talk in Lipsett Amphitheater.*

PHOTOS: MICHAEL SPENCER



Architect's drawing of entrance to new NCI facility



View of Campus Dr., with retail to fill parking garage 1st floor

## NCI's Shady Grove Campus To Open In 2013

The National Cancer Institute plans to occupy a new, expanded administrative and program campus by 2013. The location is in Shady Grove, at the southwest corner of the intersection of Medical Center Dr. and Key West Ave. in Rockville.

The General Services Administration determined the new location in consultation with NIH and NCI. The selection was based on a year-long competitive bidding process conducted by GSA.

The new campus will accommodate approximately 2,100 NCI staff who currently occupy the Executive Plaza campus and Helgerman Ct. building. NCI staff will move beginning February 2013 over a 6-month period into two new office buildings with a connector wing containing 490,000 net square feet of usable space.

The change is being made primarily due to the leases expiring at EPN, EPS and a few other buildings on Executive Blvd. The new buildings would house, in one facility, staff from those leased sites.

"The new campus will allow for growth in NCI's scientific research and for expansion of its current and new programs," said Daryl Paunil, director of NCI's Office of Space and Facilities Management. "These first-class facilities will be designed to allow for easier renovations and new configurations to foster more scientific collaboration."

The campus site is accessible from several exits off I-270 and will be located about 6 miles north of NCI's current Executive Plaza location. In addition, the new campus will have Metro-bus and Ride-On stops on or near campus. The nearby Shady Grove Metro station will be serviced by both Ride-On bus and a dedicated NCI

shuttle bus service. The NCI shuttle will also provide a non-stop connection to and from NIH's Bethesda campus.

"The buildings will be LEED (Leadership in Energy and Environmental Design)-certified, which means that NCI employees will be working in some of the most environmentally friendly workspaces in the Washington metropolitan area," noted Paunil.

NCI will continue to occupy floors 10 and 11 of Bldg. 31's A wing, as well as much of the 3rd floor, and the NCI director will remain in 31. There are also many staff members in lab buildings and the Clinical Center on campus and a large presence in Frederick at Ft. Detrick. ●



## Pianist's 'Swan Song' Entertains CRC

Ruth Tinsley played solo piano on Mar. 12 in the atrium of the Clinical Research Center as part of the CC's Piano Concert Series. "I played my own compositions," she said. "One was called Alone, another was called I Have Hope and still another was called Sad Song in A Minor. There were 8 songs in all." Tinsley, a contractor who had been working as a research analyst for NIMH, recently relocated to Peru. The Mar. 12 gig was her last day at NIH.

PHOTO: LYDIA POLIMENI



## ROSLING

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*Rosling, a scholar-in-residence as part of the Fogarty International Center's 40th anniversary, is fascinated by statistics.*

PHOTOS: ERNIE BRANSON

"Most people looking at the notes have no sense of what's there and need to actually hear it," Collins said. Rosling, he continued, is "taking those notes on the page and turning them into music that we can all appreciate and learn from."

Rosling, a professor of international health at Sweden's Karolinska Institute and a scholar-in-residence as part of the Fogarty International Center's 40th anniversary, is fascinated by statistics. But he too knows they can be a little dry. He's intrigued by global health statistics that show just how different Western beliefs about the "developing" world are in comparison with the reality of modern facts.

As with many scientists who blaze a trail for others, Rosling's interpretation of statistics as it relates to global health is a result of a combination of training, experience and being in the right place to make sense of everything. After studying statistics, medicine and public health, he worked as a physician in Mozambique. It was there that he discovered a new paralytic condition brought about by insufficient processing of the cassava root, a staple of the local food supply. He went on to study the relationship of economic development, agriculture, poverty and health at great length, and statistics led him to discover truths about the world's health that are far different than what many believe.

He likes to tell a story about how he used a simple test at the beginning of each semester to illustrate why a course on global health was needed at Karolinska. He asked his graduate students to name which countries had higher rates of infant mortality: Sri Lanka or Turkey, Poland or South Korea, Malaysia or Russia, Pakistan or Vietnam, and Thailand or South Africa? Almost invariably, the students were wrong. The test not

only proved the students had misconceptions, but also indicated that there is a lagging understanding of health in the world today.

