

## Web Site Countdown

NIH Research Invisible No More

BY BEN CHAMBERS, NCI

“I’M NOT SURE OF WHAT ‘INTRAMURAL’ means,” confessed a clinical trials patient as she was testing out a new Web site for NIH’s Intramural Research Program (IRP) recently.

The tester’s comment reinforced what NIH scientific directors and researchers have long suspected: The intramural program is all but invisible and not well understood by the outside world. Some people know that NIH funds biomedical research at medical schools and other institutions. But few realize that nearly 10 percent of the agency’s \$30 billion budget is dedicated to “intramural research”—the basic and clinical research conducted on NIH campuses in Maryland, Arizona, Montana, and North Carolina.

Maybe the problem lies in the term “intramural” or maybe the IRP has failed to promote itself. The IRP may be low profile, yet its research has had a marked impact on public health. Discoveries have included the use of fluoride to prevent tooth decay; the development of blood tests to detect human immunodeficiency virus and hepatitis; the first AIDS drugs; vaccines against hepatitis, *Haemophilus influenzae*, and human papillomavirus; and more. Also within the IRP’s domain is the Clinical Center, the world’s largest hospital devoted to clinical research; the Undiagnosed Diseases Program; and the National Library of Medicine, which with its database of over 18-million journal citations, is a vital entity for researchers and the general public worldwide.

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## Putting the “I” in RNAi

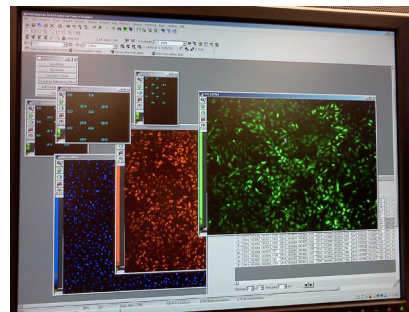
A Powerful Tool Lets Researchers Get Personal

BY NICHOLAS DICROSTA, MANAGEMENT INTERN

NICHD RESEARCHER MEL DePAMPHILIS hates cancer. One year ago, his then 39-year-old daughter, Kimberly—married with two children and a loving husband—was diagnosed with breast cancer and underwent a double mastectomy. In the months that followed, she received intense chemotherapy and radiation treatments in the hope of destroying the last vestige of her disease. “Cancer touches so many lives,” he rasped, overcome with emotion as he related the story. He took a breath and steadied himself, his eyes narrowed in determination. For DePamphilis, the battle against cancer was no longer academic; it was personal.

DePamphilis is well positioned to fight that battle. Based on a competitive proposal, he was given access to a sophisticated resource at the NIH Chemical Genomics Center’s (NCGC) RNAi Screening Facility, in Rockville, Md. RNA interference (RNAi), a powerful tool that systematically inactivates genes, enables scientists to determine the functions of genes. The tool is useful for research in many areas including cancer, age-related disorders, metabolic diseases, and disease-causing viruses.

Using RNAi, DePamphilis determined that when geminin—a nuclear protein that is crucial for cancer cells to duplicate their genome—is suppressed, cancer cells commit apoptosis, or cellular suicide. The proliferation of normal cells, however, is not affected. DePamphilis’s work is among the first to demonstrate the power of NIH’s RNAi facility



NICHOLAS DICROSTA



CARLEEN KLUMPP, NHGRI

NIH’s RNAi Screening Facility uses a powerful tool called RNA interference (RNAi) that systematically inactivates genes so scientists can probe their functions. The images (top) such as this high-content analysis of a fluorescent virus are produced by the automated RNAi screening system (bottom).

CONTINUED ON PAGE 11

### CONTENTS

**FEATURES** • **|1** New IRP Web Site **|1** RNAi Screening **|3** New Director of NIH-CRM  
**|6** Honoring Paul Plotz **|9** Tuning Gear for Ears

**DEPARTMENTS** • **|2** Guest Editorial: NIH Stem Cell Center **|4** Training Page **|5** NIH in  
History: Patient Activity Monitors **|8** Research Briefs **|11** NIH Abbreviations **|12** Colleagues:  
Recently Tenured **|17** The SIG Beat **|18** Announcements **|20** Laboratory Confessions



## NIH Stem Cell Center Gets a New Name and Director

BY JOHN O'SHEA, NIAMS

**IT'S BEEN A LITTLE MORE THAN A YEAR** since my guest editorial announcing a new stem cell initiative on campus: the Common Fund–supported NIH Induced Pluripotent Stem Cell Center (NiPC). And there is a lot of news to share!

Along with a new year has come a new name for NiPC: the NIH Center for Regenerative Medicine (NIH-CRM). With changes in stem cell research on campus and greater appreciation that the translational use of induced pluripotent stem cells (iPSCs) will require diverse types of expertise, NiPC broadened its scope and changed its name to NIH-CRM. This change is especially timely in view of the recent favorable decision by the U.S. District Court, District of Columbia, in *Sherley v. Sebelius*, to permit continued federal support of human embryonic stem cell research. Innovative stem cell work is also being done in the NIH Stem Cell Unit and the NIH Bone Marrow Stromal Stem Cell Transplantation Center. So the NIH intramural research program is in a good position to make rapid, clinically relevant advances in this groundbreaking field.

Over the past 16 months, NIH-CRM has been very busy. It has supported several intramural pilot projects that will facilitate the clinical translation of iPSCs. We have had two rounds of funding: 11 pilot projects in FY2010 and 13 in FY2011. The projects include the maintenance of pluripotency, development of preclinical animal models, devising a methodology for gene correction and insertion, use of disease-specific models, and more.

In July, NIH-CRM and the Stem Cell Interest Group (SCIG) cosponsored an inaugural stem cell research symposium to provide a platform for all NIH-CRM-funded investigators and others to present their latest and greatest findings, as well as to help build a collaborative community of investigators. (See the article on page 17). In a related effort to jumpstart stem cell capabilities on campus, NIH-CRM sponsored several training courses, both on and off the Bethesda campus, in mouse and human iPSC cell generation and culture.

One of our major goals has been to recruit a director for the NIH-CRM. Some amazing stem cell biologists—candidates being considered for the job—have come through NIH to give presentations on their work. Thanks to the unwavering efforts of the NIH-CRM Search Committee, we have reached a significant milestone. At the July symposium, NIH Director Francis Collins announced that Mahendra Rao has been selected to be the NIH-CRM director.

Rao came on board in August 2011. I hope you will get to know him in the next few months. He's an amazing guy with a wealth of experience in stem cell biology. He brings diverse experience—in academia, government, regulatory organizations, and industry—and we think he's just the guy to get this complex initiative moving quickly. (Be sure to read "Meet the Director" on page 3.)

We've accomplished a lot since last year's editorial, but I would be remiss if I didn't point out that none of this would

have happened without the efforts of two remarkable people: Megan Laycock (NIH-CRM project manager) and Scott Lipnick (Science and Technology Policy Fellow, American Association for the Advancement of Science). I also thank the search committee, chaired by Pamela Robey, for its unrelenting efforts. There are many other individuals to thank for making NIH-CRM a reality—too many to list in this brief note. Nonetheless, thanks to everyone for pitching in so selflessly! The excitement in getting this new initiative off the ground has been palpable. It's a real testament to the spirit of the NIH that we came together and got things moving quickly.

The vision for NIH-CRM is the same as it was for NiPC, namely, taking the potential of stem cell technology and translating it into new therapies for patients who desperately need them. What it will take to make this a reality is enormous, but there's no place better to do this than in the NIH intramural research program. With the extraordinary expertise on campus and the resources of the Clinical Center, we will be able to meet a challenge that has the potential for transforming medicine as we know it. ●

**John O'Shea has served as the acting director of NIH-CRM since its inception in 2010. To read his guest editorial from last year, see page 2 of the March-April 2010 issue of *The NIH Catalyst* at [http://www.nih.gov/catalyst/2010/10.04.01/catalyst\\_v18i2.pdf](http://www.nih.gov/catalyst/2010/10.04.01/catalyst_v18i2.pdf).**

## Meet the New Director of the Center for Regenerative Medicine

STEM CELLS, WITH THE PROPER COAXING, have near-limitless potential. The same goes for stem cell programs. NIH's own initiative for induced pluripotent stem (iPS) cells, begun a little over a year ago, is maturing quite nicely. What was once called the NIH induced Pluripotent Stem Cell Center (NiPC) is now the NIH Center for Regenerative Medicine (NIH-CRM). In August, the center got a new director—Mahendra Rao, a former senior investigator at NIA who left the NIH in 2005 and started a successful stem cell division for the company Invitrogen. He has returned for “an opportunity to make a difference on a larger scale than with any one company,” he said.

The NIH-CRM is an NIH Common Fund initiative to build a world-class center of excellence in stem cell technology—including the creation of induced pluripotent stem cells—on the NIH campus. The center will be administered by the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS).

“Dr. Rao's varied experience makes him perfectly qualified to bring large groups together in order to move stem cell technologies through clinical trials and beyond to the clinic,” said NIH Director Francis Collins.

A major goal for the center is to build upon existing NIH investments in stem cell research to advance translational studies and ultimately cell-based therapies in the NIH Clinical Center. The center will also serve as a resource for the scientific community, providing stem cells as well as the supporting protocols and standard operating procedures used to derive, culture, and differentiate them into different cell types.

In addition to his NIH-CRM director position, Rao will hold a joint research appointment in NIAMS and NINDS.



MICHAEL SPENCER

Mahendra S. Rao was recently appointed the director of the NIH Intramural Center for Regenerative Medicine.

“Dr. Rao is an ideal choice to lead the NIH-CRM at this pivotal time for stem cell research,” said NIAMS Scientific Director John O’Shea. “His unique background will serve him and the center well as we move forward to fulfill the great promise of stem cell technology.” (Read O’Shea’s essay on page 2.)

Rao is internationally renowned for his research involving human embryonic stem cells and other somatic stem cells. He has worked in the stem cell field for more than 20 years, with stints in academia, government and regulatory affairs, and industry. He received his M.D. from Bombay University in India and his Ph.D. in developmental neurobiology from the California Institute of Technology (Pasadena, Calif.). Following postdoctoral training at Case Western Reserve University (Cleveland), he established his research laboratory in neural development at the University of Utah (Salt Lake City). He next joined the National Institute on Aging as chief of the Neurosciences Section, where he studied

neural progenitor cells and continued to explore his longstanding interest in their clinical potential. Most recently, he spent six years as the vice president of Regenerative Medicine at Life Technologies (Carlsbad, Calif.). He co-founded Q Therapeutics, a neural stem cell company based in Salt Lake City. He also served internationally on advisory boards for companies involved in stem cell processing and therapy, on committees including as chair of the U.S. Food and Drug Administration’s Cellular Tissue and Gene Therapies Advisory Committee, and as the California Institute of Regenerative Medicine and International Society for Stem Cell Research liaison to the International Society for Cellular Therapy.

