Medicine@Yale

Advancing Biomedical Science, Education and Health Care

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Sixty years on, the last wishes of a prisoner of war are realized

A bequest made in captivity brings $4 million for work on pregnancy, childbirth

The School of Medicine sees its share of charitable contributions, but this year, the school is the recipient of a most unusual gift. While interned in a Japanese prison camp during World War II, Albert S. McKern, M.D., who had earned his master's degree in engineering at Yale 30 years earlier, willed a portion of his estate to the medical school by writing his bequest on a piece of paper. McKern died shortly thereafter.

A gift of roughly $12 million will be split evenly among three universities McKern attended: the University of Sydney, where he studied theology; Yale; and the University of Edinburgh, where he earned a medical degree. As per McKern's will, the money will be used to fund research and scholarship centered on reducing pain experienced during pregnancy and childbirth.

Born in 1885 in Australia, McKern came to Yale in September 1911, after deciding that theology was not for him because of his lack of skill as a public speaker. After earning his master's at Yale and his medical degree at Edinburgh in 1917, he moved to Penang, Malaysia, where he practiced as a physician and surgeon.

In Penang, says McKern's grandson Bill, "he built up both a successful medical practice and real estate holdings, mainly vacant beachfront lots of about three to five acres each. One was developed into his own house. He also bought a portfolio in the middle of Georgetown, the capital, where the big shopping center is."

McKern's good fortune was cut short. With the arrival of World War II, Japan invaded Malaysia and on Dec. 8, 1941, began bombing the island of Penang. In 1942 McKern

McKern, *page 6*

COURTESY OF BILL MCKERN

Physician Albert McKern in Penang, Malaysia, circa 1937.

'No one loved Yale more than Nick'

The lasting legacy of an unforgettable medical school alumnus

The relationship between Nicholas P.R. Spinelli, M.D., and Yale began in 1937, when he was a mere 16-year-old from Stratford, Conn., starting his freshman year of college. This early acquaintance blossomed through his years in medical school—also at Yale—in his career as an internist and educator, in his role as a leader of alumni, and, in his later years, in philanthropy.

Ultimately it was a love affair. Those who knew him well all say the same thing: No one loved Yale School of Medicine more than Nick Spinelli.

That love was expressed in many ways, most recently with a $4.5 million bequest that will support both a professorship in neurology and a scholarship fund for medical students.

Spinelli, who died in November 2007 at the age of 86, endowed the faculty position in the name of Harry M. Zimmerman, M.D., a notable neuropathologist during

JOHN CURTIS

Nicholas Spinelli (left) with Kanya Suphapeetiporn of Thailand, one of the many medical students for whom Spinelli served as mentor and friend.

Spinelli's student days who became the founding director of the Albert Einstein College of Medicine in Bronx, N.Y. Spinelli funded the scholarships in keeping with his long practice of helping medical students to travel what he saw as a difficult financial road.

"He used to worry about how much it cost students to become a doctor and said he didn't know how they did it," says his sister, Viola Spinelli, M.P.H., a 1965 alumna and supporter of the School of Public Health.

Spinelli graduated from Yale College in 1941 and began medical school later that year. In December, after the United States entered

Spinelli, *page 6*

Public health studies to be advanced by two major new grants

Paul Cleary

Yale's School of Public Health (YSPH) has received a significant twofold boost in the form of an $11 million grant from the National Institute of Mental Health (NIMH) and a $10.7 million grant from the National Institute of Child Health and Human Development (NICHD). The NIMH funding provides five years of support to HIV/AIDS prevention and health services at the school's Center for Interdisciplinary Research on AIDS (CIRA). The grant from NICHD adds to a $15 million grant from the same agency in 2007 to support Yale's role in a national study that will follow 100,000 children from before birth to age 21 to understand factors that contribute to their health and development.

Established in 1997, CIRA is one of eight HIV/AIDS research centers in the United States funded by the NIMH. The new grant follows on the heels of a report from the Centers

Grants, *page 6*

Inside this issue

Online: Yale Netcasts

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ROBERT LISAK

Leo Cooney consults with 103-year-old Katherine Noble, of Wallingford, Conn., at Yale-New Haven Hospital's Continuing Care Unit. "The families who bring their parents here are very interested in their care—they're looking for answers, looking for assistance in caring for older relatives," Cooney says. "We make their care much easier, we answer questions, we help with difficult decisions."

Adding life to years

For a doctor who found his calling as a resident, geriatrics never grows old

As a young intern at Boston City Hospital (now part of Boston Medical Center) in the early 1970s, Leo M. Cooney, M.D., experienced the standard of medical care for elderly patients firsthand, and he describes his impressions from those days in a characteristically unvarnished fashion.

"The thing that struck me was that we did a terrible job caring for older people," says Cooney, now the Humana Foundation Professor of Medicine at Yale. "During my internship and residency I was lectured daily about very exotic diseases. Nobody talked about bedsores and dementia and delirium and osteoporosis and all the things we saw every day."

But one bright spot was a program at Boston City in which a team of nurses made follow-up visits to nursing home residents who had been treated at the hospital's clinic to ensure that the programs and therapies doctors were trying to implement were carried out. "I was fascinated by that, and I went out eight or 10 times with the nurses to those nursing homes," says Cooney, who cites the program as instrumental in his decision to pursue geriatrics.

After a fellowship in rheumatology at Boston University Medical Center, Cooney, a member of the School of Medicine's Class of 1969, was encouraged to come back to Yale by his medical school mentor Robert H. Gifford, M.D., professor emeritus of medicine, a rheumatologist who was then section chief of general internal medicine.

Cooney's charge was to build a program in geriatrics on the firm foundation of the Continuing Care Unit (CCU), founded in 1968 on the eighth floor of Yale-New Haven Hospital to provide comprehensive care for acutely ill elderly patients.

The first job on Cooney's plate was convincing skeptical medical residents that a clinical rotation in the CCU, established by Samuel O. Thier, M.D. (then chair of the Department of Internal Medicine, now professor of health care policy and medicine at Harvard Medical School), could be both educational and enjoyable.

Lifelines
Leo Cooney

"My third day here, the chief residents were trying to 'sabotage' Sam's efforts by combining the rotation with the coronary care unit," Cooney recalls. But Cooney turned the situation around, saying with some pride that "three years later, I got the house staff's teacher-of-the-year award."

In his teaching, Cooney stresses what he and his colleagues in Yale's top-rated geriatric clinical research programs consider the three most basic objectives of geriatric medicine: clarifying patients' and families' goals of care; sustaining patients' highest levels of physical and cognitive functioning; and safeguarding patients' independence and autonomy.