"Only pre-conceived ideas can produce this result," Rosling said of his students' answers.

He proceeded to develop statistical software with his son and daughter-in-law and formed a foundation called Gapminder, after the oft-heard "mind the gap" message that plays in London's subway system. The gap here, Rosling explained, is the distance between an outdated worldview and a new one based on facts. The goal is to close that gap.

The software, called Trendalyzer, converts dry facts into an active graph that can be set in motion to reflect change over the course of years, highlighting how some countries have surged ahead in terms of health, wealth or a variety of other social factors. Google has since adopted the software as a way to present statistics in an appreciable way.

Rosling put one such graph into motion, showing the tremendous progress that has unfolded in the world over the course of more than 50 years in terms of family size and length of life. Each bubble on the graph corresponded to a country; the color of the bubble reflected its continent and the size depicted its population.

"What is your worldview? Do you know what has happened?" he asked the audience before setting the graph in motion starting at year 1950.

Starting the graph, he called the action like an announcer at Churchill Downs: "Vaccinations being applied in Asia... That is the great leap forward by Mao Zedong which caused the famine... now China is getting it into order with family planning and the family size is decreasing, and India is trying to follow there and see the miracle of Bangladesh! Bangladesh is coming there and they are going, and—oh! The Arab countries, they go for family planning and this is the late HIV epidemic that brings down some African countries, but the others meet up there," he finished, his pointer aimed at a large cluster of culturally diverse countries with fairly small families and longer life expectancies. Somebody gave a whistle of surprise. In 30 seconds, Rosling had traversed a half-century of data and displayed the reality of today's life-expectancy figures. They weren't what many had imagined.

"We have a completely new world," he said. "Global health is full of ignorance, full of myths."

The truth of today's world, he said, can no longer be described in terms of "us" and "them,"

meaning developed countries and developing countries.

“We’re using the wrong taxonomy. We can’t have two groups of people to represent the whole world,” he said. “It was a diverging world, and now it is a converging world.”

Whereas old data showed that countries first got rich and then got healthy, current data show the trend has shifted. Countries can get healthy first and then accumulate wealth.

Rosling said that when he first taught public health, the conventional wisdom was that poverty causes disease. Later, he came to understand differently.

“I now say disease causes poverty, because the most common reason for someone being deprived today is that [a family member] needed a cesarean section, or fractured a leg, or needed hernia surgery or something like that and you are back in poverty,” he said.

And while many countries seem poised to grow their GDP and advance their world standing, Rosling said this does not apply to countries that still face systemic poverty, war and disease.

“The difference between the worst off and the best off is bigger than ever,” he said.



*Rosling said that when he first taught public health, the conventional wisdom was that poverty causes disease. Later, he came to understand differently.*



*Wires dangle from a hole in the ceiling caused by water damage from a Mar. 9 flood on the 5th floor of the Clinical Center.*

### Crusade to Prevent Building Floods Continues

The Office of Research Facilities has waged a continuous battle against flooding in NIH’s 15 million square feet of facilities. Fourteen months ago, the Clinical Center suffered five floods within a 3-month period that damaged the facility, displaced staff and disrupted patient scheduling.

During each of the floods, which came during the 2009 winter months, ORF conducted extensive analyses of the failed equipment and infrastructure. ORF has since adopted a preventive maintenance program that includes up to 27,000 points of inspection on 809 pieces of equipment. It also installed dams around air handlers and added automated alarms.

Over 100 leak detectors were installed as well as other protective devices. Physical equipment inspections are now conducted every 4 hours by ORF staff during off hours. During vulnerable conditions, such as extreme cold weather, monitoring and maintenance staff is doubled. No flooding has occurred due to equipment failure since February 2009.

The aging infrastructure, however, poses a different challenge. Infrastructure, such as the abundant piping and wiring, is outdated and continues to age, causing occasional flooding. On Mar. 9, a fitting on piping in a Clinical Center lab located on 5N failed, resulting in a flood. ORF plans to replace aging infrastructure through new projects and intends to improve maintenance on existing systems.

