

Still The Second Best Thing About Payday

Summer Lecture Series Provokes Young Minds

By Rich McManus

Images of human brains—rendered in vibrant, nearly tie-dye color—were one of the attractions for an audience of summer interns attending Dr. Judith Rapoport's offering in the "Research at the Frontier" seminar for youngsters June 24 in Masur Auditorium. The eight-part series, sponsored by the Office of Education, highlights the variety and depth of NIH's intramural program and features leading researchers and institute directors.

Rapoport, who is chief of NIMH's Child Psychiatry Branch, gave the series' second talk on "The Adolescent Brain" before an audience not too far removed from that phase of human development. Focusing on normal vs. abnormal brain development, Rapoport showed how advances in

SEE SUMMER SERIES, PAGE 4

Diversity Grand Rounds Provide Tools, Resources

The National Cancer Institute's Office of Diversity and Employment Programs (ODEP) held its second seminar in the Diversity Grand Rounds series on June 10 with an interactive presentation by Dr. Steve Robbins titled, "Unintentional Intolerance: What You Think You Know Might Hurt Others." The inaugural event in the series was held Apr. 3 and featured a presentation by Art Jackson titled, "Lions, Tigers, and Bears—Oh My."

The series is designed to help align the NIH community with the expanding conceptualization of workplace diversity and diversity management, moving from the conventional and narrow definition of representation, EEO and affirmative action, to a broader one that encompasses

SEE DIVERSITY, PAGE 2

HIGHLIGHTS

- 1 'Roadmap' Plan Heavy on Deliverables
- 3 NIDDK Creates New Liver Branch
- 5 nVision To Debut Soon at NIH
- 12 Inadvertent Geyser Pipes Up Near 31



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Speed Limits Passé

'Roadmap' Tour, Stem Cell Update Highlight ACD Meeting

By Rich McManus

It might not be quite as detailed, yet, as the Rand McNally version, but the "NIH Roadmap"—an elucidation of the need for speed in making discoveries and applying them to patient care—was unveiled at length at the 86th advisory committee to the NIH director meeting June 30 on campus. NIH director Dr. Elias Zerhouni introduced the initiative then let three institute directors carve turns around its major features: new pathways for discovery, the shape of future research teams and revitalized clinical research.

Before embarking on the tour, Zerhouni gave his customary wrap-up of major campus issues of the past 6 months since the ACD last convened. The President's FY 2004 budget request for NIH stands at \$27.9 billion, or \$549 million more than in FY 2003, he reported. This represents an overall increase of around 2.0 percent. The House's FY04 markup is the same as the President's and the Senate figure is \$319 million more than the President's, offering a \$1 billion, or 3.7 percent, increase. "Obvi-

SEE ACD MEETING, PAGE 8

'They Said It Couldn't Be Done, But He Done It'

MIT's Langer Offers 'Blue Sky' View of Biomaterials' Potential

By Rich McManus

As if to offset the leaden feel of a notoriously soggy spring in Bethesda, MIT's Dr. Robert Langer, a prolific inventor as well as professor of chemical and biomedical engineering, opened some blue skies June 16 as he discussed advances in drug-delivery systems and in tissue engineering—including new organs, blood vessels and such body parts as ears and noses—at NIDCR's annual Seymour J. Kreshover Lecture in Masur Auditorium.

The origins of many of today's most well-known biomaterials—the artificial heart, kidney dialysis machines, vascular grafts, breast implants—are entirely prosaic, Langer discussed, and are the fruit of inventors' harvesting of such commonplace as womens' girdles (polyether urethane is a chief ingredient



Dr. Robert Langer

SEE LANGER, PAGE 6

DIVERSITY, CONTINUED FROM PAGE 1

inclusion and strategic ways of eliciting, developing, mobilizing and utilizing diverse talents to improve organizational productivity. The seminars are open to all NIH'ers.

The seminars provide tangible tools, information and resources for employees to be successful in a diverse workforce as well as to encourage on-going conversation about the evolving concept of diversity. In addition, the seminars are designed to assist managers and supervisors in meeting their diversity and EEO performance



Dr. Steve Robbins (r) engages the audience with his "Unintentional Intolerance" seminar at NCI's second Diversity Grand Rounds.

standards. They are held on the Bethesda and Frederick campuses, with teleconferencing to NIEHS in North Carolina.

In the inaugural talk, Art Jackson began with a parable about an animal kingdom of lions, tigers, and bears having trouble protecting themselves from hunters. In his story, rather than band together and consider how each species could contribute unique strengths and talents to overcome the threat, the lions saw themselves as the only and the best species for the job, dismissing the others as less capable because they were different. By the end of the parable, the lions, tigers and bears realized that by pooling their efforts they could triumph over the hunters and save themselves. Jackson's message underscored the importance of understanding diversity as a way of developing an edge of increased productivity and the overall organizational good.

Similarly, Robbins used a ship metaphor to demonstrate the importance of inclusion, and emphasized that exclusion of any group is detrimental to all. His metaphorical ship was one in which certain people were confined to the "bottom of the boat." These folks discovered a leak, but because of the exclusionary practices of the others, the "bottom of the boat people" were ignored, the leak was never addressed and the ship sank. Robbins said this is the result of "unintentional intolerance," which inadvertently happens due to the thoughtless or "autopilot" mode that directs much of our behavior. In that state, we often exclude or discriminate against others without consideration of the impact it has on them and the entire group. Robbins urged acting mindfully by increasing our awareness about our natural tendencies to "unintentionally exclude."

He closed with a quote from Yoda of *The Empire Strikes Back*, "There is only do or do not, there is no try," if we are to thrive and succeed as a people.

The next Diversity Grand Rounds seminar takes place Sept. 11 at 9 a.m. The featured speaker is Annette Merritt Cummings, national director of diversity services, Bernard Hodes Group. For more information visit <http://camp.nci.nih.gov/odep>. **R**

NIEHS's Bill Suk, director of the Hazardous Substances Basic Research and Training Program and director of the Center for Risk and Integrated Sciences, received the University of Cincinnati's Roy Albert Memorial Award for Translational Research in Environmental Health at a luncheon June 9. The university hosts an NIEHS-funded environmental health sciences center. In awarding the honor, the selection



committee cited Suk's dedication to fostering outstanding research linking basic science, remediation of environmental contaminants and public policy.

Stopping Your HRT? Worried About Mood?

