

THE NIH RECORD

Still The Second Best Thing About Payday

NIH-Funded Gene Therapy Restores Muscle in Aging Mice

By Cori Vanchieri

Muscles do more than help weight lifters and marathon runners win trophies. We count on them for the more mundane tasks of standing up, moving across the bathroom floor, and lifting grocery bags. Many of us take for granted how our muscles sustain us until we begin to age and those supportive fibers wither.

"As they go past ages 50 or 60, people begin losing their strength and muscle mass," explained Dr. Richard W. Lymn, director of the Muscle Biology Branch at the National Institute of Arthritis and Musculoskeletal and Skin Diseases. Muscle strength decreases up to one-third in humans between ages 30 and 80. The risk for falls increases, and with less muscle cushioning the vertebrae and the hip area, the impact of a fall is taken much more directly by the bones.

NIH-supported researchers are using gene therapy to help the body fight the seem-

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Gathered Feb. 1 at NIH for "An Evening with Rosalynn Carter" (second from r) are (from l) Maryland First Lady Frances Glendening, NIH deputy director Dr. Ruth Kirschstein and Janyce Hedetniemi, director of NIH's Office of Community Liaison. Former U.S. first lady Carter spoke about her efforts on behalf of mental health. The event was cosponsored by OCL and NIMH.

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An Affinity for Blair High

NIDDK Mentor Nurtures Tomorrow's Science Stars

By Rich McManus

There is something almost messianic in the debut of a science prodigy, and something almost apocryphal when six of them flare like supernovae at one time, at one high school. Thus it was when Grace C. Lin, 17, and five of her classmates at Montgomery Blair High School's Science and Math Magnet Program were announced as finalists in the Intel (formerly Westinghouse) Science Talent Search in late January.

Lin, the only one of the six to train at NIH, and her costars made the front page of all the local papers, becoming overnight media sensations. Posing like self-confident rock stars, they group-hugged for photographers, baffled reporters with soundbites of their research, and rattled off the nation's best colleges as likely future

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Grace Lin, a senior at Montgomery Blair High School, works at confocal microscope in Bldg. 8.

President Submits FY 2000 Budget for NIH

President Clinton's FY 2000 budget provides \$15.9 billion for NIH, a \$320 million increase—or 2.1 percent—over the 1999 level. Foreseen in the investment is a continuation of advances in fundamental science, especially in genetics, structural biology, molecular and cell biology, neuroscience, computer science and imaging technologies, according to budget papers.

"As a result of the generous increase in our FY 1999 budget, the institutes and centers at the NIH have many new initiatives under way, all of which will be continued in FY 2000 and beyond," reads the narrative. These scientific efforts can be summarized as addressing four research themes: exploitation of genomic discoveries; interdisciplinary research; reinvention of clinical research; and elimination of health disparities.

Exploiting Genomic Discoveries

The Human Genome Project will be accelerated by increasing capacity at major sequencing centers. Due to a number of

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Naomi Churchill-Earp recently joined NIDDK as assistant director for management after serving 4 1/2 years as director of the NIH Office of Equal Opportunity. In her new position, she will provide leadership of the institute's personnel, administration, financial management, information technology and equal employment opportunity activities. Before coming to NIH, Churchill-Earp directed the EEO offices of the Federal Deposit Insurance Corp. and the U.S. Department of Agriculture and served as staff attorney for the Equal Employment Opportunity Commission. In addition to her federal experience, she was owner and principal consultant for Churchill and Associates, a business that advised management on EEO and related human resource management issues.

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methodological advances and increased resources, the expected completion date is now 2003, 2 years earlier than originally projected.

In FY 1999, NIH began the Mouse Genomic and Genetics Project that will serve the research community by developing a laboratory tool for physiologists, developmental biologists, and neurobiologists to better understand mammalian biology. The research will be continued in FY 2000 to define the structure of the entire mouse genome and identify the function of mouse genes by studying gene mutations. Eventually the genomics of other organisms will be determined and used as model systems for learning about human genes and proteins and for testing new treatments.

Engaging Other Disciplines in Medical Research

Optimal use of the vast amount of data being generated from genomic research will require increasingly sophisticated bioinformatics systems requiring the collaboration of researchers from many disciplines, including physicists, mathematicians, chemists and bioengineers. Advances are foreseen in imaging technology, rational drug design and structural biology (aided by powerful synchrotron beamlines).

Reinvigorating Clinical Research

The emphasis here will be increased support of General Clinical Research Centers, more clinical trials, new programs to develop clinical biomarkers in immune diseases, and expanded training of physician scientists (including new grant programs to support the training and mentorship of young physicians aiming for careers in clinical research).

Eliminating Health Disparities

There will be a renewed emphasis on research to understand the causes of disease; to identify and increase knowledge of risk factors for disease; to determine reasons for health disparities that may be associated with race, ethnicity, gender or socioeconomic status; and to understand the role of personal behaviors and environmental factors in health disparities. Sophisticated information from NIH research will benefit citizens in this country and around the globe.

Mechanism Discussion

In FY 2000, NIH will support 7,617 competing research project grants. Support for RPGs, including Small Business Innovation Research and Small Business Technology Transfer awards will increase by nearly 3 percent over FY 1999. With respect to training, NIH will support nearly 15,700 pre- and postdoctoral trainees in full-time training positions, approximately the same number as in FY 1999. Stipends will remain at the FY 1999 levels.