With Rao at the helm, the NIH-CRM has limitless potential for making a difference by translating iPS cell research into real treatments. ●

### HISTORY OF THE COMMON FUND

The NIH Common Fund was enacted into law by Congress through the 2006 NIH Reform Act to support cross-cutting, trans-NIH programs that require participation by at least two NIH institutes or centers (ICs) or would otherwise benefit from strategic planning and coordination. The requirements for the Common Fund encourage collaboration across the ICs while providing the NIH with the flexibility to determine priorities for Common Fund support. To date, the Common Fund has been used to support a series of short-term, exceptionally high-impact trans-NIH programs known collectively as the NIH Roadmap for Medical Research (<http://commonfund.nih.gov/aboutroadmap.aspx>). The Common Fund is coordinated by the Office of Strategic Coordination (<http://dpcpsi.nih.gov/osc>) within the Office of the Director. For more information, visit <http://commonfund.nih.gov>.



## FROM THE NCI-DCEG'S FELLOWS COMMITTEE

### NCI-DCEG Fellows Connect

BY JACQUELINE MAJOR, NCI-DCEG (ROCKVILLE, MD)

MORE THAN 700 OF NIH'S 3,800 FELLOWS work outside NIH's main Bethesda campus. As one of those 700, I can say that we are determined to be a vital part of the NIH enterprise. I'm in NCI's Division of Cancer Epidemiology and Genetics (DCEG), which is home to more than 100 fellows who work in eight research branches. DCEG has offices on Executive Boulevard in Rockville, Md., and runs a laboratory in Shady Grove, Md.

We are working with the DCEG Office for Education (OE) to meet the the challenge of working outside the main campus. The OE has partnered with NIH's Office of Intramural Training and Education to bring workshops to Rockville on interviewing skills, writing curriculum vitae, and making the best of mentoring relationships as well as workshops in population sciences.

To further meet the needs of DCEG fellows and to share ideas and facilitate communication among us, Jackie Lavigne (chief of the DCEG OE) and I recently created the DCEG fellows (DFel) committee. DFel supports NCI-DCEG fellows in all aspects of training and career development and advocates for our interests. It also fosters interaction among us, between us and the rest of the DCEG community, and with other NCI and NIH fellows, whether they are on or off the main Bethesda campus.

DFel alerts NCI trainees to the abundant opportunities available to us. "DFel helps to ensure that my office is making the best use of NIH and DCEG resources to address the training needs of our fellows," said Lavigne. Under her leadership, DCEG received the North American Congress of Epidemiology's 2011 Alexander

D. Langmuir Award for Training Program Excellence and Innovation.

Since DFel's inaugural meeting in early 2011, our subcommittees have coordinated a DCEG alumni social event at the North American Congress of Epidemiology conference in Montreal; begun developing a DCEG fellows' wiki; and piloted an epidemiology fellows editorial board. I hope that DCEG fellows will seek out DFel as a resource and consider joining the committee.

To join DFel, contact Jennifer Major ([majorjm@mail.nih.gov](mailto:majorjm@mail.nih.gov) or 301-451-9873) or Britton Trabert ([trabertbl@mail.nih.gov](mailto:trabertbl@mail.nih.gov) or 301-451-4435). DFel meetings are open to all DCEG fellows and held on the last Wednesday each month, 1:30–2:30 p.m., at 6120 Executive Boulevard, room 6081. Reminders are sent to all DCEG fellows before each meeting. ●

## SPECIAL ESSAY

### The Parallel Worlds of Science and Journalism

BY MATT WENHAM, NIDDK

FOR FOUR DAYS IN MID-FEBRUARY, THOUSANDS of scientists gathered at the Washington Convention Center for the annual meeting of the American Association for the Advancement of Science (AAAS).

In the rooms tucked away on the mezzanine level of the conference center, behind the security guards at the doors, lay a humming world of journalists and press briefings. While most meeting attendees sat through sessions of up to three hours on a given topic, accredited journalists at the meeting were offered 30- to 45-minute press conferences with the presenters before their sessions, during which they could garner the key messages that would be discussed during the scientific session,

question the presenters, and record snippets of distilled information for broadcast or publication.

Some argue that "scientists are not good communicators," but many journalists disagree. A veteran press attendee at the meeting was Robyn Williams, host of *The Science Show* on ABC Radio National, Australia's national broadcaster. "Some scientists are brilliant communicators," he said, noting that, as in any field, some people are able to explain their work, while others struggle.

Another stalwart of science journalism at the meeting was the former science editor of *The Guardian* newspaper in the U.K., Tim Radford. He shares Williams's view

that the idea of scientists lacking communication skills is a misnomer. He believes that the problem might be in the multiple forums they can be required to communicate in. Scientists have "natural gifts" in clarity, observation and knowledge, which should make them well-suited to communicating their work to the public, given the right training and encouragement.

The public will have to be encouraged to understand what scientists do and why it's important. In the words of Albert Einstein, "if you can't explain it simply, you don't understand it well enough." ●

To read this essay in its entirety, go to [http://fellowshipoffice.nidDK.nih.gov/newsletter/vol4\\_iss5/page2.htm](http://fellowshipoffice.nidDK.nih.gov/newsletter/vol4_iss5/page2.htm).

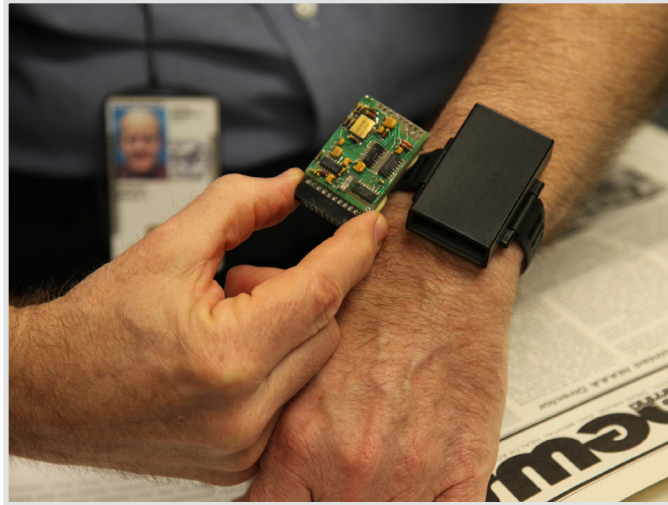
## Patient Activity Monitors Brought Greater Objectivity to Psychiatry

BY BRIAN CASEY, NIH OFFICE OF HISTORY

UNTIL THE 1970S, HUMAN “calculators”—nurses and research assistants—measured the behavioral manifestations of psychiatric illnesses and disorders by recording their observations of patients in laboratory or clinical settings. But the data were subjective and it was nearly impossible to compare results from different research centers.

Then in 1975 members of NIMH’s Research Services Branch—engineers Theodore Colburn and Bruce Smith with the help of electronics technicians Jerry Guarini and Norwood Simmons—built a novel instrument that provided the world’s first continuous, non-subjective measurements of human activity levels. Lightweight and portable, this patient activity monitor (PAM) consisted of a quartz timer, motion sensor, and microprocessor and could be attached to a wrist, hung from a belt, or placed in a pouch at the small of the back. It calculated bodily movements in 15-minute intervals for up to 10 days. Researchers retrieved data by opening the monitor and downloading the information.

**Measuring hyperactivity:** Judith Rapoport, the current chief of NIMH’s Child Psychiatry Branch, used PAMs in the late 1970s and early 1980s to study hyperactive children. The PAMs confirmed that these children are not only inappropriately active (too active doing school work and not active enough on the basketball court), but, compared with nonhyperactive children, more active throughout the day and, surprisingly, slightly more active while sleeping. The PAMs also pinpointed the times at which hyperactive children are most active—during the early morning and early to mid-afternoon hours—and affirmed the benefits of drug treatment.



NIH developed patient activity monitors that provided nonsubjective measurements of movement. A circuit board, containing amplifiers, counters, memory, and a clock, was slid into a protective casing that could be worn like a wristwatch.

HANK GRASSO, NIH OFFICE OF HISTORY

Rapoport and her colleagues found that the drug dextroamphetamine sulfate, a stimulant used to treat hyperactivity, does not calm hyperactive children as once thought. Rather, it increases task-appropriate activity; patients on the drug functioned better in the classroom as well as on the basketball court. PAMs helped refute a theory that suggested that hyperactive children respond differently to stimulants than do nonhyperactive children. On stimulants, both groups exhibited less motor activity when performing school-like tasks.

**Bipolar disorder:** PAMs could also measure the activities of patients with bipolar disorder. Thomas Wehr, onetime chief of NIMH’s Clinical Psychobiology Branch, used PAMs to chart the phases, remissions, and relapses of bipolar patients who were admitted to the psychiatric ward at NIH’s Clinical Center. Bipolar disorder is characterized by episodes of mania (abnormally increased energy or mood) alternating with episodes of depression. The researchers detected a fivefold increase in activity—even during sleep—in mania versus depression. Wehr detected a curious pattern: People with

rapidly cycling bipolar disorder (four or more episodes of depression or mania a year) experience at least one night of sleeplessness before transitioning from depression to mania. This pattern is masked, however, when patients are on drug treatments that tone down mania. Wehr also found that if rapidly cycling bipolar patients in a depressed phase stay awake for 40 hours they usually transition into mania or hypomania for days or weeks. The research suggested that the biological clocks in bipolar patients are out of sync.

**Neurological disorders:** NIMH’s

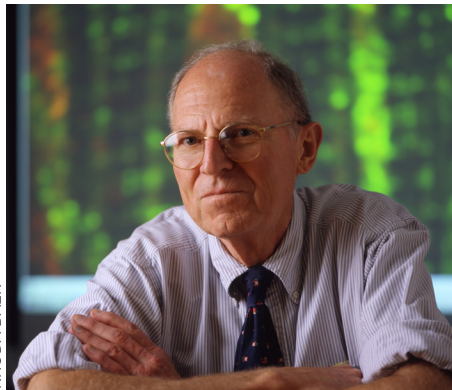
Research Services Branch manufactured four generations of PAMs, hundreds in all, that were also used in studies on Parkinson disease and tardive dyskinesia (characterized by repetitive, involuntary, purposeless movements). PAMs were so promising that requests from other institutions began pouring in.