Goals of care are a highly personal matter, says Cooney, particularly in older patients who may take several medications for their many chronic diseases: "Is your highest priority your comfort, or being in your own home, or maintaining as much cognitive function as you can—or is your highest priority how long you live?" So-called "disease management algorithms" fall short in this population, he says. "I'm not going to treat your multiple diseases by an algorithm. I'm going to look at *you*, and say 'OK, let's talk about what *you're* interested in.'"

Cooney says that working in geriatrics is "the most gratifying thing I do," but he worries that today's best medical students are not specializing in geriatrics, even as those 85 and older have become the fastest-growing segment of our population. The only solution, he says, is a "good sell" of the field's rewards, and "the best way to sell is to have very good people do very good work."

Cooney, who turns 65 in November, has no plans to retire anytime soon. A bred-in-the-bone baseball fan, he says with a laugh, "I watch the student evaluations very closely. When they start to say, 'He can talk about the Red Sox, but he doesn't seem to know what's wrong with the patient,' I'm outta here!"

Women's health advocate honored for distinguished leadership

Carolyn M. Mazure, PH.D., associate dean for faculty affairs, professor of psychiatry and psychology and director of Women's Health Research at Yale (WHRY), has received the 2008 Distinguished Leadership Award for Scholarship from the American Psychological Association's Committee on Women in Psychology (CWP). The award recognizes innovative research and leadership that improve women's lives and health outcomes.

Mazure founded WHRY in 1998 to respond to the need for gender-specific research. The program provides crucial pilot funds to Yale researchers who employ interdisciplinary approaches to investigate pressing health concerns for women. WHRY also initiates innovative interdisciplinary research collaborations and has an active educational outreach effort to translate research findings for the benefit of the community.

Carolyn Mazure

Mazure's own research focuses on understanding depression and addictive disorders, with a special emphasis on gender-based analyses. "It is a special privilege to be honored by one's own profession," says Mazure. "This award highlights the importance of a collective commitment to enhancing the lives of women and insuring women's health is kept at the forefront of psychological research."

Online: Yale Netcast
"Women's Health Research at Yale: factoring in gender"

Expert on race's role in medical care wins fellowship

Marcella Nunez-Smith, M.D., M.H.S., assistant professor of medicine, has received the 2008 Herbert W. Nickens Faculty Fellowship from the American Association of Medical Colleges (AAMC). The fellowship recognizes a junior member of a medical school's faculty who leads efforts to remedy inequities in medical education and health care.

Marcella Nunez-Smith

Nunez-Smith's research focuses on the impact of race and ethnicity on the professional experiences of health care providers. She is assistant director and a recent graduate of the School of Medicine's Robert Wood Johnson Clinical Scholars Program, which aims to prepare physician leaders to improve the nation's health and health care system by translating research into action at the local, state and national levels.

In 2007, Nunez-Smith was named one of the 15 inaugural Yale Center for Clinical Investigation (YCCI) Scholars, a program that provides support for junior faculty members and senior fellows who are strongly committed to careers in clinical or translational research.

The Nickens Faculty Fellowship is named in memory of Herbert W. Nickens, M.D., an African-American physician who worked to increase diversity in medicine and improve the health of minorities. Nickens, who completed a residency in psychiatry at Yale in the 1970s, served as vice president of the AAMC's Division of Community and Minority Programs from 1988 to 1999.

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Advances

Health and science news from Yale

JOSHUA BREUNIG

Cellular "antennae" guide development

The threadlike cilia that propel microorganisms through liquid are also found on many human cells, such as those that transport human ova in the Fallopian tubes. Unmoving, or "primary," cilia also appear on human cells, but their function is largely unknown.

A research team that included Joshua J. Breunig, PH.D., and Matthew R. Sarkisian, PH.D., postdoctoral associates in the laboratory of Pasko Rakic, M.D., PH.D., chair and Dorys McConnell Duberg Professor of Neurobiology, suggests that some primary cilia act as "antennae" for signals from a key developmental protein known as sonic hedgehog (Shh).

In the September 2 issue of *Proceedings of the National Academy of Science*, the group reports that deleting genes needed to form primary cilia in mice caused brain abnormalities, and Shh could not signal neural stem cells to create new neurons.

Since Shh has also been implicated in brain tumor formation, the findings may shed light on cancer as well as development.

Blood vessel gene affects brain region

Vascular endothelial growth factor (VEGF), which promotes blood vessel growth, has been a favorite target for scientists seeking to starve cancerous tumors of their blood supply or to help repair damaged hearts.

Recent research has indicated that this growth factor may also be crucial for the development and repair of the hippocampus, an area of the brain where memory is consolidated and which has been implicated in depression, schizophrenia and Alzheimer's disease.

Now a new study, published online in August in the journal *Biological Psychiatry*, provides additional evidence linking VEGF to mental health.

School of Medicine researchers have found that a variant of the *VEGF* gene is associated with a reduction in the size of the hippocampus. This reduction in hippocampal volume suggests a possible cause of cognitive problems reported by some patients using anti-VEGF therapies for cancer and other diseases.

"As we identify these genes, we can develop new and more effective treatments that could target the related, specific molecular mechanisms," says Hilary Blumberg, M.D., associate professor of psychiatry and diagnostic radiology and lead author of the new study.

Asthma: from mouse to man and back again

Bench-to-bedside approach yields important insights into a common disorder

TERRY DAGRADI

Jack Elias (left) and Geoffrey Chupp have discovered a protein that regulates the immune response, and hence the severity of inflammation and cell damage, in asthma and other conditions.

It all started with a mouse, says Jack A. Elias, M.D., chair of the Department of Internal Medicine and an expert on lung diseases. A few years ago, Elias, the Waldemar Von Zedtwitz Professor of Medicine, discovered that mice he had engineered to develop asthma had high levels of a very unusual enzyme. The enzyme, chitinase, is more commonly found in plants and lower organisms, where it breaks down chitin (pronounced "ky-tin"), an abundant and sturdy sugar polymer that gives insect and crustacean shells their resilience and strength. In humans, chitinases are thought to provide a first line of defense against fungi and some parasitic worms that also bear outer coats containing chitin.

That result was intriguing, because environmental exposure to indoor pollutants such as fungi and dust mites has been blamed for the growing incidence of asthma over the last decades. Translating the chitinase finding quickly from mice into humans, Elias and Geoffrey L. Chupp, M.D., associate professor of medicine and director of the Yale Center for Asthma and Airway Disease (YCAAD) soon discovered that people with severe asthma have high levels of a chitinase-related protein, YKL-40, in their blood. Then, they found that YKL-40 plays a central role in regulating the immune response and driving the lung inflammation that is at the root of asthma. The work could lead to new methods for diagnosing and treating asthma, a disease that affects an estimated 20 million Americans, including 9 million children.