NIH will participate in two Presidential initiatives: 1) Information Technology for the Twenty-First Century Initiative (IT2) primarily in three areas: software and algorithm research and development in support of genomics, clinical trials and bioinformatics; high-throughput, low-cost clusters of processors that can provide performance needed in laboratories for mid-range, high-performance computing; and training and grants to encourage physicists, engineers, mathematicians and computer scientists to advance computing in biomedical research. The FY 2000 request includes \$6 million for this initiative. 2) NIH will also continue to address bioterrorism activities with an emphasis on microbes such as smallpox and anthrax. This research is conducted in collaboration with the Department of Defense. ■

Identical Twin Pairs Needed for Study

The HLA Laboratory is interested in analyzing the differences in the genotype and phenotype of the T-cell receptor repertoire of normal identical twin pairs. This study will provide insight as to the reasons for various T cell responses, given a particular HLA class I haplotype, in relation to genetic and environmental factors. Research subjects (normal healthy identical twin pairs) of any age, race or sex are needed. Each twin pair should be willing to be subjected to a thorough medical history, undergo HLA testing, complete blood count and leukopheresis. Optimally, the subjects should be available for further questioning about their previous and subsequent medical history. Twin donors will be paid for their blood donations. Call 496-8852 to sign up. ■

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NIH Record Office Phone 496-2125
Bldg. 31, Rm. 2B03 Fax 402-1485

Web address
<http://www.nih.gov/news/NIH-Record/archives.htm>

Editor
Richard McManus
rm26q@nih.gov

Assistant Editor
Carla Garnett
cg9s@nih.gov

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Campaign Targets Oral Complications Of Cancer Treatment

Most cancer patients don't know that visiting a dentist can make a difference in their cancer treatment. A new health awareness campaign from the National Institute of Dental and Craniofacial Research explains how proper oral care can prevent or minimize painful complications in the mouth that affect up to one-third of patients undergoing treatment for cancer.

Of the 1.2 million Americans diagnosed with cancer each year, approximately 400,000 will develop oral complications from their treatments.



NIDCR director Dr. Harold Slavkin kicks off new oral care campaign.

Many patients, dentists, and oncologists, however, are unaware of the right steps to take to prevent or manage these potentially serious problems.

"Oral Health, Cancer Care and You: Fitting the Pieces Together" informs health care providers and patients about what they can do to reduce the risk and impact of oral complications. NIDCR is conducting the awareness campaign in partnership with the

National Cancer Institute, the National Institute of Nursing Research, the Centers for Disease Control and Prevention, and the Friends of the NIDCR.

Oral complications can result from all forms of cancer treatment, including radiation to the head and neck, chemotherapy for any type of cancer, and bone marrow transplantation. Among the most common complications are painful, inflamed gums; mouth ulcers; bleeding; infection; and salivary gland dysfunction that leads to dry mouth and rampant tooth decay. Oral side effects may be acute, or they may last a lifetime.

Oral complications can affect cancer treatment as well. These conditions can be so debilitating that patients may tolerate only lower, less effective doses of anticancer drugs, may postpone scheduled treatments, or may discontinue treatment entirely. Oral side effects can also be the source of systemic infections that may interfere with cancer therapy and even threaten patient survival.

Campaign materials are available from the National Oral Health Information Clearinghouse; Attn: OCCT, 1 NOHIC Way, Bethesda, MD 20892-3500; toll-free phone: 1-877-216-1019; Web site <http://www.aerie.com/nohicweb>. ■



Seven interns from the Hispanic Association of Colleges and Universities are on campus this spring, working on a range of projects from basic research to health communications. Four are from Puerto Rican universities; the rest are studying in this country. They are (front, from l) Irma Mercado-Arevalo, Office of Communications, OD; Julio Rodriguez-Colon, Laboratory of Molecular Neuropharmacology, NINDS; Mary Raymundo, National Library of Medicine. At rear are (from l) Alejandro Gutierrez-Pons, National Institute on Drug Abuse; Manuel Carrera, Office of Extramural Research, OD; Noel Estrada-Hernandez, National Cancer Institute; and Christopher Raymond, National Institute of Dental and Craniofacial Research.

Black History Observance Set, Feb. 26

NIH will hold its 1999 annual Black History Observance on Friday, Feb. 26 from 11:30 a.m. to 1 p.m. in Masur Auditorium, Bldg. 10. The national theme this year is "The Legacy of Afro-American Leadership for the Present and for the Future."

Dr. Ibrahim Sundiata, chair and professor of the history department at Howard University, will deliver the keynote address, "The Black Past: Where Do We Go from Here?" An author and former chair of African and Afro-American studies at Brandeis University, Sundiata grew up in Washington, D.C., and attended Eastern High School. He completed undergraduate training at Ohio Wesleyan University and earned a Ph.D. from Northwestern University.

Also scheduled to participate are soloist Janice Jackson, faculty member at the University of Maryland Baltimore County and director of the UMBC Gospel Choir, and Shirley Duncan, president of the New Baltimore Hand Dance Association.

Sign language interpretation will be provided. For more information or for reasonable accommodation, contact O.H. Laster, 496-6302.

Hypertension Study Needs Vols

The Cardiology Branch, NHLBI, is recruiting patients with high blood pressure for a 3-day outpatient study. Volunteers should not have any other medical problems and should not have a cholesterol higher than 200 mg/dL. Participants will be paid. Call 496-8739.



Dr. Derrick C. Tabor, an expert consultant with the NIGMS Division of Minority Opportunities in Research, has been named a 1999 McDonald's Black History Maker of Today in the area of science. The award recognizes prominent African Americans in the fields of government, sports, medicine, technology, entertainment, education, entrepreneurship, journalism, science and volunteerism. Throughout his career, Tabor has been active in encouraging underrepresented minorities to pursue academically challenging high school courses such as calculus, chemistry and biology in preparation for careers in the biomedical sciences. Tabor was among 10 individuals selected to receive the honor, which consists of an engraved crystal award. It was presented to him during a reception Feb. 18 in Washington, D.C.

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ingly inevitable effects of aging or to give it a hand in repairing the damage caused by injury or muscle-wasting disorders like muscular dystrophy. Using a virus to carry a growth-promoting gene directly to muscle fibers, the scientists were able to prevent in mice the age-related decrease of muscle size and strength that leads to unsteadiness and impaired mobility. Their study (*PNAS* 1998;95:15603-15607) was funded by NIAMS, the National Institute of Neurological Disorders and Stroke, the National Institute on Aging, and the Muscular Dystrophy Association.