The Behavioral Endocrinology Branch, NIMH, is investigating whether mood, anxiety and irritability accompany hormone replacement therapy (HRT) withdrawal. Participants should be ages 45-55, with a past history of perimenopausal mood symptoms responsive to estrogen therapy (ET) or HRT, who are currently on ET or HRT and in good physical health. Call Linda Simpson-St. Clair, 496-9576. **R**

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New NIDDK Branch Focuses on Liver Disease

A new Liver Disease Research Branch at the National Institute of Diabetes and Digestive and Kidney Diseases will focus research efforts on the critical areas of hepatitis B and C, clinical liver disease, liver and biliary diseases and liver transplantation.

Heading the new branch is Dr. Jay H. Hoofnagle, former director of NIDDK's Division of Digestive Diseases and Nutrition (DDN), and one of the world's leading authorities in the field of liver disease.

"This is not just a shuffling of the deck chairs," says Hoofnagle, noting that the new branch is the result of "strong interest" from Congress and the lay community in raising the status of liver disease within the institute. The new branch will function within the DDN division, but with its own branch chief, staff and an exclusive focus on the liver and liver disease. "This will give liver research its own home at the NIH," Hoofnagle says. Dr. Stephen James, former deputy director of DDN, is now the division's acting director.

Thirty years ago, 75 percent of chronic liver disease was believed due to alcohol and 99 percent was considered untreatable. "We now know that alcohol actually represents a minority of cases—about 20 percent—and there are many forms of the disease that are now treatable or preventable," says Hoofnagle, whose own research at NIH with interferon during the 1980s resulted in the first cures of hepatitis C-infected individuals. "We still see the original patients from those studies, and they haven't had any evidence of residual liver disease or the virus," he notes.

While the incidence of alcoholic liver disease is declining, hepatitis C-related liver disease is up, due to increased use of injection drugs and multiple sexual partners. "The lifestyle that came in the 1960s was bad on the liver," says Hoofnagle.

With more than 3 million Americans infected with the virus, one-third of whom will develop cirrhosis, many eventually requiring liver transplantation, hepatitis C will be a primary focus of the new branch, which will fund extramural efforts at research centers across the country. Optimal treatment with new, long-acting pegylated interferon (PEG interferon alfa) and the antiviral drug ribavirin has resulted in eradication of the virus in 50 percent of patients, according to Hoofnagle. "Hepatitis C is the big issue," he says. "There's marvelous research going on—better understanding of the virus, new insights in how it harms the liver, and recently, better antivirals, protease inhibitors, helicase inhibitors and cytokines, like interferon. There's a light at the end of this tunnel."

Hepatitis B is also coming under control, he says. There are currently three licensed treatments—interferon, lamivudine (Epivir) and adefovir

(Hercera). "There's also a handful of drugs pending and combination therapy being tested," says Hoofnagle. "I think hepatitis B will be a fully treatable disease in the next 5 to 10 years."

NASH, or nonalcoholic steatohepatitis, a newly identified liver disease common among obese individuals and people with diabetes, is high on the new branch's targeted list. Studies to find the cause, natural history and treatment of NASH are under way. "Five years ago, we didn't have a single grant for NASH,"

Hoofnagle says. NASH seems to be caused by obesity and insulin resistance. Treatments, he says, will likely include weight loss, physical activity, anti-oxidants and anti-diabetes drugs.

Autoimmune liver diseases, like autoimmune hepatitis, primary biliary cirrhosis and sclerosing cholangitis "are tough," according to Hoofnagle. "We don't know what causes them and treatments improve but do not cure them." Autoimmune hepatitis is treated with steroids, while primary biliary cirrhosis, which affects one in 2,000 women and eventually leads to liver transplantation, can be slowed down by a drug called ursodiol (Actigall). "We have to get at the cause of this disease, prevent and actually cure it," says Hoofnagle.

One in 5,000 children born each year has biliary atresia—lacking bile ducts—and most of these children will eventually need a liver transplant. The supply of donor livers for these children—as well as for adults with cirrhosis or liver cancer and for others approaching liver failure—will be a big issue for the new branch.

The branch will be directly responsible for liver research funding by NIDDK but will also have the charge to collaborate with and promote liver research in other institutes involved in such work. Efforts in other institutes include the study of liver cancer at NCI, viral hepatitis at NIAID and NIDA, biliary atresia at NICHD, alcoholic hepatitis at NIAAA and imaging of the liver with NIBIB.

Liver transplantation is extremely successful; long-term survival is possible and some patients are able to stop all their immunosuppressive medications. However, there are not enough livers available for all the people who need them. "Several thousand people die on the transplant list a year," says Hoofnagle. "We need to find more donors and other sources of livers."

The solution to these pressing clinical issues is most likely to come from basic liver research, including studies of how the liver is formed, how stem cells differentiate into adult liver cells, how the liver functions, how to overcome liver transplantation rejection and how to engineer artificial livers or how to prepare animal livers that can be used in humans (xenotransplantation), says Hoofnagle. ■



Dr. Jay H. Hoofnagle heads NIDDK's new Liver Disease Research Branch.



Dr. Hilary D. Sigmon has moved to the Center for Scientific Review to be scientific review administrator of the International Collaborative Programs Special Emphasis Panel, which reviews grant applications related to infectious diseases for the Fogarty International Center. She had been a program director of extramural programs at the National Institute of Nursing Research. Sigmon received nursing degrees from the University of Pennsylvania and Catholic University. She then became an assistant director of clinical nursing at Johns Hopkins University Hospital in Baltimore, before moving to the Washington Hospital Center to be nursing director of its medical shock-trauma acute resuscitation unit. She earned her Ph.D. in physiology from the Uniformed Services University of the Health Sciences.

SUMMER SERIES, CONTINUED FROM PAGE 1

technology—both anatomic and functional magnetic resonance imaging, which can “light up” areas of the brain in relation to age, treatment or response to controlled stimuli—can lead to therapeutic insights.

Rapoport and her colleagues have taken advantage not only of technology, but also of a cohort of human subjects whom they’ve been able to image and study for years on end—from toddlers to people in their 30s. “Longitudinal prospective studies have been very useful in child psychiatry,” she said. Her lab has been able to literally track the development of brains as they mature through the years, tracing specific anatomical changes.

Comparing brain weight to body weight in different species, Rapoport and colleagues discovered that humans are not quite kings of the hill; “The porpoise and the elephant have beat us out,” she reported. But there seems to be “relatively little correlation between brain size and ability—bigger isn’t necessarily better.”