In the mouse experiments, YKL-40 was not the original protein of interest for Elias. It is not a true chitinase; YKL-40 can bind to chitin, but it lacks the enzymatic activity required to break down the tough polymer. However, as reported in *The New England Journal of Medicine* in 2007, YKL-40 was known to circulate in the blood, and it could be measured with a simple test. "We saw this chitinase relative and thought 'the cousin may actually be prettier than the girl we'd been dating,'" Elias said, describing the investigators' early attraction to YKL-40 as a potential blood marker of asthma.

Enter Chupp, a skilled researcher whom Elias had recruited to Yale in 1997. Chupp had taken on the challenge of building up a clinical research program on lung diseases to parallel the basic research effort Elias had organized at the medical school.

The result was YCAAD, an active clinic that draws referrals from all over Connecticut and surrounding states. Besides receiving the best available treatment, Chupp says, all the patients at YCAAD get the opportunity to contribute to research. So far, he has enrolled more than 500 subjects into a well-characterized cohort of asthma sufferers, many of whom have a severe form of the disease.

Because of the presence of YCAAD, when YKL-40 popped up in the mouse studies, Chupp had everything ready to go to apply the findings to human disease. After measuring YKL-40 levels in blood samples from 200 patients, the researchers found that the protein was elevated in people with asthma, and its levels were highest in those with severe disease. The same held true in two other patient groups they tested, from Wisconsin and Paris. Levels of YKL-40 in the blood and lungs of these patients correlated with the use of medication to control asthma, with how often people were hospitalized and with the appearance of irreversible lung damage. For the first time, the severity of airway scarring could be measured by looking at a blood sample.

The next question was whether high levels of YKL-40 caused asthma symptoms or merely signaled the damage wrought by the disease. To find out, Chupp looked for differences in the genetic makeup of people with high or low YKL-40. The results, reported earlier this year, also in *The New England Journal of Medicine*, show that people who have a particular version of the YKL-40 gene tend to have a higher blood level of YKL-40, and along with that, a greater risk of getting asthma.

Those results were suggestive, but still did not prove that YKL-40 caused any of the pathological changes of asthma. To settle that question, Elias and Chupp went back to mice, genetically engineering them to have either none of the mouse equivalent of YKL-40, or too much. The result, they say, was clear. Animals lacking the protein were resistant to developing the type of inflammation that causes asthma, while animals with extra protein had an overactive immune response and more severe disease.

Further work revealed that YKL-40 is part a novel regulatory pathway governing the level of inflammation in asthma and in other conditions. The protein works by slowing the rate at which activated immune cells die off.

"We believe YKL-40 is a kind of a rheostat that sets the level of inflammation," Elias explains. "If you're a normal healthy person with a normal to low level of the stuff, when you have inflammation, it clears normally, but if you're a person with high levels of YKL-40, you end up with a more robust and chronic response and the consequences are therefore worse."

The latest findings suggest that not only is the protein a potential disease reporter, but also a likely target for new therapies. The YKL-40 story is a perfect model of how the interplay of animal and human research can speed basic discoveries to the clinic, Elias says. The work proceeded so rapidly because Yale's group of asthma experts functions as an integrated unit. "We have master clinicians on one side and master scientists on the other side and the two constantly interact with each other," he explains. "We believe that you have to bounce back and forth to move things forward."

Online: Yale Netcast
"A simple blood test might identify most severe asthma"

MEDICINE tomorrow

Congress helps donors make gifts to support Yale School of Medicine

Congress has passed the Emergency Economic Stabilization Act of 2008, which makes it easier for owners of individual retirement accounts (IRAs) who have reached the age of 70 or older to make qualified charitable distributions directly from their IRA to charities such as Yale School of Medicine.

Such individuals may now transfer up to $100,000 directly from an IRA to the School of Medicine. These distributions are not subject to federal income tax and can satisfy minimum distribution requirements; the program is effective for charitable transfers made during 2008 and 2009.

In these challenging economic times, the IRA Charitable Rollover may provide a tax-efficient means for you to support medical education, biomedical research or patient care at Yale School of Medicine.

For more information about this opportunity or other giving opportunities, visit www.yaletomorrow.yale.edu/medicine or contact Jancy Houck, associate vice president for development and director of medical development, at 203-436-8560.

New curriculum focuses on diverse issues arising at life's end

Yale professional schools and Yale-New Haven Hospital (YNHH) religious ministries have joined forces with the School of Medicine to introduce a "blended learning" curriculum that addresses the physical, emotional, cultural and spiritual issues that arise at the end of life. With funding from the Connecticut Cancer Partnership and the state's Department of Public Health, the medical school has collaborated with the Yale School of Nursing, the Yale Divinity School, the Yale University Chaplain's Office and the palliative care services of YNHH to develop an interdisciplinary program that will focus on symptom management, culture and spirituality and the importance of a multidisciplinary team approach to patient care at the end of life.


Matthew Ellman

"The primary goal of palliative care is to prevent and relieve the burdens imposed by diseases and their treatments," says Matthew S. Ellman, M.D., assistant professor of medicine and director of end-of-life care skills education at the School of Medicine. "The focus is not just the disease; rather, palliative care focuses on alleviating symptoms, whether physical, emotional or spiritual, to improve quality of life in persons with advanced illness. Without the spiritual component, this care is not complete for some patients."

The curriculum will be required for medical students, and nursing and divinity students are being urged to participate as well. Blended learning will be accomplished by combining learning vehicles, such as web-based courses and traditional face-to-face classroom activities. Students will work through online interactive cases. They will then participate in workshops, moderated by faculty from each school, in which they will share their ideas and experiences with other students to appreciate the value of interdisciplinary teamwork in the care of patients. Through the combined resources, students will learn to recognize spiritual distress in patients, and how to conduct an empathetic, respectful, open-ended dialogue to help reveal the patient's concerns, as well as other interventions to provide support and encouragement. Participating students also will be encouraged to consider how their own spiritual and cultural beliefs might affect the way they relate to and provide care for patients at the end of life.

Once the program is fully established, the curriculum will be made available to other Connecticut institutions for use in palliative care education. For additional information about this program, please see the end-of-life and palliative care education website at http://palliativecare.yale.edu.