Normally, when muscle is damaged, satellite cells within the muscle are activated to do their repair work by insulin-like growth factor-1 (IGF-1) and other signaling proteins. In elderly humans and animals, the ability of muscle to activate satellite cells to repair muscle mass diminishes. In the case of muscular dystrophy, muscle damage occurs at such a high rate that the body's intrinsic repair system can't keep up.

"I felt the simplest way to do something about the weakened repair system was to put back into the muscle a chronic signal that would keep the satellite cells activated to be more responsive and repair damage more completely," said Dr. H. Lee Sweeney, the study's leader and professor of physiology at the University of Pennsylvania School of Medicine.

In the experiment by Sweeney's team and researchers at Massachusetts General Hospital, each mouse served as its own control. The virus was injected into one leg, while the other was left untouched for comparison. The injections were tested in mice that were 2 months, 18 months, and 24 months old—the equivalents of adolescent, 55-year-old, and 70-year-old humans.

After several months, the adolescent mice showed a 15 percent increase in muscle mass in the injected legs compared to the control legs. Both groups of older mice experienced a 19 percent increase in muscle mass. The injection completely prevented the normal decrease of muscle mass associated with aging. Even better, according to the researchers, was the 27 percent boost in muscle strength experienced by the older mice and the preservation of the fastest muscle fiber types. Both mass and function were restored to their youthful levels.

Muscle regeneration continued until it reached a steady state. The muscles did not become overly bulky, as they would with steroid use. And no degeneration occurred up until the mice's death.

An Effective Virus

Researchers started with an adeno-associated virus, or AAV, which is adept at introducing its genetic material into the cells it infects. They stripped the AAV of its own genetic material and replaced it with a naturally occurring gene for IGF-

1. They also inserted a "promoter" to drive production of the growth factor. This re-engineered virus was then injected into the muscles of the mice.

The promoter they chose, the myosin light chain promoter, is specific to muscle tissue so that IGF-1 production would be limited to the muscle. The researchers did not want any IGF-1 that may have accidentally leaked outside of the muscle to proliferate and stimulate growth of other organs.

"The research team was asking two main questions: Can we develop a vector—in this case, a virus—that can be used to specifically deliver genetic material to skeletal muscle or have the genetic material expressed solely in skeletal muscle? And, can we do it in such a way that the expression will have a positive effect and no noticeable or serious negative effect?" Lymn said. "They've shown they can do both."

While the method of delivery is similar to other forms of gene therapy, the aim is somewhat different. "What you're doing here is increasing production of a substance that has been appearing in the cells all along," explained Lymn. "Much gene therapy is aimed at repairing a defective protein or fighting an invading organism."

NIAMS supported this work with a grant to develop mechanisms of gene therapy for Duchenne's muscular dystrophy. But it's turned out to have somewhat different applications.

"In the worst sorts of muscular dystrophy, like Duchenne's muscular dystrophy, damage is so severe that satellite cells are eventually depleted," Sweeney said. Without satellite cells, IGF-1 is not effective. Experiments with a Duchenne's mouse model are bearing that out, he said. Sweeney has higher hopes for Becker's muscular dystrophy, in which the rate of damage is slower. "If we build greater muscle mass and boost the satellite cells, we may be able to stabilize the condition." His group began testing a transgenic mouse model of Becker's muscular dystrophy in January.

Sweeney expects to complete animal safety testing this summer and then request FDA approval to do a phase I clinical trial in patients with Becker's muscular dystrophy. "If we can show both efficacy as well as safety in humans, it will open the way to trials in other human conditions, including aging and amyotrophic lateral sclerosis (ALS)." ALS, also known as Lou Gehrig's disease, is a neuromuscular disease that causes muscle wasting.

Meanwhile, Lymn sees potential for this therapy in other arenas. "When muscle is damaged severely, in the case of a bad burn, regeneration can be very incomplete. This therapy may help in forming a more normal looking and functioning muscle." It may also work for bad muscle tears that result from sports injuries. ■

Humanitarian Mission

CSR's Tyner Travels to Bhutan and Back

What does Bhutan have to do with iodine deficiency disorders (IDD), the Kiwanis and John Tyner II, special assistant to the executive officer at the Center for Scientific Review? Quite a lot, it turns out.

Through its Worldwide Service Project, the Kiwanis have launched a multimillion dollar program in 65 countries and geographic areas to eliminate the scourge of IDD. IDD was once the world's leading preventable cause of mental retardation in children. Third World countries such as Bhutan, located between Tibet and India, are especially hard hit, and many children grow up with goiters and are stunted, apathetic and compromised in intellectual and educational performance. Thanks to the generosity and fundraising efforts of the Kiwanis, the situation is improving dramatically.

Tyner, an active Kiwanian for many years, is chairman of the Worldwide Service Project, Capital



The Kiwanis team that went to Bhutan included (from l) Milford Hanna, professor of agriculture at the University of Nebraska; John Tyner II of NIH; and Robert Lynds, a businessman from New Zealand.

district (Delaware, District of Columbia, Maryland, and Virginia); this district has already raised \$800,000 for the IDD program. Recently, he was honored by being appointed to a three-person team that was sent to Bhutan by Kiwanis International at the invitation of UNICEF to review the program and to strengthen ties with those involved in this effort.