PAMs have improved over time and have become less cumbersome, more reliable, and more powerful, and they can even detect light. Today they are used to assess sleep duration and disturbances, seasonal affective disorder, and treatments for chronic fatigue syndrome. ●

Brian Casey is a Stetten Fellow in the NIH Office of History. Special thanks go to Judith Rapoport, Thomas Wehr, and Newlin Morgan (NIMH biomedical engineer) for their help with this article. Morgan donated a PAM to the NIH DeWitt Stetten, Jr., Museum of Medical Research. The museum welcomes all inquiries about possible donations of scientific and medical artifacts of historical significance. To donate an item, e-mail [museum@nih.gov](mailto:museum@nih.gov) or call 301-496-6610.

## Symposium Honors NIAMS's Paul Plotz

BY RACHEL WELLER



RHODA BAER

PAUL PLOTZ “WAS MY SARASTRO when I came to NIH,” said Richard Siegel, chief of NIAMS’s Autoimmunity Branch, comparing his mentor to the wise and enlightened high priest of the Temple of Isis in Mozart’s opera *The Magic Flute*. Plotz was “an oasis of calm in an ocean of chaos ... guiding me through the tenure track.”

Siegel joined with dozens of other scientists to celebrate the career of recently retired Paul Plotz at the symposium “A Vocation in Medicine: Autoimmunity, Autophagy, Muscle Disease and Human Rights,” held on May 19. The symposium honored the rheumatologist’s achievements in advancing our understanding of autoantibodies, autoimmune disease, and inflammatory muscle diseases, and it illustrated the profound impact he has had on other luminaries in these fields.

Colleagues, collaborators, patients, and friends from across the span of Plotz’s career took the podium, describing how his work had changed their lives, their work, or, in many cases, both. Siegel asked, tongue-in-cheek, what some younger trainees, based on their laughter, must have imagined to be the case: “So, did our Sarastro arrive, fully formed, in Brooklyn?”

The answer: Not quite! Plotz, the son of a cardiologist, is a fourth-generation physician, but he graduated from Harvard with a degree in physics. Ezekiel Emanuel, chief of the department of bioethics at the Clinical Center, told the audience that Plotz once confessed that although he loved physics, he felt he lacked an intuition for it, a feel for the physical world. And so, with only one chemistry and no biology courses under his belt, Plotz applied to Harvard Medical School. It was there that he discovered his true vocation as a physician and scientist, there that he was influenced by working in the laboratory of Bernard Davis, a pioneer in molecular biology and bacterial genetics who wrote the standard textbook of the time on microbiology.

Robert Kimberly, a rheumatologist who trained in Plotz’s laboratory in the 1970s, discussed the genesis of the first paper he published with Plotz, a seminal one in the *New England Journal of Medicine* that described the toxic effects of aspirin on renal function (*N Engl J Med* 296(8):418–424, 1977). He recounted that it was the product of long hours spent holed up in rooms on the ninth floor of Building 10, “unswirling” their data on prostaglandins and setting the stage for the development of a new class of therapeutics, cyclooxygenase-2 (COX-2) inhibitors.

Plotz had life-long commitment to human rights. Walter Reich, the physician

who co-chairs the Committee of Concerned Scientists with Plotz, said, “It is a part of Paul’s life that explains so much else about what he has done, including his vocation in medicine, and how could it not be otherwise.” Reich shared examples of this work, including Plotz’s role in helping Soviet refusenik scientists emigrate to the United States in the mid-1980s and his work in the 1960s with the U.S. Public Health Service investigating Southern hospitals suspected of segregating patients.

Cornelius Boerkoel, director of the NIH Undiagnosed Diseases Program’s Translational Laboratory, was a medical student on an immunology rotation at a critical time in Plotz’s lab, when it began research on Pompe disease.



BILL BRANSON

Paul Plotz (above, center) mentored and inspired other scientists including NIAMS Autoimmunity Branch Chief Richard Siegel (below).



BILL BRANSON

He told the gathering, “In many ways, Paul rescued my career in medicine.” Boerkoel, a then-new physician who had had trained previously as a theologian, had become disillusioned with medicine and the inability of basic research to help patients. “I had patients in front of me who needed a solution,” said Boerkoel. “I had been trained to use basic science tools, but the way the system worked was, you collected a cohort, ... you built a mouse model, and then, maybe in five decades, you could make a difference to that person you saw. So, I had a dilemma—a personal crisis.”

But, Boerkoel said, he met a woman in the clinic one day with a then-lethal muscle disorder called Pompe syndrome, thought only to afflict infants. Plotz encouraged him to look for the gene mutations, and Boerkoel found them. When they shared the findings with the patient—findings that could not help her—she was joyful and grateful because they might help her children or their children. “That moment solidified for me what I would do with what I had trained to do—apply basic research tools, one by one,” Boerkoel said. Plotz taught him that that “for these patients, research is care. There is no distinction.”

Plotz’s colleague, Nina Raben, an NIAMS staff scientist who came to NIH during the exodus of Soviet scientists that Reich had mentioned, expressed what many attendees felt: “We have not yet cured Pompe disease. From my perspective, Paul’s retirement is really premature.” And so his collaborators and colleagues wished Plotz good luck but not goodbye. He will continue his work as a scientist emeritus in the NIAMS intramural program. ●

## Paul H. Plotz, M.D.: From Physics to Physician

NIH scientist emeritus Paul Plotz, who was honored at a recent symposium, received his bachelor’s degree in physics from Harvard College (Cambridge, Mass.). In 1963, he earned his M.D. degree from Harvard Medical School (Boston) where he began his research career with Professor Bernard Davis, who made major contributions in microbial physiology and metabolism. Plotz did a residency in internal medicine at the Beth Israel Hospital in Boston and a fellowship in rheumatology at NIH’s Clinical Center.

Plotz worked at NIH for 40 years, with the exception of two years when he did basic research in immunology in Avrion Mitchison’s lab at the National Institute for Medical Research at Mill Hill (London). His early work was largely in immunology; he studied the biology of immune complexes in patients, in animals, and in vitro with stable model immune complexes using affinity labeling polymeric antigens that he invented.

With his fellows Bill Seaman and Bob Kimberly, Plotz described the major hepatic and renal toxicities of aspirin and related prostaglandin synthetase-inhibiting drugs. With Bruce Scharschmidt, he developed an extracorporeal affinity perfusion system to remove bilirubin and other toxins from the circulatory system.

After returning from a sabbatical year at the Kennedy Institute of Rheumatology in London in 1981, Plotz concentrated on the study of inflammatory muscle disease in order to understand the autoimmune

phenomena associated with rheumatologic diseases. He and his colleagues, particularly Fred Miller, worked on clinical and basic aspects of myositis, a rare autoimmune disease that destroys muscles. In recent years he has been studying and trying to cure one of them—Pompe disease, a rare genetic disorder that results in profound muscle weakness and closely mimics myositis.

His longtime colleague Nina Raben leads studies on Pompe syndrome that are aimed at developing enzyme- and gene-replace-



Dozens of scientists gathered to celebrate the career of NIAMS scientist emeritus Paul Plotz at a symposium held at NIH this spring.

BILL BRANSON

ment therapy.

Plotz has served as chief of NIAMS’s Arthritis and Rheumatism Branch, scientific director, and acting deputy director. He was also appointed as a senior advisor to Deputy Director for Intramural Research Michael Gottesman.

Plotz has received many prizes, has lectured widely, and is a Master of the American College of Physicians. As scientist emeritus, he plans to continue doing clinical and basic research on myositis and other inflammatory muscle diseases. ●



## Research Briefs

### **NIDDK, NHLBI, ORS, NCI, NIAID: POTENTIAL TO CURB OBESITY AND TYPE 2 DIABETES**

An NIH-led team of scientists may have found a new way to burn calories. They have uncovered a pathway in mice that allows white fat—a contributor to obesity and type 2 diabetes—to burn calories in the same way that brown fat and muscle do. Changing white fat into brown fat or muscle is a potential new approach to treating obesity and type 2 diabetes, although the research is a long way from being applicable to people.

The researchers made their discovery by reducing the actions of a protein called transforming growth factor (TGF)-beta in two ways: through genetic engineering and by using an antibody that finds and blocks the TGF-beta protein. TGF-beta proteins determine the capacity of cells to grow and function normally. When the actions of TGF-beta were suppressed, the researchers saw that the mice's white fat got browner and had more mitochondria. The increased metabolic activity due to the extra mitochondria led to the mice burning more calories, thus lessening obesity.

The TGF-beta-blocking antibody is also being tested as a cancer treatment in people in a trial at NCI. The researchers next plan to design a more targeted approach to partially transform white fat of mice into brown fat or into a muscle-like state without compromising the immune system. (NIH authors: H. Yadav, C. Quijano, A.K. Kamaraju, O. Gavrilova, R. Malek, W. Chen, P. Zervas, D. Zhigang, E.C. Wright, C. Stuelten, P. Sun, M., A.E. Sumner, T. Finkel, S.G. Rane; *Cell Metab* 14:67–79, 2011)

### **NIDDK: FINDINGS CHALLENGE ONE-SIZE-FITS-ALL WEIGHT ASSUMPTIONS**

Why do some people lose weight faster or slower than others even when they eat the same food and get the same amount of exercise? NIDDK researchers joined with scientists from the World Health Organization and other institutions to create a mathematical

model—and an accompanying online weight-simulation tool—of what happens when people of varying weights, diets, and exercise habits try to change their weight. The findings challenge the commonly held belief that eating 3,500 fewer calories—or burning them off exercising—will always result in a pound of weight loss.

Instead, the computer simulations indicate that this assumption overestimates weight loss because it fails to account for how metabolism changes. The researchers hope to use the knowledge gained from developing the model and from clinical trials to design personalized weight-management programs.

The online simulation tool at <http://bwsimulator.niddk.nih.gov/> simulates how factors such as diet and exercise can alter metabolism over time and thereby lead to changes of weight and body fat. (NIDDK authors: K. Hall, C. Chow, D. Chandramohan; *Lancet* 378:826–847, 2011)

### **NHLBI, NINDS, CC: PROTEIN LINKED TO PARKINSON DISEASE MAY REGULATE FAT METABOLISM**

A defective protein may indirectly contribute to the development of some early-onset Parkinson disease by changing the amount and types of fat in people's bodies. In a preliminary study, NHLBI and NINDS researchers have found that Parkin, a protein linked with some cases of early-onset Parkinson disease, regulates how cells take up and process dietary fats. Mutations in the gene for Parkin are present in as many as 37 percent of early-onset Parkinson cases. However, laboratory mice with defective Parkin do not display obvious signs of the disease and did not gain weight in response to a high-fat laboratory diet, as regular mice typically do.