Out & about

June 17: A celebration of the **DONALD J. COHEN PROFESSORSHIP IN CHILD PSYCHIATRY** was held at the Child Study Center (CSC). Cohen, a pioneer in child psychiatry, was Sterling Professor of Child Psychiatry, Pediatrics and Psychology, and director of the CSC from 1983 until his death in 2001. More than 200 friends, corporations and foundations contributed more than $2.7 million to establish the Cohen Professorship. The first holder of the new professorship is Associate Professor **Matthew W. State**, M.D., PH.D., an expert on the genetics of child psychiatric disorders and mental retardation. **1.** From left: **Phyllis M. Cohen**, ED.D., Donald Cohen's widow and associate clinical professor in the Child Study Center, and **Carol Schaefer**, M.S.W., former clinical professor and longtime associate of the CSC. **2.** From left: **Judit Ungar**, president of the Tourette Syndrome Association (TSA), **Thomas Israel**, a 1966 alumnus of Yale College, State and **Sue Levi-Pearl**, TSA vice president for medical and scientific programs.


1

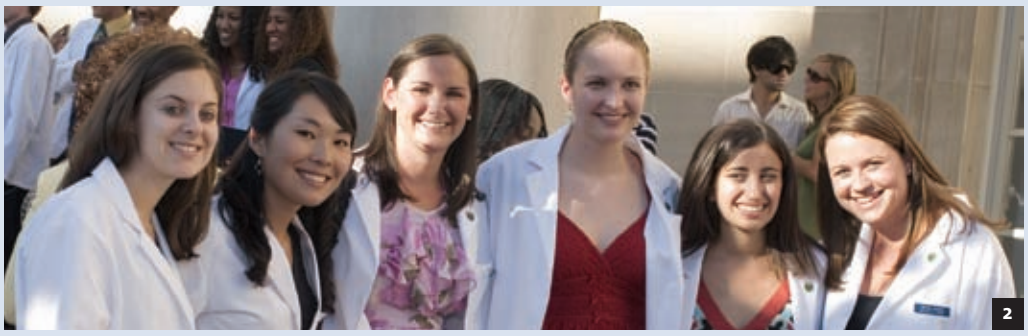

2

JUDY SIROTA ROSENTHAL (2)


1

TERRY DAGRADI (4)

August 26: At the annual **WHITE COAT CEREMONY**, members of the School of Medicine's newly admitted Class of 2012 donned physician's jackets, formally marking their entrance into the medical profession. **1. Anant Mandawat** is congratulated by **Richard Belitsky**, M.D. (back to camera), the Harold W. Jockers Associate Professor Psychiatry and deputy dean for education. **2.** First-year students (from left) **Amy Schoenfeld**, **Rany Woo**, **Alisse Hauspurg**, **Alexandra Ristow**, **Stacey Kallem** and **Regina Myers**. **3.** (From left) **Oluwatosin Onibokun**, **Raj Chovatiya**, and **Samrawit Goshu**. **4.** Excited family members snapped pictures of the assembled class in front of Sterling Hall of Medicine.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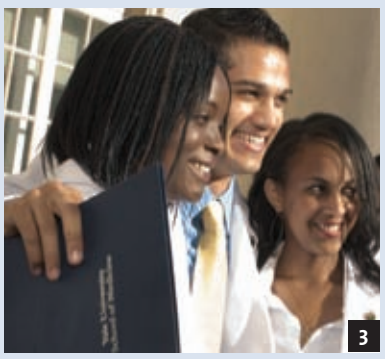
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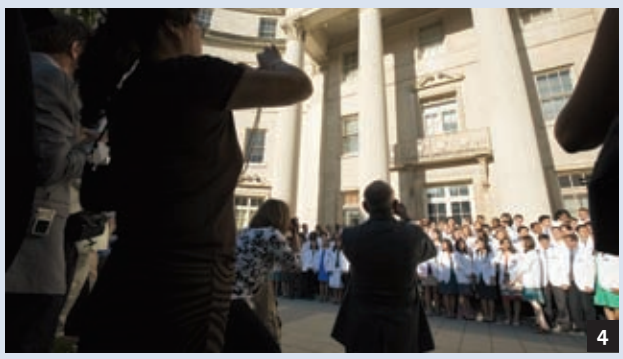
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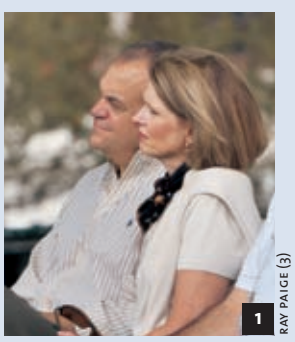
September 6: The Yale-New Haven Transplantation Center sponsored a **TRANSPLANTATION AND ORGAN DONATION AWARENESS FAIR** on the New Haven Green at which organ recipients and families of donors, including living donors, shared their stories to encourage members of the community to donate organs for the estimated 100,000 American patients awaiting transplantation surgery. **1.** (From left) New Haven Mayor **John DeStefano Jr.** and **Marna P. Borgstrom**, president and CEO of Yale-New Haven Hospital (YNHH), listen to a speaker. **2.** Borgstrom with **Patsy Twohill**, YNHH employee and heart transplant recipient. **3.** Heart transplant recipient **Pete Kenyon**.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RAY PAIGE (3)

3

HÅKON MOSVOLD LARSEN/SCANPIX, COURTESY OF THE NORWEGIAN ACADEMY OF SCIENCE AND LETTERS

September 9: In a ceremony at the Oslo Concert Hall in Norway, **Pasko Rakic**, M.D., PH.D., the Dorys McConnell Duberg Professor of Neurobiology and professor of neurology, was among three recipients of the inaugural **KAVLI PRIZE IN NEUROSCIENCE**. (From left) **Sten Grillner**, PH.D., professor of neuroscience at Sweden's Karolinska Institute, **Thomas M. Jessell**, PH.D., professor of biochemistry and molecular biophysics and Howard Hughes Medical Institute investigator at Columbia University and Rakic accept Kavli Prize medals from His Royal Highness **Crown Prince Haakon Magnus** of Norway.

Advances

Health and science news from Yale

CORBIS

Getting a grip on the opposable thumb

The term "junk DNA" is itself headed for the scrapheap, as scientists discover thousands of sequences in these genetic stretches that control gene expression.

A team led by James P. Noonan, PH.D., assistant professor of genetics, has now found that changes in a mere 13 genetic "letters" in one such sequence may have unleashed the momentous evolutionary changes that enable humans to manipulate tools and walk upright.

As reported in the September 5 issue of *Science*, the human version of the sequence strongly activates a reporter gene in the developing limbs of embryonic mice, but nearly identical sequences from ape and monkey genomes do not, suggesting that the 13 differences in the human form helped drive the emergence of the human hand and foot.

"The long-term goal is to find many sequences like this and use the mouse to model their effects on the evolution of human development," says Noonan.