In Bhutan, the team visited a new salt-iodization plant, funded with Kiwanis dollars, visited schools to observe the educational materials about IDD used in the classroom, and met with the director of the Ministry of Trade and Industry, the health minister and other government officials. They found the program well organized and well managed, and expressed their willingness to recommend continuing support for the program for as long as needed. ■



The NIH information technology board of governors was recently appointed to advise the NIH director and the NIH chief information officer on information technology issues. Attending a recent meeting are (rear, from l) chair Dr. Stephen Katz, NIAMS; Alan Graeff, NIH CIO; Colleen Barros, NIA; Cressie Kilcoyne, executive secretary, CIT. In front are (from l) Anthony Itteilag, OD; Dr. James Battey, NIDCD; and Dr. Wendy Baldwin, OD. Not shown are John Silva and MaryAnn Guerra, NCI; Dr. Yvonne Maddox, NICHD; Dr. David Margulies, NIAID; and Dr. David Lipman, NLM.

Poppke Elected Diversity Council Chair

Donald Poppke, associate director for administrative management at the National Library of Medicine, has been installed as the new chair of the NIH Diversity Council. Established in 1997, the council is an advisory board to the director, NIH Office of Equal Opportunity, on matters of diversity management. Recent issues the council has addressed include improving the provision of interpreting services for the deaf and hard of hearing on campus, developing a system to categorize special observances and events that NIH may authorize to use its facilities, improving disability awareness and facilities accessibility, and improving the recruitment of a diverse workforce.

"The beauty of the diversity movement is that it is all-inclusive," remarked Poppke, a member of the inaugural council who served as vice chair for the group's first 2 years and is winding up his third and final term. "For NIH to accomplish its mission to the fullest extent, it needs to provide an opportunity for all staff to reach their highest potential in the pursuit and support of science. The diversity council is one means to foster an environment that respects the individual and provide a mechanism that gives all employees a voice. Diversity promotes productivity and respect for the differences and similarities each of us brings NIH."

Eighteen individuals representing the intramural, extramural, scientific, administrative and wage-grade communities and the Commissioned Corps form the council. Meetings are held every third Wednesday and are open to the public. ■



Donald Poppke

MENTOR, CONTINUED FROM PAGE 1

destinations. They draw attention because they stir hope—a sense that “the cavalry is coming” to sort out issues that have proved intractable to previous generations.

The joy of that hope dances in the eyes of Dr. Julia Barsony—along with, perhaps, a bit of plain old mischief. A native of Hungary and the daughter of two teachers, she is in love with the brilliance of youth, especially the brand turned out by Blair High, whose magnet program whizkids she has recruited for the past 4 years.

“I have a tradition to have Blair students in my lab,” says Barsony, who immediately regrets divulging this news to potential competitors. “They are better trained than anyone else. I had my first Blair student in ’94—Danny Gould, a computer gadget person. He was a Westinghouse semifinalist in 1995. My lab chief, John Hanover, used to joke about Danny, saying that he will be the next president of IBM.

“(Blair students) are very, very capable people,” continues Barsony. “It’s easy to tell if someone is highly gifted. With Grace, I could tell after an hour of conversation. We could reach easily an understanding of what’s going on here in my lab. If you see that in a kid, you know you won’t have much trouble training that person.” Then Barsony breaks out of personnel-reviewer mode with a huge smile, “Grace is also a very nice person. She’s the kindest person I know.”



Lin shows the cell line GL48 that she established in Dr. Julia Barsony's laboratory.

Barsony’s second Blair intern, Carl Miller in 1996-1997, is now at Duke, and won the International Math Olympics—almost always conceded to a brilliant Russian—while in high school.

Fortunately for Barsony, Grace Lin wasn’t selected by other principal investigators when she applied to NIH’s summer program last winter. She was casting about for summer opportunities when Barsony phoned her, like a college basketball coach recruiting a high school phenom.

“There are so many more qualified applicants (for NIH’s summer program) than positions available,” Barsony said. “It’s almost as competitive as medical school, as a matter of fact.

Why She Got the Prize

NIH was not high schooler Grace C. Lin’s introduction to high-level science. She got that across the Pike at the Navy Medical Research Institute during 8 weeks in the summer of 1997. “It was part of George Washington University’s Science and Engineering Apprenticeship Program,” Lin explains, “and I studied rickettsial diseases such as scrub typhus.”

A year later, she was recruited—via a telephone call—to Dr. Julia Barsony’s Laboratory of Cell Biochemistry and Biology at NIDDK, where she has worked as a special volunteer since last April. Barsony, a native of Hungary, has been at NIH since 1985. She won tenure in 1990 and got her own laboratory—and beloved independence—in 1995.

Though she lives in the Springbrook High School cluster, Lin won admittance to the prestigious Math and Science Magnet Program at Montgomery Blair

High School after scoring high on an aptitude test measuring, among other qualities, her creativity. Only 100 students per grade at the 4-year school are selected, out of a student body of 2,200. They are really almost two separate academies.

“During their freshman year, the magnet school students learn how to write a scientific paper, including abstracts and data presentation, and how to conduct independent research projects,” explains Barsony.

Lin, Barsony and coauthors are currently preparing a paper including the work that placed Grace in the finals of the Intel Science Talent Search, along with five of her Blair magnet classmates.

According to Barsony, Lin cloned and characterized a stable cell line expressing the green fluorescent protein chimera of vitamin D receptors (VDR). Using this cell line (dubbed GL48, which both

honors her initials and memorializes 47 other failures to get the cell line to brighten enough), she studied the effect of hormonal ligands on the intracellular movements of VDR. Lin used red fluorescent derivatives of calcitriol, which were synthesized this summer in the lab, to visualize simultaneously for the first time the hormone uptake and the hormone-induced receptor translocation by real-time confocal microscopy. The lab’s studies revealed that nuclear hormone uptake is restricted, correlates with receptor translocation and distribution, and reflects transcriptional activity.

Regardless of where she places in the Intel competition, Lin, a 17-year-old senior, will be back this summer to continue her work, then hopes to attend Harvard or Stanford.

"I actually wanted a computer person when I interviewed Grace," she recalls, adding that she fully expects Grace to help her recruit the next star out of Blair. "Most of my students are basically recruited by other students."