The researchers saw a similar pattern when they analyzed blood cells from patients enrolled at the NIH Parkinson Clinic. In lab tests, cells from people with the defective

gene for Parkin had less ability to absorb fat. These results provide evidence that the findings could be relevant in humans.

The researchers plan some early-stage clinical studies on the connection between fat metabolism and Parkinson disease. (NIH authors: K. Kim, M.V. Stevens, M.H. Akter, S.E. Rusk, R.J. Huang, A. Cohen, A. Noguchi, D. Springer, A.V. Bocharov, T.L. Eggerman, D. Suen, R.J. Youle, M. Amar, A.T. Remaley, M. Sack; *J Clin Invest* DOI: 10.1172/JCI144736)

### **NIDA: POTENTIAL NEW TARGET FOR THE TREATMENT OF ADHD**

The most common treatment for attention-deficit hyperactivity disorder (ADHD) is to administer psychostimulant medications. It is unclear how these compounds work. NIDA researchers who were part of a multinational collaborative determined that a specific receptor subtype in the brain could play a role in the risk for ADHD. The findings may help explain how stimulants work to treat its symptoms.

Dysfunction of the dopamine D4 receptor subtype is linked to ADHD as well as to other disorders characterized by decreased impulse control, including drug abuse. One subtype variant, D4.7, has been of particular interest because of its increased prevalence in those diagnosed with ADHD. The researchers inserted three variants of the dopamine D4 receptor into cells and into mice and found that the D4.7 variant, unlike its D4.2 and D4.4 counterparts, was not able to interact with the short version of the dopamine type 2 (D2S) receptor to reduce glutamate release in a brain region associated with impulsivity and symptoms of ADHD in humans. The results suggest that psychostimulants might reduce glutamate release by amplifying this D4-D2S interaction, and this amplification might explain why these medications are less efficient in patients with the D4.7 variant. (NIDA authors: S. Ferre, D. Volkow, J. Borycz; *Mol Psychiatry* DOI: 10.1038/mp.2011.93) ●



## A Tuning Gear for the Tip Link

BY JENNIFER WENGER, NIDCD

TO ELICIT SWEET, CROWD-PLEASING notes as they strum, guitarists need to keep the tension on their guitar strings sufficiently tight, which is adjusted at the tuning gear. Similarly, for you to be able to hear the music—or any other sound—certain strandlike structures in your inner ear need to be pulled tight so they respond to sound vibrations.

Bechara Kachar and M’hamed Grati, of NIDCD’s Laboratory of Cell Structure and Dynamics, have discovered that two inner ear proteins are present at the site of the “tuning gear” for these sensory structures—called tip links. The new findings were published recently in the *Proceedings of the National Academy of Sciences (Proc Natl Acad Sci USA 108:11476-11481, 2011)*.

**Electric signals:** Tip links are infinitesimally tiny strands attached to stereocilia, the bundles of stiff, hairlike projections extending from the tops of sensory cells, called hair cells, in your inner ear. But don’t let their small size fool you—they are the pivotal point at which sound vibrations are converted to electrical signals that communicate the sounds you hear to your brain.

Each bundle of stereocilia is arranged in three rows, like stairs, with the tip link resembling a piece of thread that stitches the tip of the shortest stairstep to the tallest one. When sound vibrations enter the inner ear, the stereocilia deflect to one side, causing the tip links to open special channels. Potassium ions enter the hair cell, which kicks off the electrical signal, and, almost immediately, the sound is “heard” by your brain.

Several years ago, Kachar as well as other scientists at NIDCD and elsewhere discovered that tip links are made of the proteins cadherin-23 and protocadherin-15—a major feat in hearing research. But

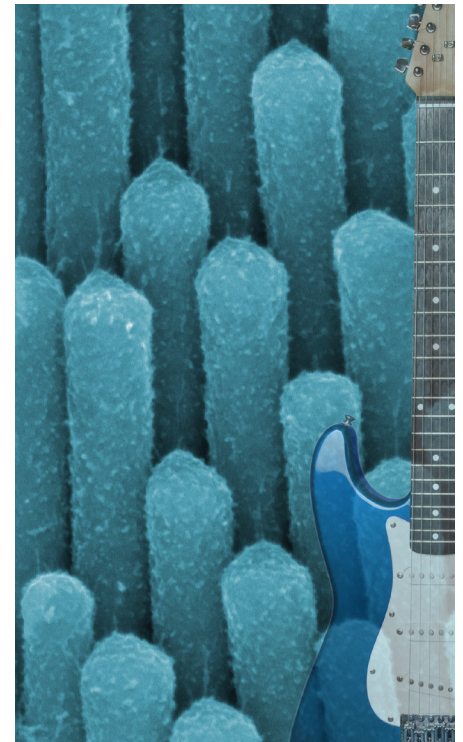
that was just the tip of the tip link (so to speak). There’s still much more to learn. For example, it is widely accepted that the upper insertion site of the tip link is where the “tuning gear” is located; however, the precise mechanism and its molecular components are not known.

**New proteins:** In this latest research, Kachar and Grati have localized two new proteins at this tuning site. Using inner ear tissue from rodent animal models, they developed fluorescent antibodies that adhere only to specific proteins and found two proteins that cluster in that region with harmonin-b, a scaffolding protein that was known to localize there. The two proteins are myosin VIIa (MYO7A)—a “motor” protein so called because it can move around a cell’s surface on its own—as well as another scaffolding protein called sans.

The researchers confirmed their findings by separately injecting green fluorescent protein (GFP)-tagged DNA for MYO7A, sans, and harmonin into hair cells. They noticed the upper insertion region glowed green each time, indicating that all three proteins had localized there.

The researchers then wanted to test how well the three proteins interact inside a cell. They injected GFP-tagged DNA for various combinations of the proteins into kidney cells and found that if MYO7A and sans were injected alone, they remained diffuse throughout the cell. Only when they were injected in combination with harmonin did they form plaques, indicating co-localization. (Other prospective motor proteins were tested and found not to co-localize with sans and harmonin.)

**Tension:** Together, these findings suggest that MYO7A, sans, and harmonin form a three-way complex in the



NIDCD (LEONARDO ANDRADE AND BECHARA KACHAR)

Tip links (the tiny strands connecting stereocilia) need to be pulled tight in order to function, as the strings of a guitar do.

upper insertion region of the stereocilium, with the MYO7A motor acting as the “pull” to create the needed tension on the tip link.

Interestingly, these three proteins have been implicated along with cadherin-23 and protocadherin-15 in the type 1 form of Usher syndrome, a genetic disorder that can result in loss of hearing, balance, and vision. Understanding how the proteins interact during the development of hair cells could give us a clearer picture of what is happening with this disorder, for which there is currently no cure. ●

**We are always looking for interesting research stories for *The NIH Catalyst*. If you have an idea, contact the managing editor, Laura S. Carter, at [carterls@od.nih.gov](mailto:carterls@od.nih.gov).**

At their annual retreat in December 2008, the scientific directors announced their intention to raise the profile of NIH's intramural research and get people to appreciate the value of NIH's high-risk, high-reward science and the significant contributions being made to human health. They also hoped that NIH could attract high-quality researchers and be viewed as a premier career destination for talented tenure-track faculty.

L. Michelle Bennett (NHLBI) and Andy Baxevanis (NHGRI) were selected to co-chair a trans-NIH committee to promote the IRP. Over the past two years, the 80-member group has engaged communications and training directors, information technology specialists, researchers, clinicians, a public relations firm in Boston, and others to develop strategies for showcasing the intramural program.

The culmination of that effort is a new IRP Web site, the first phase of which will launch in mid-September; the second phase, in 2012.

The new Web portal "represents the face of the NIH intramural program in all its creativity and diversity," said Michael Gottesman, deputy director for intramural research. "We have over 7,000 scientists working on six main campuses involved in over 2,000 research programs spanning the spectrum of biomedical and behavioral research."

Visitors to the new Web site will find stories and videos of researchers and their work in the "Research in Action" section; training and career opportunities; a new Web presence for *The NIH Catalyst*; links to

Intramural Research Scientific Programs	
Center for Information Technology	Janice Kennedy Shriver National Institute of Child Health and Human Development
National Cancer Institute - Center for Cancer Research	National Institute on Deafness and Other Communication Disorders
National Cancer Institute - Division of Cancer Epidemiology and Genetics	National Institute of Dental and Craniofacial Research
National Center for Complementary and Alternative Medicine	National Institute of Diabetes and Digestive and Kidney Diseases
National Eye Institute	National Institute on Drug Abuse
National Heart, Lung, and Blood Institute	National Institute of Environmental Health Sciences
National Human Genome Research Institute	National Institute of Mental Health
National Institute on Aging	National Institute of Neurological Disorders and Stroke
National Institute on Alcohol Abuse and Alcoholism	National Institute of Nursing Research
National Institute of Allergy and Infectious Diseases	National Library of Medicine National Center for Biotechnology Information
National Institute of Arthritis and Musculoskeletal and Skin Diseases	Vaccine Research Center
National Institute of Biomedical Imaging and Bioengineering	NIH Clinical Center

Before and after: The old IRP Web site (above) is being replaced by a new one (below), which will go live in mid-September at <http://irp.nih.gov>.



social media such as Facebook, LinkedIn, and Twitter; and much more. In phase two, investigator profiles and laboratory pages will be added to the Web site.

Creating the IRP Web site "was a perfect opportunity to engage our intramural colleagues in the development of a new communications tool," said Baxevanis. "Their feedback was essential to our being able to convey the enthusiasm for the IRP mission."

"This is the first time that the NIH has had a public presence for the Intramural Research Program as a whole," Bennett said. "Numerous people across the NIH

rolled up their sleeves to get this accomplished."

The new Web site was tested this summer by 17 people who represented a cross section of scientists, trainees, patients, and health-care professionals and included a Congressional staffer. Each participant reviewed the site individually at either a facilitated session held at the Department of Health and Human Services' Usability Lab in Washington, D.C., or conducted remotely from a home computer.

"Overall, I'm impressed with it," said one of the test participants. "It's easy to read and provides a lot of basic information about the IRP as well as specific scientific information."

Another tester was pleased that the Web site was a "one-stop search for all of IRP."

"This is a proud, shining face," said Gottesman. "The larger scientific community [and others] need to know who we are and what we do." ●

#### FAST FACTS

- The new Web site will launch on September 19, 2011, at <http://irp.nih.gov>.
- For more information or to request Web page templates for your IC's Web site, contact Christopher Wanjek at [wanjek@mail.nih.gov](mailto:wanjek@mail.nih.gov).
- Read "NIH Intramural Research at the Threshold of a New Era" at [http://sourcebook.od.nih.gov/oir/IRP\\_transition.pdf](http://sourcebook.od.nih.gov/oir/IRP_transition.pdf).
- One issue remains unresolved: What can we call ourselves if not "intramural"? If you have any suggestions, please share them on one of the new IRP social media pages.

and its potential to help scientists in their quest to defeat disease.