## IPS CENTER

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*“We will be looking for ‘shovel-ready’ iPS projects that can help the center jumpstart its efforts.”*

siderable experience with gene therapy, stem cell transplantation and extraordinary patient populations. The environment of the intramural program—long-term stable funding to tackle risky but rewarding projects—is ideal for this work. For all these reasons, an NIH iPS Center seems like a terrific idea.”

The iPS Center was one of the first ideas Collins suggested last summer when he met with scientific directors shortly after becoming NIH director.

“Dr. Collins challenged us to consider bold, new trans-NIH projects that would have a potential clinical impact,” O’Shea recalled.

Dr. Michael Gottesman, NIH deputy director for intramural research, noted that “the SDs talked about the possibilities of such a center at their retreat in December when the proposal was enthusiastically green-lighted.” Then, Collins and Gottesman sponsored a workshop that brought together NIH intramural scientists and clinicians with iPS technology pioneer Dr. Shinya Yamanaka of Kyoto University and some other world leaders in the field to provide advice. Afterwards, an IRP iPS task force brainstormed a formal pitch for support from the Common Fund. The proposal was approved.

“During the present year, we will be looking for ‘shovel-ready’ iPS projects that can help the center jumpstart its efforts,” said O’Shea, who will visit Harvard’s Stem Cell Center in April, before touring Yamanaka’s iPS facility this summer. At the same time, the implementation work group is moving ahead to recruit a director for the center. In addition to overseeing NiPC, the director will also maintain a lab where his/her own iPS studies can continue.

“Ideally,” O’Shea said, “this will be an individual with an impressive track record in the area of iPS biology who will be anxious to collaborate with the many outstanding scientists and physicians on campus so that this technology can move ahead quickly and safely to the clinic.”

O’Shea added that “considerable infrastructure” will be required to get the center up and running. In fact, he said, existing facilities on campus such as NIH’s Chemical Genomics Center, the Therapeutics for Rare and Neglected Diseases Program under NHGRI and the Clinical Center’s GMP (Good Manufactur-

ing Practices) cell processing facility will be employed to quicken NiPC’s initial start-up.

The new iPS Center joins the NIH Stem Cell Unit (SCU), which focuses on research using human embryonic stem cells. SCU is led by Dr. Ron McKay of NINDS. These, teamed with other stem cell initiatives planned or under way, place NIH at the forefront of the relatively uncharted scientific field.

“iPS cell biology is a fast-moving area,” O’Shea explained, “and we don’t know whether human embryonic stem cells, induced pluripotent stem cells or transdifferentiated cells will be the most useful in various clinical settings. In fact, one might even imagine that it might be different for different clinical scenarios. The fact that it is such a rapidly moving and dynamic field is precisely why NIH scientists should be involved. One thing that is clear is that very careful and comprehensive analysis of these cells will be essential, looking at everything from genetics and epigenetics to function and stability of differentiated cells. This should provide enormous challenges and opportunities for the IRP.”



### Murphy Named Outstanding Mentor

NIAID recently presented its annual Outstanding Mentor Award to Dr. Philip M. Murphy, chief of the molecular signaling section in the Laboratory of Molecular Immunology. The award acknowledges exemplary mentoring and guidance to NIAID’s trainees. This is the second year the award has been made. Murphy leads a program of research on G protein-coupled receptors of the immune system. He has trained numerous students from both the United States and abroad.

## feedback

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

**Feedback:** How is Transshare monitored to be sure people are not receiving the benefits and still driving to work?

**Response from the Office of Research Services:** The process for Transshare starts with an application wherein employees must sign an affidavit stating that they will not possess a parking hanger or parking card (in the case of off-campus facilities). At the time they affirm the amount of their travel cost, there is a reference to the criminal penalties for falsifying the document.