Lin came to the Laboratory of Cell Biochemistry and Biology earlier than the summer students, in April. "She came as a special volunteer, and has worked here continuously, without payment," Barsony noted. "Which is a heroic commitment to science, in my view."

Lin's parents are making the heroic commitment, it turns out. They emigrated to the United States about 20 years ago from Taiwan. Grace was born in Columbus, Ohio, while her father was at Ohio State University training to become an engineer. Though she was only 4 when the family left Ohio, Grace yet recalls, "They had lots of snow."

The family, which still speaks Chinese at home about half the time, according to Grace, relocated to the White Oak area of Montgomery County. Grace went to Cannon Road Elementary School, where science first attracted her.

"I just like making discoveries," she said, shyly, "and exploring things I didn't know about before." Her father, now an engineer at Lucent, encouraged studies in math and science, "especially the physical sciences, like engineering," Grace remembers. Her mother, who trained in agriculture during college, is now a layout editor at a local Chinese newspaper.

"In large part, Grace's accomplishments are her parents' accomplishments," Barsony observes. "They'll wait in the car downstairs for an hour for an experiment to end, and they won't yell up at her to hurry. I think they are incredible people."

Barsony's happiness relies on interacting with young, unspoiled, and preferably brilliant minds. "This is my hobby," she explains, "being happy by interacting with young people. I learn a lot from my students—that's probably the biggest reward I get. I also have worked with pre-IRTA students, and I like them, actually. They don't have all those preconceived ideas. They want to find out what really is there as opposed to what you're supposed to find. I can get much more done with the brightest undergraduate students than I would with unremarkable postdocs. The best thing is to work with the most brilliant."

Barsony laments her inability to compete with the big boys, the heavyweights with Nobel prizes who can attract the best postdocs. So she focuses on youngsters before they become too attractive to others.

"I clearly remember having my best ideas at ages 14-18," she muses nostalgically.

Perhaps her motive for doting so on youngsters is rooted in her past, in Hungary. Barsony only got to medical school there by winning a major science fair.

"Otherwise, I would have needed straight A's," she recalls. "But I got a C in Russian—and I deserved it. No matter which language I use (she speaks several), I have grammatical problems."

Lin admits to academic weaknesses in physics and computer programming—"That's what keeps me awake at night." Intensely soft-spoken, she is urged to speak up by her mentor about her other achievements. In addition to two evenings a week of volunteer work at Barsony's lab, where she will return for a second summer in 1999, Lin is taking a huge academic menu including three "magnet" courses (college-level, tougher than Advanced Placement) in cell physiology, astronomy and complex analysis, two A.P. courses in psychology and English, is writing news and feature stories for the school paper *Silver Chips*, plays classical piano ("at a very high level," according to Barsony), participates on the Chemistry and Envirothon teams, tutors Chinese immigrants in English, homework and "how to fit in," and is a National Honor Society member who signs up for many volunteer projects including AIDS walks and projects for the homeless.

For relaxation, Lin, the oldest of three children, likes to read and take it easy. Which is a bit hard these days as she waits to find out on Mar. 8 whether she wins the top prize in the Intel competition.

"I'm a pessimist, so I don't think my chances of winning are that high," she confesses. "I don't like to get my hopes up."

"Grace didn't do this (science project) to win a prize," reproves Barsony. "The Intel competition is a magnet requirement—all of the students enter their independent projects in fairs. We never aim at winning something—our aim is the highest possible level of doing science." It just turns out that Barsony's protégés—including postdoc Attila Racz, who won the FARE 1998 award for his abstract at last fall's Research Festival—are unusually successful when they do compete.

"It's the same good project if it wins or doesn't win," she philosophizes. "The aim is to do a good project."

This is the natural mission of NIH, she continues. "This is perfectly normal at NIH. All the resources are here, and the only limit is our own ability to work."



Dr. Julia Barsony (r) of NIDDK's Laboratory of Cell Biochemistry and Biology takes obvious delight in Lin as a scientist and person.

PHOTOS: RICH MCMANUS

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Lin says she enjoys the environment here—despite a lab so crowded that a Post-It note would have trouble wedging in—and would like to pursue a career in medicine and research.

“It’s a nice atmosphere here,” enthuses Barsony, “because of the incredible excitement we get in discovering new things. We can share all that happiness, and we can go sailing! It’s a good life!”

One of the Barsony lab’s traditions is a summer sail on the Chesapeake Bay. But she always leaves her cheer with the mandates of lonesome, solitary brainwork, which is the scientist’s true elysium anyway.

“Everyone carries their own project, regardless of previous education,” she says. “This lab stresses independence, and we try to get high achievers who can appreciate independence.”

So independent was Lin that she blew off August’s traditional poster session held by summer students. “August was high time for Grace to be doing experiments, not to be doing posters,” insists Barsony.

Like a good servant, Barsony dispenses with her own research agenda when it comes to satisfying a brilliant kid. “The people who come work on what they want to work on. I usually end up doing the things I had originally planned for them to accomplish,” she laughs.

Perhaps explaining the hope society invests in budding stars, Barsony uncovers what may be their true gift. “Nothing we do is hard,” she says, peering indignantly at a skeptic. “Grace and I both break problems into manageable pieces, then solve them. In fact, I think she has a better talent for that than I do.”

You get the impression Barsony’s faith could propel even an average intern to stardom. A mentor can offer nothing more precious. ■

Election of Living Benefits and Assignment of Life Insurance

Did you know that if you are diagnosed as having a terminal illness you may be eligible to elect living benefits? This would allow you to receive up to the full amount of your basic life insurance coverage while you are still alive instead of payment going to your survivors after your death. You may, instead, assign all of your life insurance coverage to a viatical settlement firm in return for a payment equal to a portion of your coverage (usually 50-80 percent, depending on life expectancy). That firm would then be paid your life insurance after your death.