The seeds for the RNAi screening facility were planted in the fall of 2007 when the institutes and centers' (ICs) scientific directors convened a committee to study how RNAi research could be advanced at NIH. The committee, made up of representatives from several ICs and chaired by Brian Oliver (NIDDK), recommended that the NIH intramural research program construct its own RNAi screening facility. "We knew we had to think big to achieve big things," Oliver said. "The technology was advancing so rapidly [that] if we didn't make a move quickly we risked losing relevance."

The RNAi facility was developed through a collaborative, trans-NIH effort by teams of geneticists, biologists, chemists, engineers, and bioinformatics specialists. The facility was located within the NCGC to leverage the NCGC's existing small-molecule high-throughput screening, informatics, and chemistry infrastructure. RNAi gurus Natasha Caplen (NCI) and Scott Martin (NHGRI) helped get the facility running; Caplen chaired the oversight committee and Martin developed the screening and informatics platform. The state-of-the-art facility opened in 2010 and has been performing screens for DePamphilis and other scientists ever since.

Previously, gene-silencing research at the NIH had been limited to labs that were studying individual genes. With some 23,000 genes in the human genome to dig through, the process of shutting them off one at a time to assess their functionality could take decades and cost billions of dollars. The RNAi facility, however, provides intramural researchers with the tools to screen whole genomes and pathways on an industrial scale. RNAi screens often identify multiple genes that control critical

processes and pathways in a particular biology being studied.

By using an assay developed in collaboration with Martin, for example, DePamphilis was able to screen 21,584 genes in just four months.

"It gives us true functional data," said Caplen, whose seminal work in 2001 showed that gene suppression was possible in mammalian cells. Now "I can get information in a week that would have taken years."

Martin is also enthusiastic about the future of RNAi research. "Do I get excited when I read the results of a screen? You bet I do!" He is thrilled that his "work can one day help a kid suffering from cancer."

DePamphilis speculates that he may have discovered cancer's "Achilles' heel": Suppressing geminin should be able to kill many forms of cancer. In preliminary tests, he has been able to destroy the same kind of breast cancer cells that affect his daughter. Although after one year of treatment, his daughter is winning her battle against the disease, DePamphilis isn't about to give up his personal crusade against cancer. He knows his work is just the opening salvo in the fight. He is optimistic that his collaboration with the RNAi facility will lead him and other researchers down the path to defeating his nemesis: "When it comes to cancer, I don't take prisoners." ●

**This is just one scientist's story about using the RNAi Screening Facility to enhance his research. For more information about the facility and how to apply for project support, visit <http://rnaï.nih.gov> and go to the RNAi symposium, October 24, Kirschstein Auditorium in Natcher Building 45, 2:00–4:00 p.m., at the NIH Research Festival (October 24–28; see Announcements on page 18). For information on the NIH Chemical Genomics Center, visit <http://www.ncgc.nih.gov>.**

## NIH ABBREVIATIONS

- CBER:** Center for Biologics Evaluation and Research, FDA
- CC:** NIH Clinical Center
- CCR:** Center for Cancer Research, NCI
- CIT:** Center for Information Technology
- DOE:** Department of Energy
- FAES:** Foundation for Advanced Education in the Sciences
- FelCom:** Fellows Committee
- FDA:** Food and Drug Administration
- IRP:** Intramural Research Program
- HHS:** U.S. Department of Health and Human Services
- NCCAM:** National Center for Complementary and Alternative Medicine
- NCBI:** National Center for Biotechnology Information
- NCI:** National Cancer Institute
- NEI:** National Eye Institute
- NHGRI:** National Human Genome Research Institute
- NHLBI:** National Heart, Lung, and Blood Institute
- NIA:** National Institute on Aging
- NIAAA:** National Institute on Alcohol Abuse and Alcoholism
- NIAID:** National Institute of Allergy and Infectious Diseases
- NIAMS:** National Institute of Arthritis and Musculoskeletal and Skin Diseases
- NIBIB:** National Institute of Biomedical Imaging and Bioengineering
- NICHD:** Eunice Kennedy Shriver National Institute of Child Health and Human Development
- NIDA:** National Institute on Drug Abuse
- NIDCD:** National Institute on Deafness and Other Communication Disorders
- NIDCR:** National Institute of Dental and Craniofacial Research
- NIDDK:** National Institute of Diabetes and Digestive and Kidney Diseases
- NIEHS:** National Institute of Environmental Health Sciences
- NIGMS:** National Institute of General Medical Sciences
- NIMH:** National Institute of Mental Health
- NIMHD:** National Institute on Minority Health and Health Disparities
- NINDS:** National Institute of Neurological Disorders and Stroke
- NIINR:** National Institute of Nursing Research
- NLM:** National Library of Medicine
- OD:** Office of the Director
- OITE:** Office of Intramural Training and Education
- OIR:** Office of Intramural Research
- ORS:** Office of Research Services

## Recently Tenured



STEPHEN AMBS, NCI-CCR



FREDERIC GLENN BARR, NCI-CCR



CRAIG BLACKSTONE, NINDS



ANTONELLO BONCI, NIDA



CARSTEN BÖNNEMANN, NINDS

### STEFAN AMBS, PH.D., M.P.H., NCI-CCR

*Senior Investigator; Head, Breast and Prostate Unit, Laboratory of Human Carcinogenesis*

**Education:** University of Tübingen, Tübingen, Germany (M.S. in biochemistry); Institute of Toxicology, University of Würzburg, Würzburg, Germany (Ph.D. in pharmacology and toxicology); Johns Hopkins Bloomberg School of Public Health, Baltimore (M.P.H.)

**Training:** Postdoctoral training in NCI's Laboratory of Human Carcinogenesis

**Before coming to NIH:** Senior research scientist at the Aventis Cambridge Genomics Center (Cambridge, Mass.)

**Came to NIH:** In 1992 through 1997 for training; returned to NCI as a tenure-track investigator in 2001

**Outside interests:** Traveling; doing nature photography

**Research interests:** We conduct molecular epidemiology studies of breast and prostate cancer using epidemiological and translational research approaches to identify risk factors and mechanisms for tumor development and progression. We focus on cancer health disparities—adverse differences in cancer incidence, prevalence, death, survivorship, and related health conditions in racial and ethnic minorities, residents of rural areas, women, children, the elderly, and persons with disabilities.

In the prostate cancer program, we are investigating population differences in tumor biology and the effect of tobacco use and biobehavioral factors on the progression of cancer. We are also evaluating the role of microRNAs in tumor biology. This research is supported by a case-control study of prostate cancer that examines risk factors among African-American and European-American men in the greater Baltimore area. In the United States, African-American men have the highest risk of any ethnic group of developing prostate cancer and more than twice the mortality rate of European-American men. While socioeconomic factors contribute to this health disparity, they do not fully explain the differences in prostate cancer incidence, aggressiveness, and mortality.

In our breast cancer research, we are looking at the influence of inflammation (in particular the role of nitric oxide biology) and common genetic variations in tumor characteristics and survival. We are also examining gene expression as well as metabolome and proteome profiles and how they relate to tumor biology in African-American and European-American patients.

We recently discovered tumor immunobiological differences between African-American and European-American patients. In the future, we will further

examine the relative contribution of tumor biology to the existing survival health disparities between African-American and European-American prostate and breast cancer patients.

### FREDERIC GLENN BARR, M.D., PH.D., NCI-CCR

*Senior Investigator; Deputy Chief, Laboratory of Pathology*

**Education:** Williams College, Williamstown, Mass. (B.A. in chemistry); Washington University School of Medicine, St. Louis (Ph.D. in molecular biology; M.D.)

**Training:** Residency in anatomic pathology at the Hospital of the University of Pennsylvania (Philadelphia); postdoctoral training in genetics and molecular biology at the Children's Hospital of Philadelphia

**Before coming to NIH:** Associate professor of pathology and laboratory medicine at the University of Pennsylvania School of Medicine

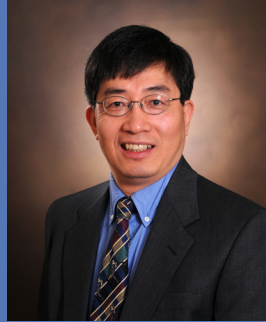
**Came to NIH:** In March 2011

**Selected professional activities:** Associate editor, *Journal of Molecular Diagnostics*; director, "Advanced Molecular Pathology" course, United States and Canadian Academy of Pathology

**Outside interests:** Being a "soccer dad"; watching football as a Philadelphia Eagles fan; enjoying musical theater; collecting penguin-related objects



CHRISTIAN GRILLON, NIMH



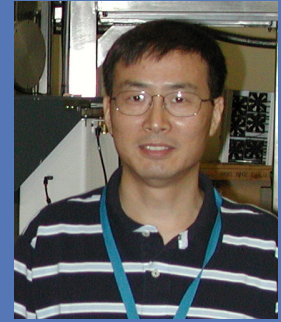
PENGNIAN CHARLES LIN, NCI-CCR



TONJA NANSEL, NICHD



MARC L. REITMAN, NIDDK



YUN-XING WANG, NCI-CCR

**Research interests:** My laboratory uses a multidisciplinary approach to study recurrent chromosomal alterations in cancer. In particular, we focus on rhabdomyosarcoma, a cancer that is related to muscle and can occur in soft tissues anywhere in the body. Rhabdomyosarcoma is the most common soft-tissue cancer in children; in the U.S., it is diagnosed in about 250 children a year. We are investigating the genetic basis and consequences of chromosomal translocations and amplification events in this cancer. In addition, we are working with clinicians to explore whether these recurrent chromosomal alterations could serve as biomarkers for the diagnosis and management of this difficult-to-diagnose disease.

In one project, we are investigating 2;13 and 1;13 chromosomal translocations that occur in rhabdomyosarcoma. We showed that these translocations rearrange the genes *PAX3* and *PAX7* and juxtapose, or fuse, them with the gene *FOXO1*. We are examining the phenotypic effects and associated molecular changes in human muscle cells.

We are also investigating genetic events that may coincide with these fusions during rhabdomyosarcoma development. Using genome-wide screening technologies, we identified chromosomal regions that have an abnormally high copy number

and are assaying those genes for corresponding expression changes and will test selected genes for phenotypic effects. We are also examining the clinical significance of these genetic changes by correlative studies from the Children's Oncology Group, a worldwide clinical trials cooperative group supported by NCI.