NIMH studies have shown that cortical brain regions develop at different rates. “The temporal lobe matures later than other parts of the brain,” Rapoport said. And the cerebellum—what she termed “the small brain behind the brain”—reaches full size and matures far later than other brain regions.

Creating maps of the cortex based on the sum of many images gathered over many years, Dr. Jay Giedd and Rapoport have been able to demonstrate graphically that synaptic growth proceeds from the rear to the front in a “gradual wave of change.”

Examining the “heritability” of brain structures, she has found that some regions appear to be under more genetic control than others, and that the simple passage of time can prompt different regions to activate, as if they were on timers of some sort. What has emerged from the decidedly unstatic movies of brain development is that “as you age, you get to resemble your biological parents in brain structure over time.”

Other researchers had previously discovered differences among male and female brains: the male brain tends to be somewhat larger, but in females, the gray/white matter ratio is higher. Also, development curves in female brains tend to peak earlier than in males.

Particularly useful to Rapoport’s team have been studies of childhood-onset schizophrenia (COS), a rare variant of a major disorder that normally manifests in people who are around age 20 or older. While the illness is extremely rare in those under age 13, Rapoport has been able to recruit a cadre of some 75 children with COS whom she has been able to study from 1991 to the present. There appears to be some genetic link between COS and Crohn’s disease, a digestive disorder, she has found. Also, the back-to-front wave of development in normal

brains seems to be mimicked, at least directionally, in COS patients, who experience loss, rather than gain, of function in a wave “that starts at the back of the brain then moves forward to cover the entire brain...This is probably an exaggeration of a normal pattern of development.”

In patients with COS, and in those with attention-deficit hyperactivity disorder (ADHD), Rapoport has found a variety of anxiety/emotional problems linked more closely to morphological changes in the brain. Insights from such imaging are expected to come more quickly as technology gets more sophisticated, she suggested.

“We have gained an unprecedented ability to dissect brain pathways and genetic/environmental determinants of clinically relevant behavior,” she said.

Future talks in the series, held Tuesdays from noon to 1 p.m. in Masur Auditorium, Bldg. 10, include: July 29, “Biomedical Imaging in the Post-Genomic Era: Opportunities and Challenges,” by Dr. King Li, associate director, radiology and imaging sciences, Clinical Center; and Aug. 5, “Imaging the Addictive Brain,” by Dr. Nora Volkow, director, National Institute on Drug Abuse. ■

NIAAA’s Dr. Joannie Shen was recently presented the J.D. Lane Award by Surgeon General Richard Carmona during the PHS Commissioned Officers annual meeting in Scottsdale, Ariz. Also known as the Clinical Society Open Award, the Lane Award is the highest annual clinical investigator award across the PHS officers’ category for original research. Shen, a neuroscientist in the Laboratory of Clinical Science, won the award as principal investigator of a protocol conducted with a group of normal volunteers at the Clinical Center. Her research uses functional magnetic resonance imaging to explore electro-acupuncture’s effects on the reward response mechanisms in the brain’s mesolimbic system. Acupuncture is used as an effective complementary therapy in many addiction treatment programs around the country, but the precise nature of how and why it works remains unclear. Shen’s research could help the development of effective treatments for alcohol dependence and other substance abuse disorders. Shen acknowledged her coauthors in NIAAA’s section on brain electrophysiology and imaging: Dr. Dan Rio, Dr. Robert Rawling and section chief Dr. Da Hommer. She also thanked the National Center for Complementary and Alternative Medicine, which co-funded the study.



nVision Coming Soon to NIH

nVision, the next generation data warehouse, will soon be available. nVision is a modernization and major update to the NIH Data Warehouse (DW), an enterprise reporting system that is currently in use at NIH. The DW will continue to support NIH until all of its reports and functionality have been migrated to nVision. This migration will occur by business area.

The goal of nVision is to integrate data from NIH enterprise systems to eventually become a broad-based tool allowing NIH decision-makers easy access to that data via the web. nVision will offer the latest reporting and business intelligence technology and will be the reporting solution for the NIH Business System (NBS). NBS will be nVision's initial source for business information.

The first nVision business area to be offered will be travel, and is scheduled for release later this year in conjunction with the new NBS Travel System. nVision Travel will display information received from the NBS Travel System as well as historical travel information going back to FY 1999. The reports contain data related to travel authorizations (formerly known as travel orders), travel vouchers, staff on travel and travel-related expenses.

If you are familiar with DW Travel reports, you will not only get the same type of information from nVision Travel, but you will also get new data from the NBS Travel System, and the advantages of the latest industry-leading technology. nVision Travel will deliver powerful features, greater system flexibility and a more intuitive interface. After the nVision Travel business area is released, DW Travel report functionality and data will only be available in nVision. Eventually, nVision will include the same variety of business areas that are currently found in the DW, and more.

nVision will afford users expanded capabilities over what is currently offered in the DW. nVision is following the NIH initiative to provide users easier access to enterprise systems via the NIH Portal. Using your NIH login ID, the NIH Portal will offer single sign-on access to enterprise systems such as nVision, NBS and ITAS. As a web-based system, nVision is accessible from any PC, Mac or Unix system. nVision will offer several useful new features such as summary reports that allow you to drill down to view the details. The data can be saved in a variety of formats to be used with other applications such as Microsoft Excel, Microsoft Word and Adobe Acrobat Reader (PDF). You can collect and organize your most often-used reports in a convenient "Favorites" folder. Additionally, the new search feature enables you to find a specific report based on report title, folder name or individual field name.

On Wednesday, July 30, beginning at 10 a.m. in the Clinical Center's Lipsett Amphitheater, members of the nVision team will present Introduction to

nVision—a 1-hour presentation highlighting the Travel business area. If you are a current DW user, or if you have a need for quick and easy travel reports, plan to attend. This will be a great opportunity to learn about the features and benefits of nVision, and to see for yourself how this new reporting system looks and operates. The presentation is open to the NIH community.

Visit the nVision web site at <http://nvision.nih.gov> to learn more. ■

BIG Honors NIH Officials

"I believe in giving honor where honor is due," said Jacque Ballard, president of NIH's chapter of Blacks In Government, during the BIG Awards ceremony on June 10 in Lister Hill Auditorium.