You may also assign your life insurance to another person or persons, including an individual, a corporation or an irrevocable trust in order to satisfy the requirements of a court order upon divorce, for inheritance tax purposes, or to satisfy a debt. See your personnel office for details. ■



NIGMS director Dr. Marvin Cassman (front, r) and deputy director Dr. W. Sue Shafer (front, l) welcome three new members to the National Advisory General Medical Sciences Council. They are (top, from l) Dr. Isiah M. Warner, the Philip W. West professor of chemistry at Louisiana State University; Dr. Robert S. Pozos, a professor of biology and assistant dean for faculty development at the college of sciences at San Diego State University; and (front, c) Dr. Leslie A. Leinwand, professor and chair of the department of molecular, cellular, and developmental biology, University of Colorado.

Postmenopausal Vols Needed

The Cardiology Branch, NHLBI, needs postmenopausal volunteers for a study comparing different forms of estrogen therapies. Participants must be in good general health and not be taking any medications, hormone replacements or vitamins for 2 months prior to study. Volunteers will be paid. Call 435-4038. ■

High Cholesterol Study Recruits

The Cardiology Branch, NHLBI, is recruiting patients with high cholesterol levels (250 mg/dL or higher) who have no other medical problems to be included in a 3-day outpatient study. Participants will be paid. Call 496-8739. ■

Volunteers Wanted for Medication Study

Healthy volunteers ages 18-35 are needed for a USUHS study of commonly prescribed medications. The study involves multiple visits over a 3-month period. Participants will be paid. Call (301) 295-4009 or (301) 319-8204. ■

Kids' Night at The Circus

R&W and the NIH charities are sponsoring Children's Premiere Night at Ringling Bros. and Barnum & Bailey Circus, Wednesday, Mar. 24 at 7 p.m. at MCI Center. Get your discounted tickets at R&W for this event—call 496-4600 for ticket availability.

Former FIC Director Schambra Retires

Dr. Philip E. Schambra, director of the Fogarty International Center from 1988 to 1998, retired on Jan. 1, ending more than 30 years of distinguished service to the federal government in the cause of global health. At FIC's helm as it embarked on its second quarter century, he built on its past strengths and identified new ways the center could address a range of international scientific and human challenges.

"I am proud to have played a part in taking the FIC to a new level of leadership in the global health arena," he said recently, "and to have been instrumental in shaping the center's mission as it approaches the new millennium."



Dr. Philip E. Schambra

Two developments influenced Schambra's focus for the center: First, the AIDS pandemic and growing concern about other new and reemerging infectious diseases on a global scale, and second, the collapse of communism and the rise of new democracies, which presented fresh opportunities to cooperate with scientists internationally. With congressional support, FIC launched an effort to undergird the HIV research effort by training scientists and health professionals from developing nations where the epidemic had taken hold.

During his tenure as FIC director, Schambra oversaw a doubling of the FIC budget and initiated a number of projects in cooperation with NIH institutes. The AIDS International Training and Research Program, now in its 10th year, served as a model for the development of research and training programs. This program addresses the gap between developed and developing countries in the area of modern information technologies and currently focuses on training scientists from sub-Saharan Africa.

Yet another result of his vision is the International Cooperative Biodiversity Groups Program, sponsored by a consortium of federal agencies including the National Science Foundation, the Department of Agriculture, and several NIH institutes. This effort funds groups that collaborate on projects addressing biodiversity conservation and the promotion of sustained economic activity through drug discovery from natural products.

Schambra attended Rice University in Houston, where he majored in physics with the intent of becoming a nuclear engineer. In his senior year, he became fascinated with the relationship between biology and physics and, following in the footsteps of other notable physicists-turned-biologists, he

earned a Ph.D. in biophysics at Yale.

At Yale, he worked in a laboratory with a large number of foreign postdoctoral fellows and, partly as a result of interactions with these colleagues, he developed an interest in international relations.

After a year-long fellowship in Germany, he returned to the U.S. to conduct research and teach at the Donner Laboratory at the University of California, Berkeley. It was here that he gained his first experience in the challenges of mounting an international scientific event, when he organized the first international symposium on space radiation biology. He decided on a career path that would take him from the research laboratory but would enable him to advance science through other means. This decision brought him to NIH as a grants associate trainee in 1967.

In the course of a 1-year training period, he spent 3 months at the then Bureau of the Budget in the White House Executive Office (now the Office of Management and Budget). He was offered a job at OMB after completing his training and spent 3 years there as examiner for the NIH budget. During these years, President Nixon announced the War on Cancer, calling for a 1-year doubling of the NCI budget from \$100 million to \$200 million. Schambra worked closely with the then leadership of NIH and NCI to develop a program that would make the best use of this influx of new money and encouraged NIH to take the broadest possible view of what constituted cancer research. He also suggested to NIH the development of a program to train minorities in medicine and the health sciences—this led to the establishment of the Minority Biomedical Research Support Program.

In 1974, he returned to NIH as associate director for interagency programs at NIEHS. His FIC career began in 1980, when he was named chief of the then International Coordination and Liaison Branch. From 1984 to 1988, on loan from FIC, he served as science attaché and international health representative at the U.S. Embassy in India.

Schambra leaves NIH with the gratitude of all his colleagues for his untiring efforts on behalf of international health and with their warmest wishes for a happy and productive retirement.—Irene Edwards ■

Volunteers Who Have Received Vaccinations Sought

Normal volunteers who have been vaccinated are needed for a study of risk factors for adverse events to vaccines. Enrollment consists of completion of a questionnaire and donation of a blood sample through a local physician. For more information, contact Dr. Ejaz Shamim at FDA, (301) 827-0459; email: shamim@cber.fda.gov. ■

1999 Women's Health Series Begins, Mar. 4

The NIH Office of Research on Women's Health kicks off its 1999 Women's Health Seminar Series, "Women's Health Research for the 21st Century," on Thursday, Mar. 4 at 1 p.m. in Masur Auditorium, Bldg. 10. The 2-hour seminar will focus on "Breast Cancer and Breast Disease." For more information, call ORWH at 402-1770.