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**CRAIG BLACKSTONE, M.D., PH.D., NINDS**

*Senior Investigator, Cellular Neurology Section, Neurogenetics Branch*

**Education:** University of Chicago (B.S. in chemistry; M.S. in biochemistry and molecular biology); Johns Hopkins University School of Medicine, Baltimore (Ph.D. in neuroscience; M.D.)

**Training:** Neurology residency at Harvard-Longwood Neurology Program (Boston); fellowship in clinical movement disorders at Massachusetts General Hospital (Boston); postdoctoral research at Massachusetts General Hospital and Harvard Medical School

**Came to NIH:** In 2001

**Selected professional activities:** Director, NIH M.D.-Ph.D. Partnership Training Program; editorial board, *Journal of Clinical Investigation*; executive council, American Neurological Association

**Outside interests:** Playing tennis; skiing; playing with his three children

**Research interests:** Our laboratory investigates the cellular mechanisms underlying hereditary movement disorders. We work jointly with an active clinical program that assesses new patients with these disorders. We are particularly interested in the pathogenesis of hereditary spastic paraplegias (HSPs), which are characterized by progressive weakness and spasticity (stiffness) of the legs. HSP primarily affects the corticospinal motor axons, which are among the largest cells in the body (as long as one meter) and carry signals between the brain's cerebral cortex and the spinal cord. Rare forms of HSPs may have additional neurological symptoms such as retinopathy, ataxia (impaired muscle coordination), cognitive impairment, and peripheral neuropathy.

About 50 genetic loci for HSP have been described and 20 genes identified. We are investigating the functions of the disease genes' proteins at the cellular level and in animal models. We have determined that the most common forms of HSPs are due to mutations in genes that encode proteins that help shape the endoplasmic reticulum (a large membranous organelle within cells) into a tubular network. Our current studies focus on both pathogenic mechanisms and fundamental aspects of

CONTINUED ON PAGE 14 ►



## Recently Tenured

CONTINUED FROM PAGE 13

how organelles, such as the endoplasmic reticulum, are shaped and distributed within cells. The common cellular pathogenic themes that are emerging will likely present novel targets for therapeutic intervention.

### ANTONELLO BONCI, M.D., NIDA

*Scientific Director, NIDA Intramural Research Program*

**Education:** Catholic University of the Sacred Heart School of Medicine, Rome (M.D.)

**Training:** Residency in neurology at the School of Neurology, University of Rome Tor Vergata (Rome); postdoctoral work at the Vollum Institute for Advanced Biomedical Research (Portland, Ore.)

**Before coming to NIH:** Professor of neurology and holder of the Howard J. Weinberger Endowed Chair in Addiction Research at the University of California, San Francisco (UCSF); associate director of extramural affairs at the Ernest Gallo Clinic and Research Center at UCSF

**Came to NIH:** In August 2010

**Outside interests:** Playing cello and trying to learn all the Bach suites for cello; enjoying art and literature; bicycling through the beautiful back roads of Maryland; playing tennis

**Research interests:** My research has focused on the long-term effects of drug exposure on the brain. Before I came to NIH, my lab was the first to demonstrate that drugs of abuse, such as cocaine, modify the strength of the connections between neurons. This finding cast a new light on the phenomenon of drug addiction, which could now be seen as a process of maladaptive learning. This new understanding in turn helped explain why drug taking can often become an automatic, compulsive behavior.

Chronic exposure to drugs of abuse causes several cellular and behavioral adaptations such as tolerance, dependence, and sensitization. My laboratory aims to understand the synaptic properties of neurons in brain areas—such as the ventral tegmental area (located in the midbrain), the nucleus accumbens (located in the forebrain), and the prefrontal cortex—that are involved in drug addiction. My laboratory was the first to demonstrate that drugs of abuse produce a form of synaptic plasticity called long-term potentiation. We apply electrophysiological, optogenetic (combining optical and genetic techniques to probe neural circuits at high speed), molecular, and behavioral approaches to elucidate the long-term effects of chronic administration of drugs of abuse such as cocaine and alcohol. Understanding the basic synaptic mechanisms that underlie the long-term effects of these drugs will likely open new avenues for therapeutic strategies for substance-use disorders.

### CARSTEN BÖNNEMANN, M.D., NINDS

*Senior Investigator; Chief, Neuromuscular and Neurogenetic Disorders of Childhood Section, Neurogenetics Branch*

**Education:** Medical school at Albert Ludwig University of Freiburg, Freiburg im Breisgau, Germany (M.D.)

**Training:** Residencies in pediatrics at Altona Children's Hospital (Hamburg) and University Hospital Göttingen (Germany); residency in neurology/pediatric neurology at Massachusetts General Hospital and Harvard Medical School (Boston); postdoctoral research in neuromuscular genetics at Children's Hospital Boston/Harvard Medical School

**Before coming to NIH:** Assistant professor of pediatrics and of neurology at the Perelman School of Medicine at the University of Pennsylvania (Philadelphia); attending physician and co-director of the Neuromuscular

Program and director of the Neurogenetics Clinic at the Children's Hospital of Philadelphia (Philadelphia)

**Came to NIH:** In August 2010

**Selected professional activities:** Member of the executive board of the World Muscle Society; adjunct associate professor, Perelman School of Medicine at the University of Pennsylvania; adjunct investigator, NHGRI

**Outside interests:** Playing the viola da gamba; drawing; cooking

**Research interests:** My clinical and laboratory interests focus on genetically caused neuromuscular disorders of childhood. In my clinical practice at Children's Hospital of Philadelphia and in my ongoing clinical practice at NIH, my efforts have been devoted to properly diagnosing children with complex neuromuscular and neurogenetic conditions.

In my clinical work, we use next-generation genomic tools to identify new genetic entities as well as to carefully establish phenotypic spectra and the natural history of known genetic entities. Our focus is on early-onset muscle disease including the congenital myopathies, congenital muscular dystrophies, and reducing-body myopathy (a disorder characterized by progressive weakness). My lab recently identified the causative gene for reducing-body myopathy.

In our basic research, we explore the role that the interactions between muscle and its extracellular matrix play in development, maintenance, and regeneration of voluntary muscle. We also look at how these interactions are perturbed in muscular dystrophy and other muscle disorders. Our overriding goal—in both the lab and the clinic—is to define opportunities for therapeutic interventions for patients who are affected by congenital muscle disorders.




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**CHRISTIAN GRILLON, PH.D., NIMH**

*Senior Investigator; Section Chief, Neurobiology of Fear and Anxiety*

**Education:** University Jussieu, Paris, France (M.A. in biology); University of Paris XI (Paris-Sud 11 University), Orsay, France (Ph.D. in neuroscience and behavior)

**Training:** Postdoctoral training at the University of California at Irvine and the University of California at San Diego

**Before coming to NIH:** Associate professor of psychiatry at Yale University School of Medicine (New Haven, Conn.)

**Came to NIH:** In 2001

**Selected professional activities:** Assisting in scientific reviews; associate or consulting editor for several journals

**Outside interests:** Traveling; jogging

**Research interests:** My research focuses on the neurobiology of anxiety and anxiety disorders and the psychophysiology of emotion. I am interested in contrasting the fear-spectrum disorders, such as simple phobia and social anxiety disorder, and the anxiety-spectrum disorders, such as generalized anxiety disorder. I examine defense mechanisms that mediate fear and anxiety in humans. Fear and anxiety can be studied by exposing subjects to different classes of threats. Responses to threats entail distinct cognitive, emotional, and behavioral processes. For example, an imminent threat evokes a phasic fear response, which is an active coping mechanism characterized by fight or flight, while a distal or uncertain threat generates a more persistent state of anxious apprehension and hypervigilance. I use a multiperspective strategy based on psychophysiology to obtain objective measures of aversive states, affective neuroscience to understand the interaction between aversive states and cognitive and emotional processes, psychopharmacology to identify

how anti-anxiety drugs work and to screen candidate anxiolytic compounds, and neuroimaging to map the neural structures underlying fear and anxiety. Elucidating the pathophysiological mechanisms is a prerequisite for better treatment for and classification of anxiety disorders.

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**PENGNIAN CHARLES LIN, PH.D., NCI-CCR**

*Senior Investigator, Head, Vascular Biology Section, Mouse Cancer Genetics Program*

**Education:** Beijing Normal University, Beijing (B.S. in biology); Peking Union Medical College (Institute of Chinese Medical Sciences), Beijing (Ph.D. in cell and molecular biology)

**Training:** Postdoctoral training at Duke University (Durham, N.C.)

**Before coming to NIH:** Associate professor of cancer biology, radiation oncology, and cell and developmental biology at Vanderbilt University School of Medicine (Nashville, Tenn.)

**Came to NIH:** In August 2010

**Selected professional activities:** Member of several study sections as grant reviewer for national and international funding agencies

**Outside interests:** Spending time with family and two sons; playing tennis and ping-pong

**Research interests:** The vascular system plays a vital role in the progression of many debilitating diseases including cancer, diabetes, and heart disease. Understanding the molecular mechanisms of vascular biology is critical. Our research centers on the mechanisms that govern angiogenesis (blood vessel formation) and vascular homeostasis in cancer. During normal development, vascular networks form to satisfy the metabolic demands of tissue growth. When we reach adulthood, the vascular endothelium becomes quiescent. Under disease conditions, however, this delicate balance is disturbed and the endothelium is reactivated.

Understanding what distinguishes physiological angiogenesis during normal growth from pathological angiogenesis in diseases has implications for developing therapeutic interventions. We believe that the major difference is inflammation. Our working hypothesis is that tissue injury leads to inflammation, which then triggers pathological angiogenesis. We combine genetic and biochemical approaches to investigate the interaction between inflammation and pathological angiogenesis. These approaches may have the potential to preferentially target angiogenesis in disease and spare normal blood vessels.

Our current research explores how myeloid-derived suppresser cells regulate the tumor microenvironment with a focus on angiogenesis and lymphangiogenesis; the role of vascular integrity and endothelial-to-mesenchymal transformation in tumor progression; and the genetic differences in vasculature between humans and other species.