The ceremony honored Dr. Ruth L. Kirschstein, senior advisor to the NIH director; Dr. Yvonne T. Maddox, NICHD deputy director; and Charlette P. Bronson, former secretary to Kirschstein and Maddox, for their support of the mission of BIG over the years and for their encouragement of diversity and equal opportunity at NIH. The special recognition award, a chisel-point clear glass plaque mounted on a wooden pedestal, cited Kirschstein "for vigilance, courage and endless resolve to enhance opportunities for minorities throughout your years of dedicated service to the NIH." Maddox was honored "for shouldering our burdens, staying true when others would have taken an easier route, and doing what is right in spite of the consequences."



Gerald R. Reed, immediate past BIG national president and keynote speaker at the ceremony, greets Dr. Ruth Kirschstein, senior advisor to the NIH director and BIG honoree.

Visibly moved, Kirschstein said, "Out of all the awards that I have received, I believe that this is the dearest to my heart."

Bronson received a wooden plaque with a certificate of appreciation for her "professionalism, resourcefulness, and commitment to providing outstanding support to the NIH deputy director's office and to BIG."

Gerald R. Reed, immediate past BIG national president, delivered the keynote address in which he commended NIH for its part in helping to close disparities in health research by creating the National Center on Minority Health and Health Disparities. Reed noted that the last time he visited the NIH BIG chapter in October 2000, it was to recognize Dr. John Ruffin, then director of NIH's Office of Research on Minority Health. Reed said he was pleased that the office has now been elevated to a center.

Ballard also recognized other NIH leaders and BIG regional and national officers who attended the program, including: Dr. Raynard S. Kington, NIH deputy director; Lawrence Self, director of NIH's Office of Equal Opportunity and Diversity Management; Darlene Young, BIG region XI board member; Mary Thomas, BIG national membership chair and region XI 2nd vice president; and Michele Peyton, BIG region XI 1st vice president. Ballard presented certificates of appreciation to chapter members and gold star awards for exemplary membership and contributions to the chapter.—Felicia Shingler ■

LANGER, CONTINUED FROM PAGE 1

of manmade hearts), sausage casing (dialysis tubing utilizes cellulose acetate), Dacron clothing (the stuff of vascular grafts) and the lubricant silicone (employed in breast implants). What if, instead of looking around the household for inspiration, scientists took a more fundamental, say chemical, approach to biomaterials?

The "let's look beyond the household" approach has yielded some products now in wide use, he reported, and has such potential that Langer optimistically titled his talk, "Biomaterials and How They Will Change Our Lives."

He focused first on drug-delivery systems. Most medications are commonly delivered either by injection or by mouth, which are sub-optimum methods, he said, because they typically result in peaks, which are associated with toxicity, and lows, which are associated with no beneficial effect. In the United States, more than 100,000 people die each year—four times the number of AIDS deaths—due to complications in drug-taking, he said. "Improvements in drug-delivery could have an enormous effect on human health."

Polymers, said Langer, offer the possibility of more finely tuned drug delivery; already, millions of people each year use some form of controlled drug-delivery. The nitroglycerin patch, for example, is a "powerful delivery system"; over 500 million such

patches were used by patients in the past year. The Norplant birth control implants, introduced in the United States in 1991, offer more than 2,000 days (in excess of 5 years) of contraception, and are used in at least 50 countries. Many medications rely on the delivery of comparatively large molecules of drug through polymers, a feat that

was not considered possible back in 1974, when Langer was finishing his graduate work in chemical engineering at MIT. He described a postdoctoral stint in the laboratory of Dr. Judah Folkman during which Langer attempted to deliver, via polymers, large molecules in unadulterated form.

"The conventional wisdom was that it couldn't be done," Langer said. "I found more than 200 ways to get it to not work, and then luckily found one that worked." His new approach used microspheres of polymer to release peptides and proteins and other molecules of varying size. Through experimental studies, Langer and his colleagues found that by chemically adjusting the pore structure on

microspheres, they could achieve a drug-release range from one day to 3 years.

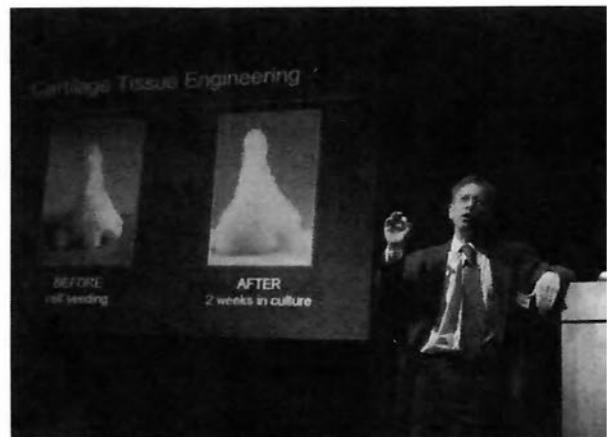
"We learned gradually how to regulate release," he said, noting that insulin can be delivered using this method. Another drug, Lupron Depot, used to treat endometriosis and prostate cancer among other conditions, offers controlled release over the course of 4 months.

Langer's lab is currently asking if computer-type chips can be used to store and deliver chemicals. He described small chips with built-in wells of drug—"pharmacy on a chip"—in which a small voltage applied to a gold membrane covering the well "uncorks" the material in the well. "We can put hundreds of these wells on a chip smaller than a

PHOTOS: BILL BRANSON



Dr. and Mrs. Seymour Kreshover take in Langer's talk from the front row.



Langer shows the possibilities of tissue engineering.

dime," he said. "A chip of one cubic centimeter can hold 500 mg of drug...Our vision for the future is that someday you could open the wells as easily as you open your garage door with a remote control device using radiofrequency." Deeper into the future, he predicted, "you could put biosensors on the chips so that you'd get direct feedback control, which would be very useful in delivering a drug such as insulin. The chip could transmit an electronic record of when the patient took the drug, and how the body responded."

The remote control of drug delivery could also be a boon in that large subset of patients who, owing to disease, are prone to forget to take their medications, he suggested.

Langer's most dramatic vignette involved the dozen years that passed as a cast of academic reviewers successively thumbed their noses, via a series of seven brick-wall objections, at Langer's attempt to develop new polymers and also to apply controlled drug delivery to a devastating brain cancer known as glioblastoma multiforme. In a rousing indictment of timid peer review, Langer showed not only how each objection was overcome by a succession of brilliant graduate students and postdocs in his lab,

but also how those grad students and postdocs—and he named them and their current institutions—are now chairs and department heads of leading medical centers or presidents of major companies.