NIAID Mourns Loss of Jack Muñoz

Dr. John J. "Jack" Muñoz, an award-winning microbiologist, died at the age of 80 in Tucson, Ariz., on Jan. 9. He retired from NIAID's Rocky Mountain Laboratories on Dec. 30, 1988, after 27 years of service. From 1989 to 1997, he served NIAID as scientist emeritus.

"Dr. John Muñoz gained international recognition for his exemplary research on the cause of whooping cough, *Bordetella pertussis*," said Dr. Anthony Fauci, NIAID director. "He elucidated the complex structure and composition of *B. pertussis* and clarified the role of many components of the cell in the pathogenesis of whooping cough. This information was of critical importance in vaccine development. His outstanding contributions strengthened NIAID's intramural research program on bacterial vaccines."

In 1979, Muñoz received the NIH Director's Award for his research on the immunobiology of components of *Bordetella pertussis* and for his contributions toward the development of an improved vaccine against whooping cough. He was also listed in *Who's Who in America* and *Who's Who in American Men and Women of Science*.

Muñoz assumed a position as research microbiologist at the Rocky Mountain Laboratories in 1961. He had previously served as assistant professor at the University of Illinois Medical School in Chicago and research associate at Merck-Sharp and Dohme. From 1957 to 1961, he was chairman of the department of microbiology and director of the Stella Duncan Memorial Laboratory at the University of Montana in Missoula.

While at RML, Muñoz was head of the allergy and immunology section. His major area of interest was biologically active substances from *B. pertussis* and the role of these components on induction of immunity to this bacterium. He published extensively with colleagues and collaborators worldwide. His tenure at RML included temporary assignments to the Pasteur Institute in Paris and to the Walter and Eliza Hall Institute for Medical Research in Australia.

Although his primary field was bacteriology, he had an abiding interest in pathogenesis of persistent viral diseases. The present Laboratory of Persistent Viral Diseases at RML was founded with scientists who had worked in Muñoz's section.

He was born in Guatemala. After graduating from high school in Guatemala City, he came to the United States, where he earned a bachelor's degree in



Dr. John J. Muñoz

chemistry from Louisiana State University and a master's degree in bacteriology from the University of Kentucky. In 1947, he received a Ph.D. in medical bacteriology from the University of Wisconsin in Madison.

Survivors include his wife, 4 children and 5 grandchildren. He is also survived by a brother and a large extended family in Guatemala City. Memorial contributions may be sent to the Bitterroot Public Library Foundation, 306 State Street, Hamilton, MT 59840, to purchase science books. ■

FAES Concert Set, Mar. 7

The FAES Chamber Music Series will present the Aurn Quartet at 4 p.m. on Sunday, Mar. 7 in Masur Auditorium, Bldg. 10. Tickets are \$20 at the door; \$10 for students and fellows. For more information call 496-7975.

CC Volunteer Maze Dies

Mary Maze, 69, former Clinical Center employee and Red Cross volunteer, died Dec. 23, 1998. She had asthma.

She came to the CC in 1985 as an employee development specialist and retired in 1992. After leaving NIH, she volunteered at the CC with both the Blood Bank and the Red Cross desk.



Mary Maze

"Most people knew her as a really fine humanitarian who always had a mission," said Andrea Rander, director of volunteer services. "She was a valuable part of my life and to others in the hospital and her death is an enormous loss to us all."

Maze was a Massachusetts native who graduated in 1950 from Newton College of the Sacred Heart in Newton, Mass. She received a master's degree in education from the State Teachers College in Boston and in 1983 completed a 2-year education for parish service program at Trinity College in Washington.

She is survived by her husband, Chester, of Bethesda; a son, Charles, of San Diego; two daughters, Marianne Maze Bullen of Gaithersburg, and Elizabeth Maze, of Alexandria; and three grandchildren.

Celebrity Golf Tourney Planned

The sixth annual Jeff Bostic Celebrity Golf Tournament will be held Monday, Apr. 19 at Lansdowne Resort. This event raises money for two NIH charities—Camp Fantastic and Friends of the Clinical Center. Cost is \$500 per person and includes all golf expenses, lunch and dinner. Every foursome plays with a celebrity. For more information call Karen, 496-6061. ■



Alling, CC Biostatistics Expert, Dies

Dr. David W. Alling, 80, a special assistant for biostatistics at the Clinical Center, died on Jan. 20 of respiratory failure. He was a pioneer in the application of statistical methods to biomedical research.

He was born in Rochester, N.Y., and earned his medical degree from the University of Rochester. He did an internship in internal medicine at Arnot-Ogden Hospital in Elmira, N.Y., and was a resident in pulmonary diseases at Biggs Memorial Hospital in Ithaca, N.Y.



Dr. David W. Alling

After earning his doctorate in statistics at Cornell University in 1959, Alling joined NCI as a medical officer. In 1960, he accepted the same position with NIAID, and in 1964 was appointed the institute's research mathematical statistician. In 1971, he became special assistant for biometry.

In his work at NIH, Alling helped researchers define the population sample needed to show efficacy of a particular therapeutic agent, develop clinical protocols, randomize the drug treatment, and analyze statistical data. He made numerous contributions to scientific journals on mathematical and statistical theory, and trained upcoming physicians in statistics and methodology. He received the Public Health Service Superior Service Award in 1981 and the PHS Special Recognition Award in 1989.

Since 1996, Alling served the Clinical Center as a special assistant for biostatistics. He was a valued collaborator and dear friend to many. A memorial service is tentatively scheduled for April.—Sue Kendall

DWD Training Tips

The Division of Workforce Development, OHRM, will offer the courses listed below. Hands-on, self-study, personal computer training courses are available through the DWD's User Resource Center at no cost to NIH employees. For details, visit DWD online at <http://trainingcenter.od.nih.gov/or> call 496-6211.