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**TONJA NANSEL, B.S.N., PH.D., NICHD**

*Senior Investigator, Prevention Research Branch*

**Education:** Fort Hays State University, Hays, Kansas (B.S.N. Nursing); Wichita State University, Wichita, Kansas (Ph.D. community/clinical psychology)

**Training:** Postdoctoral training in NICHD's Prevention Research Branch

**Came to NIH:** In 1998 for postdoctoral training; became tenure-track investigator in 2001

**Selected professional activities:** Previous co-president and current treasurer of the Behavioral Research in Diabetes Group Exchange

**Outside interests:** Dog rescue and training (dog foster-parenting); gardening; healthful eating; doing yoga; hiking; skydiving; scuba diving; being a fan of her opera-star spouse

CONTINUED ON PAGE 16 ►

**Recently Tenured**

CONTINUED FROM PAGE 15

**Research interests:** I am interested in integrating prevention and health-promotion intervention strategies to manage and prevent chronic illness. My research is on type 1 diabetes in children and how best to help them and their families manage the disease. In particular we are looking at the influence of family, social, and behavioral variables on diabetes self-management during adolescence, a time when young people's adherence to dietary regimens and their ability to manage glycemic control typically worsen. We have identified behavioral strategies that may help prevent the deterioration in disease management during this developmental transition period. We are exploring how to facilitate healthful eating by testing a family-based program to increase the consumption of nutrient-dense whole foods. We will determine the program's efficacy in promoting improved glycemic control and health outcomes and provide data that are critical for guiding dietary regimens for young people with diabetes.

In addition to our diabetes research, we are also conducting studies to determine whether tailored health communications are more effective than generic ones in preventing pediatric injuries. We have found that parents are more likely to respond to tailored messages and adopt injury prevention behaviors when the messages are delivered in the pediatric primary-care setting. Our findings may offer an innovative and efficacious way to reduce injury in young children.

**MARC L. REITMAN, M.D., PH.D., NIDDK**

*Senior Investigator; Chief of the Diabetes, Endocrinology, and Obesity Branch*

**Education:** Massachusetts Institute of Technology, Cambridge, Mass. (B.S. in chemistry and in life sciences); Washington University, St. Louis (M.D.; Ph.D. in molecular biology)

**Training:** Residency in internal medicine at Columbia Presbyterian Hospital (New York); endocrinology fellowship at NIH; postdoctoral training in regulation of gene expression in NIDDK's Laboratory of Molecular Biology

**Came to NIH:** In 1986 for training; received tenure in 1999; left in 2002; returned in 2011

**Before returning to NIH:** Director, Clinical Research at Merck Research Laboratories (Rahway, N.J.)

**Outside interests:** Spending time with family; collecting and reading old books on medicine, physiology, and biochemistry

**Research interests:** I am interested in energy metabolism and understanding the mechanisms that regulate body weight and metabolic efficiency. Using mouse models, we investigate how metabolic rate and body temperature are regulated and test drug treatments for obesity. The expectation is that mouse research will generate hypotheses that can be followed up in a clinical setting and, conversely, that our clinical observations will spur investigations using mouse models. I am reestablishing my lab and doing studies on bombesin receptor subtype 3 (BRS-3). Mice lacking this receptor develop metabolic defects and become obese. Animal studies indicate that BRS-3 agonists may alleviate obesity. I am also interested in both clinical and basic aspects of obesity and diabetes including drug discovery and development as well as pharmacogenetics and genomics.

During my career, I have made contributions in fields ranging from glycoprotein

biosynthesis, lysosomal enzyme biology, inborn errors of metabolism, globin gene regulation, chromatin structure, molecular evolution, and systems biology, to lipodystrophy, leptin, uncoupling protein-3, and clinical trial design. I am looking forward to contributing to clinical research in the NIH Clinical Center's Metabolic Clinical Research Unit, which has state-of-the-art facilities including room calorimeters (closed rooms in which peoples' total energy intake and expenditure can be calculated). I believe that a better understanding of the molecular mechanisms regulating body weight, metabolic efficiency, and energy homeostasis will lead to advances in the treatment of diabetes and obesity.

**YUN-XING WANG, PH.D., NCI-CCR**

*Senior Investigator, Head of Protein-Nucleic Acid Interactions Section, Structural Biophysics Laboratory*

**Education:** Jilin University, Changchun, People's Republic of China (B.S. in polymer science); Johns Hopkins University, Baltimore (Ph.D. in chemistry)

**Training:** Postdoctoral training in NIDCR  
**Came to NIH:** In 1994 for training; joined NCI in 2000

**Selected professional activities:** Spokesperson and main contributor on small-angle X-ray scattering for the Argonne National Laboratory's (Argonne, Ill.) 10-year strategic plan

**Outside interests:** Mountain biking with his children; painting; playing badminton and table tennis

**Research interests:** Less than 90 percent of the human genome codes for proteins, but more than three percent is transcribed into ribonucleic acids (RNA). RNA molecules play important roles in biological processes such as the regulation of gene expression,



which is important in cancer biology. Understanding the mechanisms of these processes requires knowledge of the three-dimensional (3-D) structures of these RNA molecules and participating proteins. But 3-D structures of RNAs are hard to determine even though scientists have made tremendous progress during the last decade in two of most powerful methods—X-ray crystallography and nuclear magnetic resonance (NMR) spectroscopy—for determining the structure of biomacromolecules. Our laboratory has developed a new method for the combined use of small-angle X-ray scattering and NMR spectroscopy for determining 3-D structures of RNAs in solution. We use small-angle X-ray scattering to outline the global shape of a molecule in solution and use NMR spectroscopy to identify structural details. With this combined approach, we identified the 3-D structure of a ribosome-binding structural element—a 102-residue RNA that regulates the initiation of viral translation and replication in turnip crinkle virus. Currently, we are in the process of determining the 3-D topological structures of several large RNAs that are important in human immunodeficiency virus. These 3-D structures provide important clues to the function of these RNAs. ●

If you have been tenured in the last year or so, *The NIH Catalyst* will be in touch soon to include you on these pages.

### SCIG Stem Cell Research Symposium

More than 400 NIH scientists and others flocked to the Stem Cell Research Symposium held on NIH's Bethesda campus on July 14, 2011. Co-sponsored by the NIH Center for Regenerative Medicine (NIH-CRM) and the Stem Cell Interest Group (SCIG), the symposium was a forum for scientists to share research findings and explore potential collaborations. Speakers and attendees discussed manipulating cell plasticity for therapeutic purposes; analyzing chromatin and telomere structural changes; and finding ways to better focus clinical studies via genetic sequencing and advanced animal models.

The meeting commenced with an industry overview by former NIH scientist Mahendra Rao, who until recently was vice president of regenerative medicine at Life Technologies (Carlsbad, Calif.). “This field is rapidly moving into the mainstream” of medical treatment, Rao declared. The event turned celebratory when NIH Director Francis Collins introduced Rao as the new director of the NIH-CRM. Collins stressed the need to “spur on the stem cell initiative and increase medicine’s ability to more personalize research and treatment efforts.” Rao’s term as director began in early August (see article on page 3).

Other presenters noted the increasing cooperation among researchers, collaborative grant support, and ongoing interdepartmental clinical trials. Talks by Pam Robey (chief of NIDCR’s Cranial and Skeletal Diseases Branch and co-coordinator of the Bone Marrow Stromal Cell Transplantation Center) and Cynthia Dunbar (head of NHLBI’s Molecular Hematopoiesis Section) highlighted advances and the accelerating bench-to-bedside process.

The SCIG strives to facilitate communication between intramural and extramural scientists in the field of stem cell biology. To learn more about this group, visit <http://sigs.nih.gov> or contact Scott Lipnick ([scott.lipnick@nih.gov](mailto:scott.lipnick@nih.gov)) or Megan Laycock ([megan.laycock@nih.gov](mailto:megan.laycock@nih.gov)). **STEPHANIE COOPERSTEIN**

### Sweet Progress in the Glycosciences

Recent developments in techniques and technology have spurred exponential growth in glycobiology, the scientific study of carbohydrates. On June 15, 2011, NIH scientists met at the fourth annual NIH and FDA Glycosciences Research Day to discuss the progress that has been made in understanding cellular carbohydrates.

Attaching the right sequence of complex sugar molecules onto proteins is a process known as glycosylation. Incorrect glycosylation of mammalian cells can cause deleterious effects in many diseases; these incorrect glycan structures can be used as biomarkers for diagnosing disease. The correct glycosylation of pathogens can make them more virulent and help them evade the immune system.

Many of the researchers attending the event were glycobiologists by training. Others became glycobiologists out of necessity. Speakers from several disciplines underscored the need for technologies that support fundamental research to further our understanding of glycans.

The Glycobiology Interest Group brings together scientists from laboratories at NIH, FDA, Johns Hopkins University (Baltimore), and other local universities. It serves as catalyst for collaborations and as a training program for young scientists interested in the glycosciences. To learn more, visit <http://sigs.nih.gov/GBIG> or contact Pam Marino ([marinop@nigms.nih.gov](mailto:marinop@nigms.nih.gov)). **MICHELLE BOND, NIDDK**



### COMING SOON: FASTER MTA PROCESSING

#### Processing Time Will Go From Weeks to Days

In October, the NIH Office of Intramural Research in conjunction with the NIH Center for Information Technology will launch the initial version of a Web-based Material Transfer Agreement (MTA) management system. The new system will establish an enterprise-wide MTA management system for use by intramural and extramural researchers as well as by NIH's and external technology transfer offices; use automation to reduce the processing time of MTAs; and reduce the paperwork burden. Look for more details about NIH Web MTA at the NIH Research Festival (see announcement in next column) and in the next issue of *The NIH Catalyst*. For questions, contact Lili Portilla (Lilip@nih.gov) or Lisa Finkelstein (LFinkels@mail.nih.gov).

### FY2012 BENCH-TO-BEDSIDE AWARDS

#### Deadline: September 28 for Letter of Intent

The Bench-to-Bedside program is soliciting proposals for the FY2012 award cycle. Up to \$135,000 per year for two years is available to support clinical research intramural-extramural partnerships. NIH intramural investigators are eligible to serve as project leaders on proposals, which require partnership between a basic and a clinical scientist. Priority will be given to proposals with intramural and extramural partners. Extramural partners need to have an existing NIH grant, which will be supplemented for successful applications. Extramural investigators are also invited to initiate proposals and serve as project leaders with an intramural partner, who will be responsible for coordinating proposal submissions. Additional information is available on the Web at <http://www.cc.nih.gov/cc/btb/awards.shtml> or by e-mail to [BenchtoBedside@mail.nih.gov](mailto:BenchtoBedside@mail.nih.gov). For an insider's perspective on the program, watch a video at [http://www.youtube.com/user/NIHClinicalCenter?feature=mhee#p/u/3/VedJPStjw\\_k](http://www.youtube.com/user/NIHClinicalCenter?feature=mhee#p/u/3/VedJPStjw_k). Additional videos will post weekly on YouTube. Subscribe for free at <http://www.YouTube.com/user/NIHClinicalCenter>.