From 1981 to 1993, the approach of lining the surgical cavity in brain tumors with a degradable polymer that wouldn't dull the effect of an anticancer drug called BCNU,



Langer has made a career of overcoming obstacles.

gained credibility. In 1996, the Food and Drug Administration approved the therapy, Langer related, which was "the first time in more than 20 years that a new brain tumor therapy was introduced." The technique has matured to the point that drug-immersed wafers are also sewn into the

surgical cavity, in both brain and spinal surgery. Stents coated with polymer-drug combinations are also being employed successfully in heart disease, Langer added.

But what about the many diseases not amenable to drug therapy, Langer asked. "Could you tissue-engineer a new organ, or new tissues?" His lab has proven the concept, in an animal model, that you can start with a specific tissue type, grow a biologically friendly scaffold—say a nose or an ear—outside the body, seed the scaffold successfully with the tissue, then reinsert the part to the host. "Someday, we'll be able to custom-make tissues in any shape you want," he predicted.

He described "shape-memory" polymers that, under one set of temperature conditions, are thread-like, but which become, at body temperature, something new. "A new nose, for example, could start out as a thread that could be noninvasively inserted through a small incision." He showed videos of polymer threads that knot themselves, or coil themselves, in response to changes in temperature.

Langer envisions growing human embryonic stem cells, converting them to endothelial cells and then forming functional blood-carrying microvessels, which can mature into vessels suitable for implantation.

His final film clip depicted spinal cord repair—using an artificial scaffold seeded with neural stem cells—enabling a hobbled rat to regain considerable function in its legs. "It's not a cure," he cautioned, "but it is progress.

"Thirty years ago, advances such as these would have been viewed with a great deal of skepticism," he concluded. "We hope one day to profoundly improve human health throughout the world." ■

FIC's Gardner Receives Public Service Medal

Dr. Pierce Gardner, senior advisor for clinical research at FIC, is a recipient of the Department of Defense Outstanding Public Service Medal, the second highest award given by the Secretary of Defense to private citizens for superior accomplishments and contributions that merit special recognition. At an award ceremony on May 21 at Fort Detrick, Md., Dr. William Winkenwerder, Jr., assistant secretary of defense for health affairs, cited Gardner and other members of the Armed Forces epidemiological board (AFEB) for their selfless contributions to the improvement of defense operations and processes for the 2-year period 2001-2002.



Dr. Pierce Gardner

During this time, AFEB members made recommendations on 31 emergent and complex health policy issues. Among the many recommendations by the board's members are a series of changes that removed barriers in the officer accession process and the elimination of needless screening practices that are projected to save the department more than \$6 million annually. In addition, AFEB recommendations have been incorporated into defense directives, and have assisted in the approval of anthrax and smallpox vaccines, antibiotics and therapeutics, and low-level phased array radio frequency energy emission systems used by the Department of Defense.

In thanking AFEB members for their exemplary service, Winkenwerder noted his deep appreciation for the board's "individual personal and professional integrity, support and selfless dedication for the health and welfare of our service members." He noted that the board's recommendations also "help provide independent credibility to our military medical programs."

Gardner joined FIC in February 2001, after a career in academic infectious diseases, including 13 years as associate dean for academic affairs at the Medical School of the State University of New York at Stony Brook. He has been the lead in the development of FIC's new International Clinical, Operational and Health Services Training Award for AIDS and Tuberculosis, and for the Fogarty/Ellison Medical Foundation clinical research training program, which will enable medical or public health students from the U.S. to work in strong research programs in developing countries together with similar-level students from the host country. These programs are geared to ensuring that clinical research can be quickly translated into policy and practice, and that the next generation of U.S. and developing-country clinical researchers is being groomed for future leadership roles. ■

Sons of Italy Invite New Members

The NIH Lodge # 2547 of Order Sons of Italy in America invites new members from the NIH community to join OSIA, especially in time for the group's celebration of its 20th anniversary at NIH. A gala evening is planned on Friday, Oct. 24 to mark the anniversary with music, food and dancing. To learn more about the group contact Cathy Battistone, president (NCI); Nina Baccanari, immediate past president (HHS/OS); or Carol Humphreys-O'Keefe, social director and acting recording secretary (NINDS), all of whom can be reached via email through the global directory.



Dr. Arthur Petrosian has joined the Center for Scientific Review as scientific review administrator in its surgery, radiology and bioengineering integrated review group, coordinating reviews of grant applications involving imaging methods and technologies. He comes from Texas Tech University, where he studied the use of electroencephalograms to predict epileptic seizures and Alzheimer's disease. While there, he also coedited a book, Wavelets in Signal and Image Analysis: From Theory to Practice. He earned a master's degree in mathematics from Moscow State University and a Ph.D. in applied mathematics from the Institute for Problems of Informatics and Automation at the National Armenian Academy of Sciences. He then moved to the University of Michigan to study breast cancer recognition on digital mammograms under an NIH postdoctoral fellowship.

ACD MEETING, CONTINUED FROM PAGE 1

ously there needs to be reconciliation between the two budgets," Zerhouni said, "and we'll be watching the issue closely."

Scrutiny from Inside and Out

Also on Capitol Hill, House and Senate committees are reviewing NIH programs and management, Zerhouni noted. NIH is in the midst of a series of reauthorization hearings; the agency was last authorized in 1993.

The director said a blue-ribbon panel has been named to maximize the effectiveness of the new Mark O. Hatfield Clinical Research Center, which is set to open next summer. Also, the Institute of Medicine is nearing completion of a report on how NIH is organized, Zerhouni related. Meanwhile, he has appointed an "NIH steering committee" composed of select institute and center directors who serve 3-year terms and will "focus more extensively on issues that affect NIH." The committee's goal is to expedite decision-making, Zerhouni explained. "We need more coordinated and coherent decisions because with growth has come complexity, and that has had a tendency to slow us down. So we want to streamline that."

Zerhouni paused to give a brief primer on A-76 activities at NIH, reemphasizing that the agency "needs to absolutely do the best we can to win competitions [with private contractors]...It is very hard for me to see how any outside entity could compete with us, if we do our jobs properly."

He also mentioned restructuring efforts mandated by the Department of Health and Human Services, but said NIH has been able "to define its own level of interaction to the greatest extent possible."

Reporting on home-grown restructuring was NIH deputy director Dr. Raynard Kington, who is also head of ARAC, a new administrative restructuring advisory committee that, since April, has formed 8 working groups—each chaired by an institute or center director—focusing on such areas as budget, EEO, information technology and human resources. Kington conceded, "In an ideal world, this [effort] wouldn't co-occur with A-76." He said the working groups issued their reports to him in June and that NIH is currently in discussions with the Office of the Secretary and would have "a solid picture of where we want to go" within a few weeks.