<i>Management, Supervisory & Professional Development</i>	
Interacting With Difficult Employees	3/30
Delegation Skills: How to Empower Others	4/5
Advanced Supervision: Beyond the Basics	4/6
Getting Results in Team Meetings	4/6
Managing Change: A Leadership Challenge	4/8
Assertive Leadership	4/12
Managing Conflict: Solving Problems at Work	4/13
<i>Administrative Systems</i>	
Delegated Acquisition Training Program	3/29
Introduction to Property Management	4/7
Buying from Businesses on the Open Market	4/13
<i>Administrative Skills Development</i>	
Administrative Officers Seminar	3/29
Myers-Briggs Type Indicator for Support Staff	4/6
<i>Human Resource Management</i>	
Basic Position Classification	4/5
<i>Computer Applications and Concepts</i>	
Advanced Corel WordPerfect 7.0	4/6
Introduction to the Internet	4/7
Intermediate Internet	4/7
Introduction to Windows	4/8
Advanced MS Excel 97	4/12
Introduction to MS Excel 7.0 - Office 95	4/12
Introduction to Filemaker Pro 4.0	4/13
Introduction to Corel WordPerfect 8.0	4/13
Advanced MS Word 7.0 - Office 95	4/13

CIT Courses and Seminars

All courses are on the NIH campus and are given without charge. For more information call 594-3278 or consult the training program's home page at <http://livewire.nih.gov>.

NIH Data Warehouse Research	
Contracts and Grants	3/1
SAS Fundamentals I	3/1-2
NIH Data Warehouse Budget and Finance	3/2
Introduction to Information Systems Security	3/3
Overview of SAS Release 6.12 for Windows	3/3
Electronic Forms Users Group	3/3
Tango Users Group	3/3
Introduction to Image Processing I	3/3-15
PC Hardware Concepts and Usage	3/4
Troubleshooting PC Hardware	3/4
An Introduction to S-PLUS	3/4-5
ALW Concepts for Users	3/8
Learn Programming with Qbasic	3/8-12
Introduction to HTML	3/9
WIG - World Wide Web Interest Group	3/9
SAS Fundamentals II	3/9, 11
Cookbook Genetic Linkage Analysis, <i>ab initio</i>	3/10

Have Work-Related Pain?

Do you have work-related pain in your neck, shoulders, arms or hands? Do you work in an office environment, and are you between ages 21-65? If so you may be eligible to participate in a study of a new approach to reduce symptoms and improve function. Study involves six visits to Georgetown University Medical Center and is free. You will also receive up to \$100 for participating. If interested, call (202) 687-3076.

Garden Club Meets, Mar. 4

The NIH Garden Club's next meeting will feature Dr. Robert Howell of the Potomac Chrysanthemum Society. He will discuss how to grow ordinary, as well as extraordinary, chrysanthemums. Information will be available about the society's popular spring plant sale, a good place to get chrysanthemums for your garden. Check the society's Web site (<http://www.du.edu/~mwood/welcome.htm>) for more information on chrysanthemums.

The Garden Club meeting is Thursday, Mar. 4 at noon in the Natcher Bldg., Conf. Rm. A. All are welcome. Visit the club's Web site for more information: <http://www.recgov.org/r&w/garden/>. **R**

Theater Group Seeks Volunteers

The Bethesda Little Theatre (BLT) is looking for volunteers for its spring production, *The Best of Times*: with Jerry Herman. Needed are musicians and backstage crew. The show will open Friday, Apr. 30 and run for three weekends. All performances are in Masur Auditorium, Bldg. 10. The BLT is an R&W organization whose members share a love for theatre as well as a desire to support the charities of NIH. If you would like to volunteer, contact Lynne Pusanik at 435-7601 or email lpusanik@nih.gov.

CC To Host Organ Transplant Program

The Clinical Center will become the site for an innovative new kidney, pancreas, and islet transplant program designed in conjunction with several major research centers.

"The Clinical Center is fortunate to be a collaborator in this exciting scientific opportunity," said CC director Dr. John Gallin. "We are working closely with several organizations to provide the necessary resources—including staff, equipment and space—to fully support this important initiative."

The effort is a collaboration between the CC, NIDDK, Walter Reed Army Medical Center, the Naval Medical Research Center, and the Diabetes Research Institute of the University of Miami.

Program planners hope this initiative will allow tests of novel therapies that can eliminate the need for immunosuppressive drugs, which are taken by patients to keep their bodies from rejecting new transplanted organs such as kidneys.

Patients with Type 1 diabetes could also potentially benefit from the new program. In these patients, insulin-producing cell clusters called islets have been destroyed. In the past, islet transplants often didn't work because anti-rejection therapies failed. This new program could offer new treatment options to benefit these patients.

A new Navy-NIDDK Transplantation and Autoimmunity Research Branch will develop the actual clinical protocols involved with the program. It is anticipated that research advances from this branch will translate into pilot clinical trials.

The CC will be the site for these phase 1 and phase 2 trials, which test the safety and effectiveness of a treatment in small numbers of people. If successful, the findings uncovered here could provide the basis for larger studies that could be conducted around the country.

The program is expected to begin this summer. **R**

Construction Progress Continues at Three Bldg. Sites



Spring Planting—The soil is prepared (above) for growth of the new Clinical Research Center, which has taken advantage of a relatively mild winter thus far. Soon, construction cranes will adorn the site. Below, the Vaccine Research Center site adjacent to Bldg. 37 takes shape as the fast-track project gets under way in earnest.



Bldg. 50 rises at the corner of Center and South Drives. In the background is Stone House and the Natcher Center. A placard recently erected outside the site officially designates the structure as the Louis Stokes Laboratories, named after the congressman from Ohio who has been a longtime supporter of medical research.