A novel fix-it kit for faulty genes

Blood diseases like thalassemia and sickle cell anemia result from mutations in single genes, but gene-based therapies have met with little success, partly because of difficulties inserting a new version of a gene into human cells and keeping it active over time.

School of Medicine researchers led by Peter M. Glazer, M.D., PH.D., chair and Robert E. Hunter Professor of Therapeutic Radiology and professor of genetics, have found a new method to create lasting genetic changes within human blood cells, opening up the possibility of new treatments for inherited hematologic diseases.

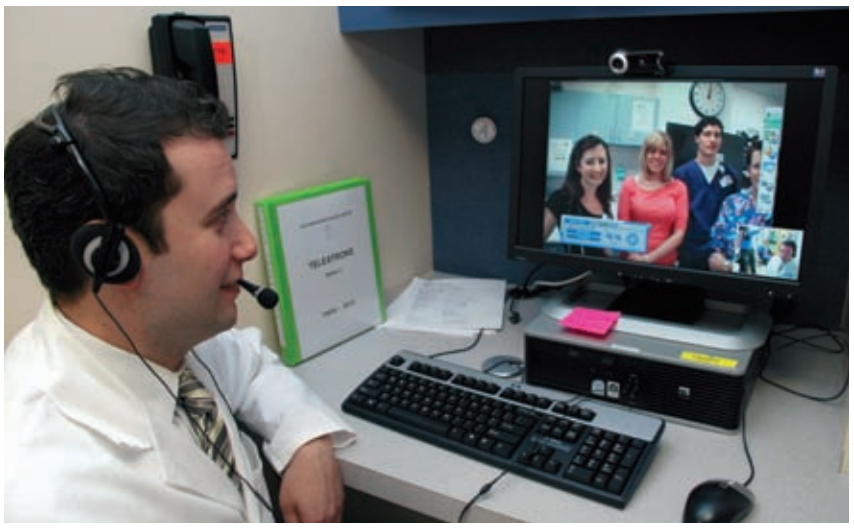
In the September 9 issue of the *Proceedings of the National Academy of Sciences*, the researchers report that they used electroporation—in which an electrical field makes cell membranes more permeable—to insert genetic "repair kits" consisting of chemically altered DNA into cells to repair the mutated gene in thalassemia. The faulty gene was fixed, even in human bone marrow cells, meaning that the genetic repair could be inherited by newly generated blood cells.

The new technique avoids traditional gene-therapy pitfalls, Glazer says, because it employs synthetic DNA that is easier to insert into cells and does not require viruses for its delivery.

Online: Yale Netcast
"You can't change your genes—or can you?"

Wiring up hospitals to speedily treat stroke

New telemedicine program helps emergency personnel in race against the clock



JOHN CURTIS

Joseph Schindler communicates with colleagues at Lawrence and Memorial Hospital in New London, Conn., in a test of Yale's new network for remote stroke assessment.

When Jeanne Munnelly went for a swim at a high school in East Lyme, Conn., one August morning, she had no idea she was about to have a stroke—or that she would make medical history in Connecticut.

At about 8:15, as she swam in the school's pool, Munnelly became weak on her right side and unable to speak. Lifeguards pulled her out, and emergency personnel based at a fire station across the street arrived within five minutes. She reached New London's Lawrence and Memorial Hospital in just 15 minutes.

That's when Munnelly, 67, became the first patient to benefit from the Yale-New Haven TeleStroke Network, a program modeled on a similar initiative at Massachusetts General Hospital in Boston. The new network allows area hospitals to call upon Yale neurologists' expertise in assessing stroke victims using Internet-based videoconferencing and image-sharing technology. Neurologist Joseph Schindler, M.D., evaluated Munnelly via computer from Yale-New Haven Hospital (YNHH), then gave the green light to physicians in New London to use the clot-busting drug tissue plasminogen activator (tPA). Munnelly received the drug only 37 minutes after reaching the hospital—much more quickly than if she had been transported to YNHH first.

Speed and decisiveness are critically important in treating stroke victims. Most blood clots that cause ischemic strokes can be dissolved by tPA, but this medication can also cause bleeding in the brain, a risk that significantly increases three hours after the patient's first symptoms. To meet that three-hour deadline and try to prevent this complication, doctors must ensure that a patient is an appropriate candidate for tPA. Yet in most hospitals, neurologists are not always available to assist emergency physicians with the evaluation and treatment decision. As a result, many patients who might benefit from tPA do not receive it.

Schindler says the process of evaluating a stroke patient via TeleStroke is the same as when he sees a patient in YNHH's emergency department. "It's no different; it's just the use of technology to do it remotely," he says.

While seated at a computer 50 miles away from the patient, Schindler, the clinical director of the Yale-New Haven Stroke Center (YNHSC), used the center's high-speed Internet connection to speak with the patient, family and clinical staff and to review Munnelly's medical history, blood tests and brain scan. He also examined her using a camera with a zoom feature. She was, he determined, a good candidate to receive tPA, and shortly after receiving the drug, Munnelly regained the use of her right leg as well as some ability to speak.

Schindler, who is optimistic that Munnelly's condition will continue to improve, was pleased not only that the technology worked but also that he and the team in New London could act so quickly. "We've done it at Yale when the entire team was already in the Emergency Department; we assessed and treated the patient in a similar time. But to have that done remotely, it's wonderful."

Lawrence and Memorial is Connecticut's first hospital to link up to the YNHSC via the TeleStroke network. Both Lawrence and Memorial and the YNHSC have been designated Primary Stroke Centers by The Joint Commission (an independent, non-profit organization that accredits health care organizations in the United States), the Brain Attack Coalition and the American Stroke Association, a classification that recognizes an institution's commitment to excellence in stroke management.

"The implementation of TeleStroke programs have demonstrated that telemedicine conferencing between outlying emergency departments and trained stroke neurologists can enhance the use of tPA at those facilities that do not have 24/7 access to neurological expertise," says Schindler. "We are hopeful that more hospitals throughout Connecticut will join this vital lifesaving network."

Online: Yale Netcast
"Minimally invasive surgery"

Technology tackles difficult digestive problems

Patients who chronically suffer from such common digestive problems as heartburn, bloating or trouble swallowing often try unsuccessfully to manage the symptoms on their own. When, in frustration, they seek the help of a physician, the outcome can be equally disappointing, because these disorders are notoriously difficult to diagnose.

Yale Medical Group's new Gastrointestinal Motility Program, in collaboration with Yale-New Haven Hospital, hopes to change that. The multidisciplinary program, one of the first of its kind in Connecticut, brings together a team of eight gastroenterologists, surgeons, pathologists and radiologists to provide the latest diagnostic and treatment services to patients with hard-to-diagnose gastrointestinal disorders.