### NIH RESEARCH FESTIVAL

October 24–October 28, 2011

Opening session (“Molecular Mechanisms of Human Disease”): October 24, 10:00 a.m.–noon, Masur Auditorium (Building 10)

Remaining sessions: Natcher Conference Center (Building 45), Building 10, and Parking Lot 10H

This year's festival will include scientific symposia, poster sessions, a special session on improving workplace dynamics, the scientific equipment tent show, and more. Meet colleagues from across campus, learn about new research efforts, and celebrate the intramural community. For more information, visit <http://researchfestival.nih.gov> or e-mail [researchfest@mail.nih.gov](mailto:researchfest@mail.nih.gov).

### GENOMICS: GENE DISCOVERY AND CLINICAL APPLICATIONS FOR CARDIOVASCULAR, LUNG, AND BLOOD DISEASES

September 12–13, 2011

Natcher Conference Center (Building 45)

This NHLBI conference will focus on cutting-edge findings in recent and ongoing genome-wide research studies, including results from large-scale collaborative studies, new analysis techniques, and more. A cross-section of experts, including researchers and physicians, will discuss the emerging science and the translation of these advances to the clinic. For more information, go to <http://www.nhlbi.nih.gov/meetings/Genomics/index.htm> or contact Ann Walsh at [walshac@nhlbi.nih.gov](mailto:walshac@nhlbi.nih.gov) or 508-663-4046.

### IMMUNOHEMATOLOGY AND BLOOD TRANSFUSION SYMPOSIUM

Thursday, September 15, 2011

8:25 a.m.–4:15 p.m.

Masur Auditorium (Building 10)

This program will provide practical information about recent developments, current practices, controversies, and laboratory-management issues in transfusion medicine; and be of interest to health-care providers who partici-

pate in the collection, production, transfusion, and monitoring of blood products. For more information, visit <http://www.cc.nih.gov/dtm/research/symposium.html>.

### HISTORY OF MEDICINE SEMINARS

The NLM History of Medicine Division sponsors seminars in the history of medicine and related fields. The programs are free and open to the public. For more information, visit <http://www.nlm.nih.gov/hmd/happening/seminars/index.html>.

September 26 (Monday), 2:00–3:30 p.m.,

Lister Hill Auditorium (Building 38A): David M. Morens (NIAMS), “The Forgotten Indispensible Man: Joe Kinyoun and the Birth of NIH”

October 27 (Thursday), 2:00–3:30 p.m.,

Lister Hill Auditorium (Building 38A): Stephen J. Greenberg (History of Medicine Division, NLM): “NLM at 175: A Librarian's View”

November 1 (Tuesday), 2:00–3:30 p.m., NLM

Visitor Center (Building 38A): Hispanic History Month Lecture: Johanna Fernandez (Baruch College, City University of New York), “The Young Lords and the Struggle for Racial Justice and Public Health in New York”

December 1 (Thursday), 2:00–3:30 p.m., NLM

Visitor Center (Building 38A): Dan Cohen (George Mason University): “The Future of Digital History”

### SYMPOSIUM ON CARDIOVASCULAR REGENERATIVE MEDICINE

October 4–5, 2011

7:00 a.m.–5:00 p.m.

Natcher Conference Center (Building 45)

At this NHLBI-sponsored symposium, experts in basic stem cell biology and in cardiovascular medicine will discuss new advances in induced pluripotent stem cell technology; reprogramming for cardiovascular regeneration; stem cells and in vitro disease modeling; translating stem cell biology; tissue engineering; the NHLBI Progenitor Consortium; and clinical trials. For more information and to register, visit <http://www.nhlbi.nih.gov/meetings/cv-regen11/index.htm>.



### **"BRINGING SCIENCE TO LIFE: A HEALTHIER TOMORROW"**

Thursday, October 13, 2011

8:30 a.m.–3:30 p.m.

Hyatt Regency Capitol Hill, Washington, D.C.

This scientific symposium, which concludes NINR's year-long 25th-anniversary celebrations, will include presentations, a panel discussion, and poster presentations. Registration is free but required. Keynote speakers include Karen Daley (president of the American Nurses Association), Michael Gottesman (NIH's Deputy Director for Intramural Research), and Senator Daniel Inouye (Hawaii). For more information and to register, visit <http://www.ninr.nih.gov/NewsAndInformation/25years/ahealthiertomorrow.htm>.

### **NATIONAL GRADUATE STUDENT RESEARCH CONFERENCE**

October 17 and 18, 2011

Natcher Conference Center (Building 45)

Some 150 advanced graduate students in the sciences—competitively selected from across the United States—will come to the NIH Bethesda campus to share their research and meet with NIH scientists. NIH investigators and current postdoctoral fellows will have the opportunity to discuss potential collaborations and new research directions. For more information visit [https://www.training.nih.gov/events/recurring/nih\\_national\\_graduate\\_student\\_research\\_festival](https://www.training.nih.gov/events/recurring/nih_national_graduate_student_research_festival).

### **SYMPOSIUM: "CHROMOSOME STRUCTURE AND FUNCTION"**

November 1–2, 2011

Natcher Conference Center (Building 45)

This symposium, brought to you by the Center of Excellence in Chromosome Biology in NCI's Center for Cancer Research, will feature internationally renowned experts in the fields of chromosome structure and function, chromatin remodeling, single-molecule approaches to chromatin structure, transcription of chromatin, chromatin domains, centro-

mere structure and organization, and nucleosome organization. The symposium is open to all. Deadline for registration and abstracts is September 30. For more information and to register visit <http://web.ncifcrf.gov/events/cecb2011/default.asp>.

### **SUMMIT ON CELL THERAPY FOR CANCER**

November 1–2, 2011

Masur Auditorium (Building 10)

This program, presented by the Society for Immunotherapy of Cancer, will provide an in-depth review of cell therapy as a cancer immunotherapy and include discussions and lectures by leaders in the field. Presentations will be on the latest research; clinical trials that will affect cell therapies; induced pluripotent stem cells; various cell therapy modalities; regulatory considerations; T-cell expansion; evaluation of biomarkers for T-cell therapies; adoptive immune therapies for melanoma; and persistence of transferred cells. Registration is free for government employees, but seating is limited. For more information and to register, visit <http://www.sitcancer.org/meetings/am11/summit11>.

### **OPENING WINDOWS TO THE BRAIN: LESSONS LEARNED FROM THE NEUROIMAGING OF PAIN**

Monday, November 7, 2011

Lipsett Amphitheater (Building 10)

9:00–10:00 a.m. (lecture)

10:00–11:00 a.m. (poster session)

The Stephen E. Straus Distinguished Lecture in the Science Of Complementary and Alternative Medicine, established in honor of NCCAM's founding director, will feature guest speaker Sean Mackey, M.D., Ph.D. from Stanford University School of Medicine (Stanford, Calif.). He is the chief of the Pain Management Division and associate professor of Anesthesia and Pain Management. Registration is not required. The lecture will be videocast live. For more information, visit <http://nccam.nih.gov>.

### **WALS 2011–2012**

Most Wednesdays

3:00–4:00 p.m. (reception follows)

Masur Auditorium (Building 10)

Don't miss the Wednesday Afternoon Lecture Series (WALS), featuring presentations by research "all-stars."

**September 7:** Carlos J. Bustamante, "Grabbing the Cat by the Tail: Discrete Steps by a DNA Packaging Motor and the Inter-Subunit Coordination in a Ring-ATPase"

**September 14:** Ron DePinho, "Genotoxic Stress Meets Mitochondria: Integrating Aging Mechanisms"

**September 28:** Antonios G. Mikos, "Biomaterials for Tissue Engineering"

**October 5:** L. Mario Amzel, "Activation of PI3Kalpha by Physiological Effectors and by Oncogenic Mutations: Structural and Dynamic Effects"

**October 12:** Russ B. Altman, "The Emerging Network of Data for Understanding the Interactions of Genes and Drugs"

**November 2:** Kenneth Fischbeck, "Developing Treatment for Hereditary Neuromuscular Disease"

**November 16:** Jonathan Weissman: "New Strategies for Decoding Genomes"

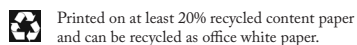
**November 30:** Diane E. Griffin, "Virus Clearance: It Isn't Easy"

**December 7:** Gerald W. Hart, "Bittersweet Roles of O-GlcNAcylation in Diabetes, Alzheimer's Disease and Cancer"

**December 14:** Victor Corces, "Throwing Transcription for a Loop: The Role of Chromatin Insulators in the 3D Nucleus"

For the 2012 schedule and other details visit <http://wals.od.nih.gov>. All lectures are available via live videocast at <http://videocast.nih.gov> and are archived one week after each lecture.

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## CATALYTIC REACTIONS?

IF YOU HAVE A PHOTO OR other graphic that reflects an aspect of life at NIH (including laboratory life) or a quotation or confession that scientists might appreciate and that would be fit to print in the space to the right, why not send it via e-mail: [catalyst@nih.gov](mailto:catalyst@nih.gov); fax: 301-402-4303; or mail: *The NIH Catalyst*, Building 1, Room 333.

Also, we welcome “letters to the editor” for publication and your reactions to anything on the *Catalyst* pages.

### IN FUTURE ISSUES:

- NEW MTA PROCESSING
- NEW METHODS
- CONFESSIONS

*The NIH Catalyst* is published bimonthly for and by the intramural scientists at NIH.

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## LABORATORY CONFESSIONS

### Who Was That Masked Man?

BY NIH OFFICE OF HISTORY



Our “laboratory confession” this issue comes from the NIH Office of History, which confesses that it doesn’t know the identity of this surgeon. He is part of a new heart-valve exhibit in the south entrance of Building 10 on the NIH Bethesda campus.

The photo appeared in the World Health Organization’s magazine *World Health* in 1965, in the June-July issue. (If you still have an issue, we commend you . . . maybe.) The photo is spread across pages 24 and 25, yet the surgeon is not mentioned in the article or caption. We do know that the surgeon is not Andrew Morrow, chief of the Surgery Branch in the National Heart Institute, who is featured elsewhere in the heart-valve exhibit. We have a guess of who this might be, but we don’t want to bias you.

Here’s your chance to be a part of history by helping us document it. Please send your guesses to Laura S. Carter, *The NIH Catalyst* managing editor ([carterls@od.nih.gov](mailto:carterls@od.nih.gov)). We hope to announce results in the November–December *Catalyst*.

EDITOR’S NOTE: HAVE A LATE-NIGHT LABORATORY CONFESSION? WE MIGHT PRINT IT IF IT IS INDECENT ENOUGH.

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