The Employee Transportation Services Office puts all Transshare applications through several levels of review and random audits. ETSO checks the applicant in the NIH parking system and verifies if he/she is eligible for Transshare and if the person needs to return any parking permits. ETSO also provides off-campus facility managers with a list of Transshare members so they can ensure that Transshare members do not receive a parking card. Once parking permits/cards have been returned (if applicable), the applicant is then enrolled in Transshare. Enrollees then can apply for temporary parking permits on a limited basis such as a need to drive to work because of a doctor's appointment, family activities, meetings, etc. The parking system will keep track of temporary permits and will cut the Transshare member off when the parking limit is reached. Each temporary parking permit is printed on special security paper with a date of issuance and expiration.

The parking system will not allow people to join Transshare if they currently have a parking permit assigned to them. This system is integrated with the NIH Enterprise Directory and can determine employee status, badge expiration and other information on eligibility for both parking permits and Transshare.

ETSO is always looking for ways to ensure the integrity of the Transshare system. Penalties for misusing the subsidy include reimbursement to the agency, suspension and revocation from both the NIH Parking Program and NIH Tran-

share Program, and in extreme violations, up to and including removal from federal service.

For a complete listing of NIH Transshare regulations, visit <http://dtts.ors.od.nih.gov/transshare.htm>.

**Feedback:** Several years ago, the restrooms on the 4th and 5th floors of Bldg. 31B were renovated. During the renovation the doors to the restrooms were removed. At the time, employees were told that the door removal was necessary to be in compliance with the ADA. Since that time, restrooms in Bldg. 1 and other parts of Bldg. 31 have been renovated but the doors have not been removed. Recently, the restrooms on the 3rd floor of Bldg. 31B, which have the exact same floor plan as those on the 4th and 5th floors, were completely renovated, and again, the doors were not removed. Because of the location of the restrooms, people waiting for the elevators or just passing by can hear everything that happens in the restrooms on the 4th and 5th floors. Why are employees on those floors not entitled to the same amount of privacy as other employees when engaging in very personal activities? Clearly, compliance with the ADA is not the issue.

**Response from the Office of Research Facilities:** The Office of Research Facilities reviewed the situation in the B wing of Bldg. 31 and has determined that there are no accessibility issues by adding doors to the 4th and 5th floor bathrooms. ORF agrees there is a privacy issue with the absence of doors at these locations and has submitted a work request to reinstall doors on the 4th and 5th floor restrooms. ORF also plans to review all bathrooms in the B wing currently without doors to determine if there are any additional privacy issues to be resolved.

**Feedback:** Recently, an email was sent to all of HHS regarding gambling in the federal workplace. This was sent because of NCAA March Madness. Since gambling is not allowed while on duty or while on government-owned property, how then is NIH allowed to sell lottery tickets in its buildings?

**Response from the NIH Office of the General Counsel:** The Randolph-Shepard Act authorizes certain vending operators in federal facilities to sell tickets for state lotteries. This is an exception to the general prohibitions on gambling on government property.

### Myrick Certified by Brookings Institution

*Dr. Dorkina Myrick (r), a medical officer in extramural training and career development at NCI's Center for Cancer Training, recently received a certificate in public leadership from the Brookings Institution in Washington, D.C. Dr. Strobe Talbott (l), Brookings president, presented the plaque. The certificate program is a 20-day curriculum for government employees at the GS 13-15 and SES levels. As part of her program of study, Myrick spent a week on Capitol Hill interacting with legislators, policymakers and journalists. She is a former clinical fellow and graduate of the NIH/NCI anatomic pathology training program and a former recipient of an NIH National Research Service Award.*



### Vaccinating Children Against Flu Helps Protect Wider Community

Results of a clinical trial conducted in a largely self-contained religious community during the 2008-2009 influenza season show that immunizing children against seasonal flu can significantly protect unvaccinated community members against flu as well. The study, funded in part



*Results of a clinical trial show that immunizing children against seasonal flu can significantly protect unvaccinated community members against flu as well.*

by the National Institute of Allergy and Infectious Diseases and the Canadian Institutes for Health Research, was conducted to determine if immunized children could act as a barrier to limit the spread of influenza to the wider, unvaccinated community, a concept known as herd immunity. Researchers recruited volunteers from 46 Canadian Hutterite religious colonies that have limited contact with surround-

ing, non-Hutterite populations. A total of 947 children between 36 months to 15 years of age participated in the trial. The researchers found that flu vaccination was 61 percent effective at indirectly preventing illness—that is, protecting via herd immunity—in unvaccinated individuals if they lived in a colony where approximately 80 percent of the children had received flu vaccine. The study was published Mar. 10 in *JAMA*.