The program provides evaluation for a wide array of common and rare gastrointestinal disorders including achalasia (difficulty swallowing food); gastroesophageal reflux (heartburn); gastroparesis (weak stomach); fecal incontinence; intestinal pseudo-obstruction (abdominal bloating and pain); small intestinal bacterial overgrowth, or SIBO; and constipation.

Anish Sheth, M.D., the program's director and an assistant professor of medicine at Yale, says the program, launched in July, was created in response to patient need. "We're seeing increasing numbers of patients with motility disorders—reflux-related diseases, problems swallowing and constipation," he says. "But there really wasn't either the expertise or the focus to offer a program to help these patients."

Many gastrointestinal symptoms are caused by the way the intestine's muscles and nerves work together to move food down the GI tract. These

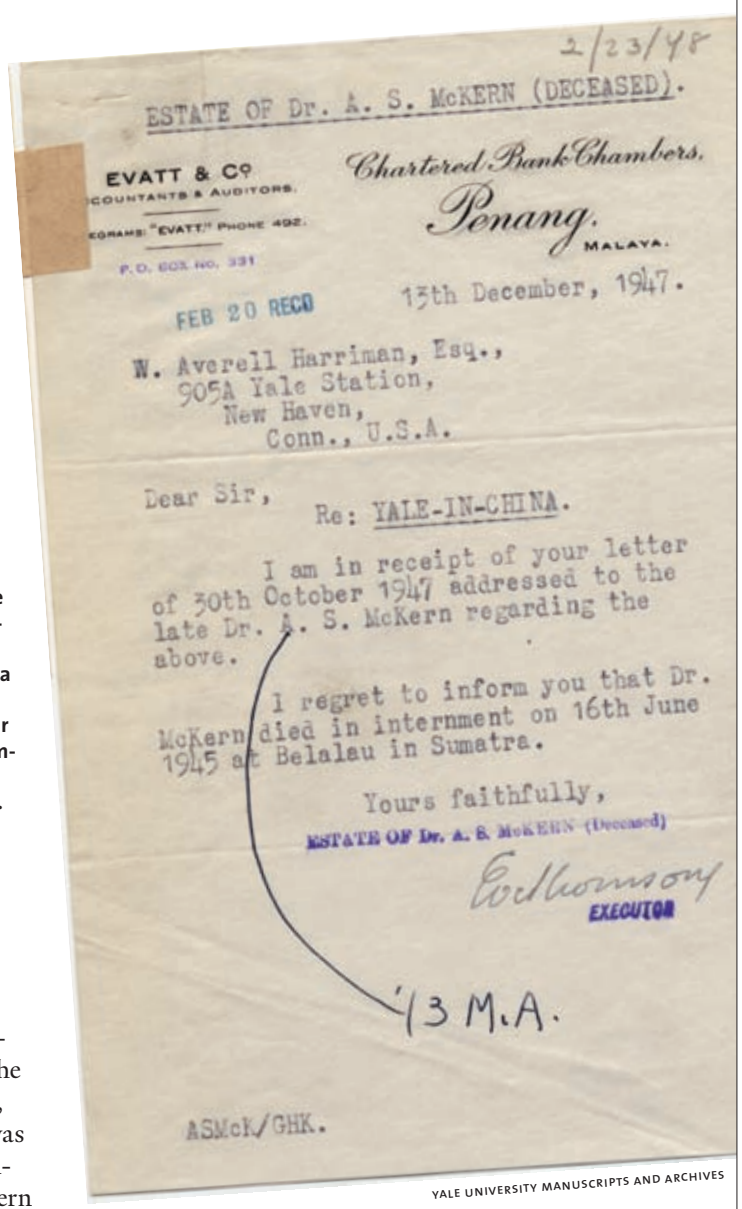
ROBERT LISAK

Anish Sheth is using new tools to better understand motility disorders.

conditions are grouped under the term "motility disorders." Traditionally, physicians use an endoscopic evaluation to make a diagnosis. The problem, according to Sheth, is that while endoscopies provide a good visual picture of the GI tract, they often are ineffective in diagnosing motility disorders, which are caused by weak or uncoordinated intestinal function. "The intestines are essentially nerve and muscle," Sheth says.

Motility, *page 7*

McKern *from page 1*



2/23/48

ESTATE OF Dr. A. S. McKERN (DECEASED).

EVATT & Co
ACCOUNTANTS & AUDITORS.
CABLEGRAMS: "EVATT." PHONE 492.
P.O. BOX NO. 331

Chartered Bank Chambers,
Penang.
MALAYA.

FEB 20 RECD

13th December, 1947.

W. Averell Harriman, Esq.,
905A Yale Station,
New Haven,
Conn., U.S.A.

Dear Sir,

Re: YALE-IN-CHINA.

I am in receipt of your letter of 30th October 1947 addressed to the late Dr. A. S. McKern regarding the above.

I regret to inform you that Dr. McKern died in internment on 16th June 1945 at Belalau in Sumatra.

Yours faithfully,
ESTATE OF Dr. A. S. McKERN (Deceased)
Ed Thomson
EXECUTOR

'13 M.A.

ASMcK/GHK.

YALE UNIVERSITY MANUSCRIPTS AND ARCHIVES

In 1947, statesman W. Averell Harriman of the Yale College Class of 1913 wrote to Albert McKern requesting help in rebuilding the war-torn Changsha campus of the Yale-in-China Association. Harriman's letter brought this somber reply from McKern's estate.

fled for Singapore aboard the SS Mata Hari, but the ship was captured in Indonesia. McKern spent the next three years as a prisoner of war. Only two months before the war's end, he died of dysentery in an internment camp in Sumatra.

In his will, which he composed with the help of lawyers held along with him in internment, McKern wrote, "I hereby direct that none of my land or house property be sold until the time specified hereunder in this will." He stated that his vacant land was to be developed and that other property in Penang was to be renovated and rented out, with the income earned to go mainly to his family. Ten years after the death of his last child, he stipulated, the family's holdings were to be sold and the money divided three ways between the three universities.

The money was to be used "for the sole and special purpose of establishing medical research scholarships for investigation into the causes, prevention and treatment of mental and physical pain and distress during pregnancy, labour and the puerperium [the period following childbirth]." Yale's portion of the gift will endow annual grants that will be awarded to those doing the most promising research on these issues.

Charles J. Lockwood, M.D., chair and Anita O'Keefe Young Professor of Obstetrics, Gynecology and Reproductive Sciences, first learned about the gift several years ago at a meeting with Andrew A. Calder, M.D., head of the Division of Reproductive and Developmental Sciences at Edinburgh. Lockwood's initial reaction was disbelief. "He'd had a few drinks and I'd thought he was exaggerating," Lockwood recalls.