The director's advisors—several of whom are new to the ACD, and six of whom were absent for various reasons (the meeting had been rescheduled from June 5)—had comments during Zerhouni's update. New member Dr. Linda Waite, a professor at the National Opinion Research Center at the University of Chicago, asked whether A-76 would affect the NIH intramural program. NIH deputy director for intramural research Dr. Michael

Gottesman said it would, but not at the leadership level. Dr. Donald Wilson, dean of the School of Medicine at the University of Maryland, Baltimore, who was attending his final ACD meeting, wanted to know the fiscal impact of A-76. Charles "Chick" Leasure, Jr., NIH deputy director for management, said there are costs in the short-term—he said it costs from \$2,000 to \$5,000 per position studied—but said that "over the long-term, we hope to get that money back." Dr. Thomas Cech, president of the Howard Hughes Medical Institute, asked if Zerhouni had any new thoughts about how to protect the number of new and competing extramural grants in the post-doubling era. The director replied, "We have tried to engineer somewhat of a softer landing...Our goal is to maintain the number of new grants."

The morning portion of the meeting concluded with reports from Dr. Ruth Kirschstein, senior advisor to the NIH director, on postdoctoral training and career development, and from Dr. James Battey, Jr., who gave an update on NIH actions in stem cell biology. Kirschstein said a working group of the ACD would meet Sept. 11-12 at the Cloister (Bldg. 60) to address the problem of an ever-lengthening postdoctoral training period that has left some young scientists in a kind of limbo. She said NIH would host a summit next spring on this issue, with input from IOM and the National Academy of Sciences, as well as from a new group, the National Postdoctoral Association. Many around the table hinted that a new system of training should be developed, but there were questions about just how strong a role NIH could play. Cech stated bluntly that many mentors may need "behavior modification" to more honestly and successfully train postdocs, so that training stints don't drag on interminably.

NIDCD director Battey, fresh from a series of June symposia on stem cells, reported on that topic for ACD members, noting that, of the 78 human embryonic stem cell lines listed on the federal registry, 12 are now available for use. NIH spent \$370 million in FY02 on all forms of stem cell research, he said, \$10 million of which was devoted to human embryonic stem cells (hESC). Former Sen. Connie Mack of Florida, a new ACD member, asked whether funding for hESC research might fall victim to political concerns, but Battey assured him, "There is no indication that funding will become less permissive in the future." Battey did warn that intellectual property and cost issues—a vial of stem cells can cost up to \$5,000, he said—could also be potentially discouraging to investigators, in addition to the widely discussed moral and ethical concerns about hESC work. The recent stem cell workshops, he added, only "reinforced my impression that we're

still very much in the basic phase" of hESC research.

On The Road Again

When ACD members returned from a quiet and collegial lunch at Stone House, Zerhouni led off an afternoon session devoted entirely to his roadmap initiative.

The stakes in the initiative, both financial and human, are high, he said. "Fourteen percent of the GDP (gross domestic product) is related to health care," he said. A potential 20 percent reduction in health care costs is foreseen if the roadmap objectives are met, he added. The roadmap effort, now just a year old, aims to accelerate the pace of discovery in the life sciences, urges quicker translation of therapies from bench to bedside, and expresses an urgent need for novel approaches that are "orders of magnitude more effective than current approaches."

Distinguishing a map from a strategic plan, Zerhouni said, "Strategic plans tend to look great from 50,000 feet—and they make great public relations—but they are seldom realistic." He offers instead a matrix approach that defines challenges, identifies roadblocks, poses solutions to obstacles, and responds to NIH's mission to do what only it can do. He envisions a series of sequential actions leading eventually to the ultimate goal—doing the readily doable first, then scaling higher.

Some 16 working groups, chaired mostly by IC directors, have been laboring for almost a year now, chipping away at three themes that emerged during colloquies with authorities from around the country: new pathways to discovery, research teams of the future, and re-engineering the clinical research enterprise. Congress, too, is aboard for the roadmap journey, Zerhouni reported: the FY04 budget provides \$45 million to the Director's Discretionary Fund, up from \$25 million in FY03, to pursue roadmap goals.

NIDDK director Dr. Allen Spiegel gave an overview of the types of "building blocks" needed to forge new pathways of discovery. These include all functional elements in genomic DNA, all RNA species, all proteins, all carbohydrates, lipids and metabolites, and involve multiple organisms. "This project vastly dwarfs the Human Genome Project, in terms of cataloging," he said.

He also described a "molecular libraries" initiative that would take advantage of genome project data and new expertise in combinatorial chemistry, compound availability and robotic technology. Combined with advances in molecular imaging, the libraries initiative could result in an era of pre-clinical disease detection, personalized and targeted therapeutics and, eventually, a sort of "systems biology" understanding of how organisms function

in both health and disease, said Spiegel.

And who is going to usher in this brave new world of ambitious medicine? NIDCR director Dr. Lawrence Tabak made the case for a new kind of science dependent on multidisciplinary teams, which is a radical departure from the culture of the independent investigator, around whom an entire system of rewards and goals has been constructed over decades.

Rounding out the roadmap tour was NIAMS director Dr. Stephen Katz, whose discussion of revamping and revitalizing clinical research concluded with his vision of "nirvana: a translational research infrastructure which facilitates the integrated, smooth, safe and efficient transition from bench to bedside and back." Each one of those adjectives came with its own sub-agenda, including establishment of some 20-30 Regional Translation Research Centers, with an associated trove of research core services, as well as improved assessment of clinical outcomes. Katz said there would be great value in establishing a National Clinical Research Corps, backed up by something called NECTAR, the National Electronic Clinical Trials and Research Network, which would tie far-flung sites and programs together.

The three roadmap presentations were so data-heavy and comprehensive that the advisors were momentarily speechless. Zerhouni rallied them with a series of provocative questions and observations, such as that "fewer than 3 percent of those eligible for enrollment in clinical trials now participate, with few exceptions."

Perhaps summing up the group's response was Dr. Steven Paul, who used to be scientific director at NIMH but who now heads research and development at Lilly Research Laboratories. "This is a very impressive set of goals, but the challenge now is how to see it through," he said. "It seems to me that the real heavy lifting starts now." ■



executive board. The SLA called him "a superb colleague and a leader in his profession," and hailed his work as a mentor.