### Intensive BP and Lipid Therapies Don't Reduce Cardiovascular Events in Adults with Diabetes

Lowering blood pressure to normal levels—below currently recommended levels—did not significantly reduce the combined risk of fatal or non-fatal cardiovascular disease events in adults with type 2 diabetes who were at especially high risk for cardiovascular disease events, according to new results from the landmark Action to Control Cardiovascular Risk in Diabetes (ACCORD) clinical trial. Similarly, treating multiple blood lipids with combination drug therapy of a fibrate and a statin did not reduce the combined risk of cardiovascular disease events more than treatment with statin alone. Including more than 10,000 participants, ACCORD is one of the largest studies ever conducted in adults with type 2 diabetes who were at especially high risk of cardiovascular events such as heart attacks, stroke or death

from cardiovascular disease. The multicenter clinical trial, sponsored primarily by the National Heart, Lung, and Blood Institute, tested three potential strategies to lower the risk of major cardiovascular events: intensive control of blood sugar, intensive control of blood pressure and treatment of multiple blood lipids. The results of the ACCORD blood pressure and lipid clinical trials appeared online in the Mar. 15 *New England Journal of Medicine* and will be in the Apr. 29 *NEJM* print edition.

### Impulsive/Antisocial Personality Traits Linked To a Hypersensitive Brain Reward System

Normal individuals who scored high on a measure of impulsive/antisocial traits display a hypersensitive brain reward system, according to a brain imaging study by researchers at Vanderbilt University. The findings provide the first evidence of differences in the brain's reward system that may underlie vulnerability to what's typically referred to as psychopathy. The study in the March issue of *Nature Neuroscience* was funded by the National Institute on Drug Abuse. Psychopathy is a personality disorder characterized by a combination of superficial charm, manipulative and antisocial behavior, sensation-seeking and impulsivity, blunted empathy and punishment sensitivity and shallow emotional experiences. Psychopathy is a particularly robust predictor of criminal behavior and recidivism.

Since psychopathic individuals are at increased risk for developing substance use problems, the Vanderbilt team decided to investigate possible links between the brain's reward system (activated by abused substances and natural reward) and a behavioral trait (impulsive/antisociality) characteristic of psychopathy. Researchers used two different technologies to measure the brain's reward response. In the first experiment, positron emission tomography (PET) was used to image the brain's dopamine response in subjects who received a low oral dose of amphetamine. Dopamine is a brain chemical associated with reward and motivation. In the second experiment, the same subjects participated in a game in which they could make (or lose) money while their brains were being scanned using functional magnetic resonance imaging (fMRI). The results in both cases show that individuals who scored high on a personality assessment that teases out traits like egocentricity, manipulating others and risk taking had a hypersensitive dopamine response system. The picture that emerges from these high-resolution PET and fMRI scans suggests that alterations in the function of the brain's reward system may contribute to a latent psychopathic trait.—compiled by Carla Garnett



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

### Dietary Carbs vs. Fat – Overweight

NIH is looking for overweight, healthy adults, 18 to 45 years old, to volunteer in a clinical research study. If you are interested in learning about how dietary carbohydrates versus fat affect metabolism and how the brain perceives food, call us. The study includes two inpatient visits of up to 13 days followed by a 12-week lifestyle modification program including weight loss counseling, prescribed diet and exercise program. Refer to study 09-DK-0081. Compensation is provided.

### Dietary Carbs vs. Fat – Normal Weight

NIDDK is looking for healthy adults of normal weight, 18 to 45 years old, to volunteer for a study looking at the brain's perception of food through brain imaging. Compensation is provided. Refer to study 09-DK-0081.