Eventually Calder invited Lockwood to Edinburgh to serve for a week as the Honeyman Gillespie Visiting Professor, and the two began a discussion of joint work that could be done to fulfill McKern's dream.

In Edinburgh, Lockwood had the opportunity to meet with a number of preeminent Ob/Gyn researchers, including Hilary Critchley, M.D., professor of reproductive medicine, and Jane E. Norman, M.D., honorary senior research fellow at the University of Glasgow and frequent collaborator with Calder. "I had a chance to review some of their research. They have a very strong program," he says, noting work in the areas of prematurity and preeclampsia in particular. "There are a lot of parallels between Edinburgh's department and Yale's. It was really a very exciting visit."

Lockwood will be devising a joint strategy for using the McKern funds during the 2008–2009 academic year. Given McKern's desire and the needs of the Ob/Gyn field, he sees research on premature birth as a likely area of focus. "Prematurity is the leading cause of infant mortality in the United States, the leading cause of mental retardation, the leading cause of childhood blindness. It costs the U.S. economy around $28 billion a year in terms of health care-related resources. Preterm delivery is a national public health crisis."

Funds may also support a Yale-Sydney-Edinburgh scholar exchange program and, through the Department of Psychiatry, research on postpartum depression.

Grants *from page 1*

for Disease Control and Prevention that revealed higher estimates of new HIV infections in the United States than previously calculated, and that emphasized the need for more rigorous study of interventions for HIV prevention domestically and abroad.

The new round of NIMH funding will allow the center to broaden its scope beyond prevention to include research in the realm of clinical health services. Research at CIRA also will increasingly reflect the globalization of the HIV/AIDS pandemic while allowing the center to maintain its local and Connecticut-based collaborations.

"We are very excited about the new award, because it will allow us to build on CIRA's historic strengths and forge new programs that are responsive to changes in both the pandemic and the scientific community," says Paul Cleary, PH.D., director and principal investigator for CIRA and YSPH dean.

The NICHD grant will enable the YSPH to increase its participation in the National Children's Study, a large-scale examination of factors that contribute to the health and development of children under the age of 21. The study, believed to be the largest of its kind ever launched, is a collaboration between the U.S. Department

Michael Bracken

Kathleen Belanger

of Health and Human Services and the U.S. Environmental Protection Agency, designed to seek information that can help prevent and treat some of the nation's most pressing health problems, including autism, birth defects, diabetes, heart disease and obesity. Under the direction of principal investigators Michael B. Bracken, PH.D., M.P.H., the Susan B. Dwight Professor of Epidemiology, and Kathleen Belanger, PH.D., research scientist in epidemiology, the Yale Center for Perinatal, Pediatric and Environmental Epidemiology is participating in the study in collaboration with the Department of Obstetrics, Gynecology and Reproductive Sciences and the Department of Pediatrics.

Online: Yale Netcasts
"National HIV testing by the CDC"
"The public's health: challenges in the 21st century"

Spinelli *from page 1*

World War II, the medical school accelerated its curriculum to a three-year program. Spinelli, like the rest of his class of 48 students, was inducted into the Army, continuing his studies and drilling on the New Haven Green as part of Yale's Company C. Upon graduation in 1944, he shipped out to Germany, where he served as an Army physician until his return to Connecticut.

After practicing medicine for the next decade in Stratford, Spinelli was forced in 1968 by a heart condition to give up the life of a practicing internist. He was able to continue working, however, and served as director of medical education at Bridgeport Hospital, developing nearly all the hospital's residency programs. His health improved after a bypass operation and he remained at Bridgeport until his retirement at age 65. Then he took on a new job as alumni director at the School of Medicine from 1985 to 1990.

Spinelli forged a strong bond to the School of Medicine for many of the medical students and alumni with whom he came in contact during those years. According to Sharon McManus of the medical school's Office of Development, who was among Spinelli's successors as alumni director, each year he would take the entire first-year class out to dinner at the venerable Yale landmark Mory's in groups of 10.

Viola Spinelli recalls, "This was a period when a lot of foreign students began to come to Yale. He made all of them his kids." McManus agrees: "He saw the diversity of the classes as the smorgasbord of life," she says. "He'd say, 'Isn't it great that someone is going to go back to India and practice medicine in the streets of Calcutta with a Yale education?'"

Spinelli also kept close track of faculty research, and made a special point to support the work on spinal cord injury by Stephen G. Waxman, M.D., PH.D., chair and Bridget Marie Flaherty Professor of Neurology. Spinelli's father, Domenick, was paralyzed after falling from a wall behind the family's home in Devon, a section of Milford, Conn. A room at the Center for Neuroscience and Regeneration Research, which Waxman directs at the VA Connecticut Healthcare System in West Haven, was dedicated in Spinelli's honor in 2000. That same year, the medical school named its alumni office the Spinelli Office of Alumni Affairs.

Spinelli was the recipient of numerous awards, including the Yale Medal, the university's highest honor. He received the Distinguished Alumni Service Award and the Peter Parker Medal from the School of Medicine.

But no award could match the satisfaction Spinelli received from his interactions with students and residents, says Viola Spinelli, who is providing scholarships for Yale students at the School of Public Health through the Domenick and Gertude Spinelli Fund. "In good Italian fashion, he'd say, 'You've got to feed them,' and he'd take them through the kitchen to the back room at Leon's [a restaurant then located in the Hill neighborhood adjacent to the medical school campus]. There would be 25 students and house officers of all nationalities. That created a spirit and an environment where they learned what the practice of medicine was all about."

Online: Video Extra
Nicholas Spinelli narrates "Company C and Friends," a film about his Class of 1944.