NIEHS's Larry Wright recently won the 2003 Distinguished Member Award for the Special Libraries Association's biomedical and life sciences division. Wright, head of the reference section of the NIEHS library, has been with the institute since 1985. He has been active in the national organization as well as the local chapter, where he has chaired committees and served on the



Scott Merkle, chief of the NIEHS Health and Safety Branch, was recently given the Meritorious Achievement Award for outstanding, long-term contributions to the field of occupational health and industrial hygiene by the American Conference of Governmental Industrial Hygienists. Merkle has held a number of volunteer positions with the ACGIH, and currently serves on the editorial advisory board for Applied Occupational and Environmental Hygiene Journal. He has served two elected terms on the ACGIH board of directors and chaired the organization during 2000 and 2001. He has also served on a variety of committees. Merkle has been a certified industrial hygienist since 1981.

Lecture on Cancer Prevention Advances

NCI's annual Advances in Cancer Prevention Lecture, sponsored by the Division of Cancer Prevention, will be held on Thursday, July 31 at 3 p.m. in Lister Hill Auditorium, Bldg. 38A. The featured speaker, Dr. Elio Riboli, chief of the unit of nutrition and cancer at the International Agency for Research on Cancer in Lyon, France, will present a lecture entitled "Cancer Prevention: A European Perspective." Riboli will provide insight into the European approach to cancer prevention. For more information or for reasonable accommodation, contact Susan Winer at 496-8640.

Dearry Named Associate Director of NIEHS

Newly named to be an associate director at NIEHS, Dr. Allen Dearry will head a new Division of Research Coordination, Planning and Translation aimed at ensuring the institute's research gets speedily into the hands of those who can apply it to medical care and public health.

The unit will also seek ways to measure and demonstrate NIEHS' research impact on the health of the American people.

These are roles that NIH director Dr. Elias Zerhouni has repeatedly said all the institutes and centers should foster—and these are roles that NIEHS director Dr. Ken Olden is sold on as well. The result has been the creation of the new division headed by Dearry, who has been a health scientist administrator for the Division of Extramural Research and Training at NIEHS since 1992.

Olden said Dearry's experience in research and administration has enabled him to integrate a wide range of basic and applied methodologies. Dearry has a proven track record, establishing novel interdisciplinary research and education programs that concurrently advance scientific knowledge and enhance public health, Olden said. These programs encompass a wide spectrum, from K-12 education and environmental justice to children's health, community-based participatory research, health disparities, and oceans and human health. All are characterized by fostering partnerships among scientists, providers and community members, and by having an overall goal of improving our understanding of how physical and social environmental factors affect human health.

Dearry says that scientific research, by its very nature, can isolate groups of people in their own niches. He says he will promote more collaboration among different disciplines, to enhance the pace of scientific progress. Dearry said part of his job will also be to establish and maintain dialog between the institute and other federal agencies and public organizations.

Previously, Dearry was chief of the Chemical Exposures and Molecular Biology Branch at NIEHS. He was responsible for the NIEHS Centers Program, including Centers for Environmental Health Science; Marine and Freshwater Biomedical Science; and Children's Environmental Health and Disease Prevention Research. He has received two HHS Secretary's Awards for Distinguished Service and two NIH Director's Awards and six NIH Merit Awards.

Dearry's new division consolidates the Office of

Policy, Planning, and Evaluation; the Office of Communications and Public Liaison; *Environmental Health Perspectives*, the institute's journal; and library and information services.

Before coming to NIEHS, Dearry spent 2 years as a scientific review administrator at the Center for Scientific Review. From 1988 to 1990, he was an assistant professor of cell biology and ophthalmology at Duke University Medical Center, where his research examined the cell and molecular biology of catecholamine receptors. He played a key role in cloning the gene for the human D1 dopaminergic receptor and deducing its amino acid sequence. He has two United States patents based on this and related research.

From 1981 to 1988, he was first a postdoctoral fellow, then assistant research professor of physiology at the University of California, Berkeley, where his work focused on pharmacological mechanisms of signal processing. He received a doctorate in anatomy from the University of Pennsylvania in 1981. ■



Dr. Allen Dearry

Training Branch Class Offerings

The Training and Development Branch supports the development of NIH human resources through consultation and provides training, career development programs and other services designed to enhance organizational performance. For more information call 496-6211 or visit <http://LearningSource.od.nih.gov>.

Foreign Travel	7/24-25
Domestic Travel	7/28-30
NBS Travel System	7/28-29
Introduction to MS PowerPoint 2000	7/29
Professional Service Orders	7/29
Introduction to MS Access 2000	7/30
NIH Retirement Seminar—FERS	7/30-31, 8/1
Purchase Card Processing System	7/30
Simplified Acquisitions Refresher for AOs	7/31
Group Meetings That Produce	8/1
Negotiating Skills for Early Career Scientists	8/1
Building Collaborative Partnerships	8/4-6
Domestic Travel	8/4-6
NBS Travel System	8/4-5
Basic Time and Attendance Using ITAS	8/5-6
Creating Distinctive Customer Service	8/5-6

Female Volunteers Needed

The Behavioral Endocrinology Branch, NIMH, seeks healthy female volunteers ages 40-50 to participate in longitudinal studies of the perimenopause. Volunteers must have regular menstrual cycles and be medication-free. Periodic hormonal evaluations, symptom rating completion and occasional interviews will be performed. Subjects will be paid. Call Linda Simpson-St. Clair, 496-9576. ■

NIGMS' Hodgkins Retires After 32 Years of Budget Service

By Susan Athey

G. Earl Hodgkins, NIGMS' long-time budget officer, recently retired after 32 years of government service, all of which were spent at the institute. He joined NIGMS right out of college in 1971. He quickly rose through the ranks from budget and fiscal clerk to budget analyst, and was named budget officer in 1979.



G. Earl Hodgkins

"I am proud to say that I chose Earl Hodgkins as the budget officer for NIGMS," said Dr. Ruth Kirschstein, senior advisor to the NIH director, who directed NIGMS from 1974 to 1993. "Over the years, he has proven to be among the most flexible, creative and effective 'budgeters' at NIH," she added, noting that Hodgkins was an "integral and splendid part of the NIGMS staff."

Martha Pine, NIGMS associate director for administration and operations, echoed Kirschstein's praise of Hodgkins: "Earl has been remarkable not only for being able to 'work magic' with the budget—ensuring that it has always been in perfect synch with the scientific activities and initiatives of NIGMS—but also for his exemplary contributions to the broader budget community. He always set an example as an enthusiastic mentor for junior staff and an active and committed participant in community efforts such as enhancing Data Warehouse; recruiting new budget staff; raising trans-NIH budget issues; and developing budget tools, models, and guidance that are broadly useful."