### Januvia Study

Volunteers are needed for a study examining the immune function in healthy volunteers given short-term treatment of sitagliptin. Investigators wish to determine if and how sitagliptin alters immune function. If you are 18 years or older and healthy, consider participating in this study. All study-related tests are provided at no cost. Compensation is provided. Refer to study 09-DK-0055.

### Epilepsy Study

Do you suffer from seizures? Consider participating in an NIH research study evaluating and treating people with epilepsy. Individuals will undergo standard diagnostic procedures used to determine the type of seizures, causes and whether standard drug treatment can help them. All study-related tests are provided at no cost. Refer to study 01-N-0139.

### Dry Eyes Study

Do you have dry eyes? If your eye doctor has diagnosed you with ocular surface disease, commonly known as dry eye, and you are 18 years or older, you may be eligible to participate in a study with the National Eye Institute. This study will compare visual function when reading computerized versions of eye questionnaires on the web and when completing paper versions of eye questionnaires. Participants will be required to travel to NIH for an outpatient visit lasting approximately 2 hours and will receive an eye examination. Refer to study 08-EI-0135.

### Macular Degeneration Study

We are seeking patients with wet age-related macular degeneration. The Food and Drug Administration has approved the use of Lucentis for treatment of this ailment. The National Eye Institute is looking for volunteers 50 and older with the ailment to participate in a study exploring the different responses to Lucentis. Participants will be required to travel to NIH on an outpatient basis for the initial evaluation and subsequent monthly examinations. Refer to study 08-EI-0103.

### Postpartum Depression Research Studies

Women ages 18-45 who struggle with postpartum depression or who had PPD in the past are invited to participate in outpatient research studies. There is no cost for participation. Compensation may be provided. Call (301) 496-9576 and refer to study 03-M-0138.



APAO president Dr. Rashmi Gopal-Srivastava (l) presents award to Dr. Yun-Bo Shi. At right, Dr. Emily Chew accepts her award.

### APAO Presents Awards, Announces Board

The NIH Asian and Pacific Islander Organization (APAO) recently honored two NIH researchers for their outstanding scientific achievements at its annual awards ceremony.

Dr. Yun-Bo Shi, chief, section on molecular morphogenesis, NICHD, was recognized for outstanding contributions and accomplishments in the field of nuclear receptors and endocrine research. Dr. Emily Chew, deputy director, Division of Epidemiology and Clinical Research, NEI, was honored for outstanding contributions and accomplishments in the field of age-related eye disease and early treatment of diabetic retinopathy.

The NIH APAO also recently announced its 2010 board: Dr. Rashmi Gopal-Srivastava, Office of Rare Diseases Research, president; Franda Liu, NLM, vice president; Aaron Bell, NCI, treasurer; and Phyllis Chui, NLM, executive secretary.

For more information on APAO, its mission and meetings, visit [www.recgov.org/r&w/apao](http://www.recgov.org/r&w/apao).



### Valenzuela Honored For Work in Tropical Medicine

Dr. Jesus G. Valenzuela, chief of the vector molecular biology unit in the Laboratory of Malaria and Vector Research, NIAID, won the 2009 Bailey K. Ashford Medal for distinguished work in

tropical medicine by an early or mid-career scientist. The medal was presented at the annual meeting of the American Society of Tropical Medicine and Hygiene. Valenzuela's lab studies proteins found in the saliva of sand flies and how immunity to these proteins can protect against leishmaniasis, a parasitic disease transmitted to animals and humans by these insects. He joined NIAID in 1996 after earning his Ph.D. in biochemistry from the University of Arizona at Tucson.

*Tsien and Capecchi*

## Two Nobel Laureates Fill Masur on Successive Days

By Rich McManus

Nothing brings the NIH fire marshal to the doors of Masur Auditorium more readily than the appearance of a recent Nobel laureate. Two laureates gave lectures on successive days last month—Dr. Roger Tsien (2008) on Mar. 10 and Dr. Mario Capecchi (2007) on Mar. 11—and in each instance, the hall was packed. Last-minute arrivals were turned away by the dozens as safety officials kept aisles clear.

Tsien (pronounced “Chen”) gave the fourth annual NEI Sayer Vision Research Lecture, and while his talk had nothing to do with the eye, it was primarily about vision. Tsien won “the prize” for his work on GFP—green fluorescent protein—which is widely used to analyze the activity of tagged proteins within cells. One part of his talk described new work on SOGs—singlet oxygen generators—“which may do for electron microscopy what GFP did for fluorescence microscopy,” he said. The technique allows scientists to visualize molecular locations at high resolution, including synaptic junctions in neurons and the contents of mitochondria.

Turning from basic science to clinical work, Tsien described how his team has developed ingenious ways of chemically lighting up tumors so that surgeons may be able to remove them more thoroughly, via engineered molecules called ACPs (activatable cell-penetrating peptides) that can deliver a payload of imaging agent or chemotherapy to cancer cells.

ACPs target proteases to find and illuminate tumors, making them operable much earlier in their development. By using molecular fluorescence imaging guidance, surgeons may be able to find and eliminate tumors in much the same way that a cook scrapes the mold off a piece of cheese, Tsien reported.

A complementary tagging technique can also delineate nerve fibers, which surgeons are anxious to preserve since the fibers “can take forever, if ever, to regrow.” Again, Tsien had a colorful metaphor: “When you’re the gas company, it helps to know where the electric cables are buried under the sidewalk, if you’re going to start digging.”

By targeting the protease thrombin with an ACP, researchers can also find arterial plaques, which can be useful in combating atherosclerosis, Tsien added.

During questions, he ruefully noted that, in



*Nobel laureates Dr. Mario Capecchi (l) and Dr. Roger Tsien visited NIH a day apart.*

PHOTOS: MICHAEL SPENCER

meetings with venture capitalists, there was initially little enthusiasm for imaging tumors and then being able to cut them out, which might cure some cancers a bit too abruptly. Tsien admitted that when he is feeling cynical, it seems many companies are more interested in managing cancer with expensive drugs for which they can charge a lot over a long treatment period.

Capecchi (pronounced “Ca-pecky”), warmly introduced by NIH director Dr. Francis Collins—who recounted stirring details of the laureate’s early biography, including having been “essentially homeless at age 4½” and later reuniting with his mother on his 9th birthday—lingered not a moment on his personal narrative. Rather, he jumped straight to “two stories: modeling cancer and modeling neuropsychiatric disease.”

Capecchi’s team chose to model sarcoma, which is not as common as carcinoma, but “affects an important population—young adults. It is also extremely aggressive,” he said. “Eighty percent of patients [diagnosed with sarcoma] are likely to die within 5 years of diagnosis. [The cancer] has often already metastasized by the time it is recognized.”

Capecchi’s work focuses on several factors including the inducing event, the time of induction and “most importantly, the molecular environment of cancer.”

Using a mouse model of synovial, or joint, sarcoma, his team discovered that chromosomal translocation between chromosome 18 and the X chromosome is the culprit in this type of cancer. Six genes on the X chromosome are involved, as well as SYT on chromosome 18, the combination of which is cytotoxic, he said. “Muscle cell lineage is the origin of the tumor.”

His second story, involving neuropathy, began by accident, Capecchi said, during studies of Hox genes in mouse mutants. His group noticed that mice with one mutation, Hoxb8, exhibited grooming behavior at twice the frequency of their littermates.

Grooming, Capecchi said, is a behavior exhibited by all species, even *C. elegans* and *Drosophila*. “All mammals groom from the top down, from head to foot, like a person taking a shower,” he explained. Through patient observation of the hyper-grooming breed (most of which occurred at night, as mice are nocturnal), his team detected grooming behavior “at the pathological level, to the point of generating lacerations at the overgroomed sites.” Studies using knockout mice suggest that an immunological defect may lay behind obsessive-compulsive disorder and OCD-spectrum ailments in humans, and perhaps even autism and Alzheimer’s disease, Capecchi said.

Both laureates’ talks are available, without having to wait in line or mind a fire marshal’s instructions, at <http://videocast.nih.gov>. 📺