Hodgkins represented NIGMS as a member of numerous committees aimed at streamlining NIH's budget and grant reporting mechanisms. He was a member of the NIH data warehouse steering committee, the eRA project management team and the QVR steering committee. In addition, Hodgkins served on the administrative training committee, which is responsible for overseeing and running NIH's Presidential Management Intern (PMI) and Management Intern programs. For the past 10 years, Hodgkins has made it a point to host one intern a year in the NIGMS Budget Office.

Melissa Moore, a management analyst in the Clinical Center finance office, spent 4 months at NIGMS during her rotations as a PMI. She credits Hodgkins with solidifying her decision to pursue a career in budget.

"Earl's enthusiasm for the nuances of budget was contagious. He has the ability to make the numbers come alive by tying minute financial decisions to large programmatic outcomes. This passion and openness transcended the walls of the NIGMS

budget office to the many relationships Earl has forged throughout the budget community and across the NIH campus. These qualities are what make Earl such an incredible leader, mentor and friend," Moore said.

Because of Hodgkins' extensive knowledge of federal budget operations, he was often tapped to lend his expertise to other NIH components. In 1989, he served as an advisor to the Office of Human Genome Research (now the National Human Genome Research Institute), and more recently he assisted in developing the first budget for the National Institute of Biomedical Imaging and Bioengineering.

Among Hodgkins' honors are an NIH Merit Award and two NIH Director's Awards.

Hodgkins acknowledged that by spending his entire federal career at NIH, he was provided "many exciting opportunities and long-lasting friendships"—all of which will undoubtedly continue as he resumes working for NIH the day after his retirement is official. He will then become a consultant to the Center for Information Technology, where he will "work his magic" on enhancements to the NIH Data Warehouse and further development of the system's planned successor, nVision. ■

CIT Computer Classes

All courses are given without charge. For more information call 594-6248 or consult the training program's home page at <http://training.cit.nih.gov>.

Relational Database Overview	7/23
Introduction to Using the ECB Council Administration Module 4.0	7/23
Configuring and Managing ECB Early Concurrence Data	7/23
Titan Transition - A Roadmap to Moving to Titan	7/24
PKI Certificate Policies: At the Intersection of Trust, Law and Technology	7/24
Predictive Modeling & Data Mining w/I Miner	7/24
Data Warehouse Query: Technology Transfer	7/28
NBS Domestic and Local Travel Refresher Workshop	7/28, 8/1
NBS Foreign Travel Refresher Workshop	7/28, 8/4
Introduction to Mascot I & II	7/29
Using Photoshop to Work w/Scientific Images	7/29
Brains, Writing and the Web	7/31
Introduction to FrontPage 2000	7/31
mAdb Basic Informatics	7/31
Data Warehouse End-of-Year Processing	7/31
Meet Your PC - What's Inside the Box	8/4
NIH Intramural Database (NIDB) Training	8/4
An Introduction to Software Quality and Testing for Developers and Users	8/5
Intermediate FileMaker Pro 5	8/5
PowerPoint Topics: Graphs, Links and More	8/5



Dr. Mostafa Nokta recently joined NIDCR as director of the AIDS and Oral Manifestations of Immunosuppression Program in the Division of Basic and Translational Sciences. He came to the institute from the University of Texas Medical Branch at Galveston where he was on the faculty in the division of infectious diseases. A viral immunologist, Nokta has focused his career on HIV/AIDS and HIV-related opportunistic infections. He has served as the site virologist/immunologist for several NIH-sponsored clinical studies conducted by the AIDS clinical trials group and also served on multiple ACTG committees.



Old Faithful?—Although the bus shelter area in front of Bldg. 31 temporarily looked like part of Yellowstone Park on the morning of July 9, it wasn't geothermal heat being vented. Rather, the geyser that erupted

PHOTOS: RICHARD MYERS

appears to have resulted from ground-water leaking into the campus steam distribution system. So theorized the Office of Research Services in an urgent email explaining why steam was cut off to Bldgs. 31 and 6 that day. The shutdown

temporarily affected all hot water in Bldg. 31 and all systems and equipment that use steam in Bldg. 6. Bldg. 31's cafeteria was also closed as a result. Repair crews cordoned off the area and spent the day fixing the inadvertent fountain.



New NLM Web Site Takes Mystery Out of Genes, Chromosomes, DNA

When you hear "gene map," do you think it's a guide to finding the nearest Gap store? Are you the kind of person who thinks that "genetic markers" are sold at office supply stores?

No problem. Thanks to the National Library of Medicine, you can now find answers to your genetic questions. With the click of a mouse, you can go to NLM's newest consumer web site, Genetics Home Reference, at <http://ghr.nlm.nih.gov>. Genetics Home Reference joins Medlineplus.gov (the consumer site for general medical information) and Clinicaltrials.gov (the site that lists clinical research trials) in the lexicon of NLM's consumer medical web sites.

By now, most of us have heard about the mapping of the human genome—the complete set of chromosomes and the "instructional manual" for a human being. We understand the basics of genetics but we want to learn more. Genetics Home Reference is a good place to start. Created for the lay public, the site's language is written at about the high school level. Explanations are straight and simple, written in easily understandable, jargon-free English.

If you're the sort of person who remembers "a little from their high school biology class," you can take a quick refresher course by clicking the Help Me Understand Genetics page. There you will learn about, for example, how genes can be turned on and off in cells, what it means if a disorder seems to run in a family, and the principles of gene mutation.

If you have questions about a specific disease, you can browse either by disease/condition or by gene. If you type in "Alzheimer's disease," for instance, a page appears where the information is written in a question-and-answer format. You'll find out how people inherit Alzheimer's, the symptoms and what treatments are available. There's also a geographic listing of genetic counselors and information for caregivers. In addition, you can easily find details on the specific genes related to Alzheimer's.

Other features include a glossary of genetic terms, links that take you to clinical trials related to the disorder you're searching, and more advanced genetic information. Genetics Home Reference will be adding genetic diseases on a regular basis and the information will be updated as needed. ■

Class on Managing Priorities

Learn how to work smarter and more effectively by taking the course, "Managing Multiple Priorities," which teaches how to identify four things that influence how people manage work, describing how each relates to your own ability to manage multiple priorities. Sign up now for this time-saving course to be held on Thursday, Sept. 4. Contact the Training and Development Branch, 496-6211. ■