Grants and contracts awarded to Yale School of Medicine

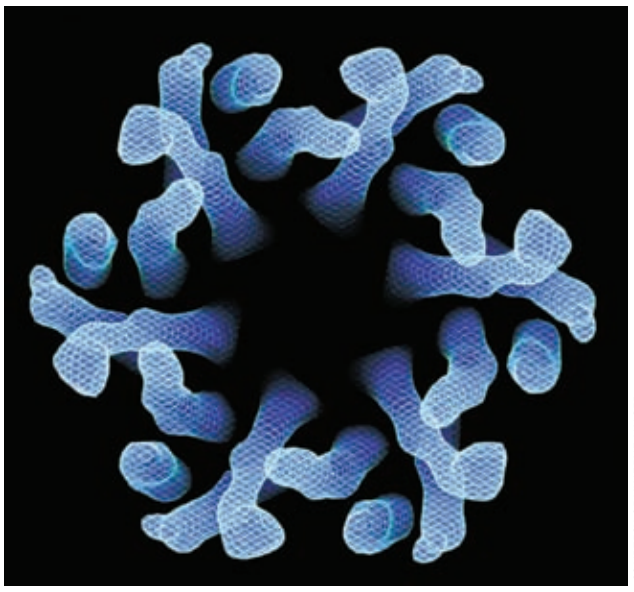
January/February 2008

Federal

Serap Aksoy, NIH, *Evolutionary Genetics of Tsetse and its Symbionts*, 5 years, $3,609,045 **Norma Andrews**, NIH, *Lysosome-Mediated Cell Invasion by* Trypanosoma cruzi, 5 years, $2,549,132 • **Lauren Cohn**, NIH, *Airway Inflammation-Related Inhibition of Disease (AIRID)*, 5 years, $1,654,270 • **Joseph Craft**, NIH, *Dissecting the Role for IL-15 in CD8+ T Cell Homeostasis in Human Lupus*, 5 years, $1,654,480 • **Tore Eid**, NIH, *Dysregulation of Glutamine Synthetase in Human Temporal Lobe Epilepsy*, 5 years, $866,750 • **Peter Glazer**, NIH, *Hypoxia, Genetic Instability and DNA Mismatch Repair*, 5 years, $1,853,968 • **Jeffrey Gruen**, NIH, *Discovery of the 6p21.3 Reading Disability Gene*, 3 years, $1,999,501 • **Ya Ha**, NIH, *Structural Studies of Intramembrane Protease GlpG*, 4 years, $1,256,220 • **James Hebda**, NIH, *Investigating IAPP Aggregation and Toxicity Using Small Molecule Interference*, 3 years, $91,673 **Mark Hochstrasser**, NIH, *Function and Assembly of Eukaryotic Proteasome*, 4 years, $1,179,381 • **Stanimir Ivanov**, NIH, *Analysis of F-Box Domain Containing Effector Proteins from* Legionella pneumophila, 2 years, $96,472 **Leslie Jacobsen**, NIH, *Reward-Motivated Learning in Adolescent Cannabis Users*, 2 years, $421,754 • **James Leckman**, NIH, *rTMS For Adults with Severe Tourette Syndrome*, 2 years, $423,620 • **David McCormick**, NIH, *Properties of Axons and Synaptic Communication in the Neocortex*, 4 years, $1,468,281 • **Andrew Miranker**, NIH, *Fibrillogenesis Pathways in Diabetes and Renal Diseases*, 1 year, $135,571 **Michael Nitabach**, NIH, *Calcium Signaling in Circadian Clock Neurons*, 5 years, $1,763,529 **Justin Peacock**, NIH, *Arg Coordinates Contractile Forces with Adhesion Dynamics in Migrating Neurons*, 3 years, $91,673 • **John Rose**, NIH, *Development of VSV/HIV Recombinants as HIV Vaccines*, 5 years, $1,654,500 • **Gerald Shadel**, NIH, *Nuclear Control of Mitochondrial Gene Expression*, 4 years, $1,489,032 • **Richard Shiffman**, Agency for Health Care Research and Quality (AHRQ), *Clinical Decision Support Services*, 2 years, $2,460,732 • **Mehmet Sofuoglu**, NIH, *Human Laboratory Studies for Stimulant Addiction*, 5 years, $631,800 • **Uhna Sung**, NIH, *A Proteomic Analysis of Norepinephrine Transporters*, 1 year, $75,206 • **Elisabetta Ullu**, NIH, *Small RNAs and their Role in Trypanosome Biology*, 5 years, $1,861,313 • **Vinzenz Unger**, NIH, *Structual Biology of Presynaptic Scaffolds*, 1 year, $165,292

Non-Federal

Albert Ayoub, Robert Leet and Clara Guthrie Patterson Trust, *Primitive Cortical Networks*, 2 years, $106,000 • **Allen Bale**, Breast Cancer Alliance, Inc., *Novel Chemopreventive Agents for Hereditary Breast Cancer*, 1 year, $100,000 **Vineet Bhandari**, American Thoracic Society, *Role of Angiopoietin-2 in Hyperoxia-Induced Lung Injury in the Newborn*, 2 years, $100,000 **Donald Botta**, CoolSpine, LLC., *Intraventricular Cooling Catheter*, 1 year, $33,222 **Elizabeth Bradley**, United Health Foundation, *Hospital Variation in Survival Rates after Acute Myocardial Infarction*, 3 years, $300,000; The Patrick and Catherine Weldon Donaghue Medical Research Foundation, *Diffusion of Hospital Strategies to Improve Care for Heart Attacks: How and Why do Organizations Learn?*, 1 year, $55,000 • **Owen Chan**, Juvenile Diabetes Research Foundation International, *Role of GABA in Modulation of Counterregulatory Responses to Hypoglycemia*, 2 years, $110,000 • **Joseph Craft**, Arthritis Foundation, *A Novel T Cell Subset That Promotes Autoimmune Responses*, 2 years, $200,000 • **Larry Davidson**, The Patrick and Catherine Weldon Donaghue Medical Research Foundation, *Restoring Hope and Health to Adults with Serious Mental Illness*, 3 years, $360,000 **Sabrina Diano**, American Diabetes Association, Inc., *Role of Arcuate AMPK on Energy Metabolism*, 3 years, $300,000 • **David Donnelly**, Arkansas Children's Hospital Research Institute, *Postnatal Resetting of Carotid Chemoreceptor Sensitivity*, 1 year, $347,277 **Eloise Dray**, Susan G. Komen Breast Cancer Foundation, *Molecular Basis of BRCA2-Mediated Repair of Chromosome Damage*, 3 years, $135,000 • **Naomi Driesen**, The Patrick and Catherine Weldon Donaghue Medical Research Foundation, *Prefrontal Development in Youths at Risk for Schizophrenia*, 2 years, $239,956 • **Michelle Erickson**, College of American Pathologists Foundation, *Evaluation of Usage Pattern of Fresh Frozen Plasma in a Tertiary Teaching Hospital Before and After an Interventional Program Initiated by the Transfusion Committee*, 1 year, $9,545 **Matia Finn-Stevenson**, Independence Public Schools, *Evaluation Design of Three Middle-Childhood Before- and After-School Programs*, 1 year, $45,000 • **John Forrest**, Doris Duke Charitable Foundation, *Doris Duke Charitable Foundation Clinical Research Fellowship (CRF)*, 3.5 years, $900,000 • **Qian Gao**, American Diabetes Association, Inc., *Crosstalk Between Estrogen and Leptin Signaling*, 3 years, $300,000 **Nora Groce**, Padua University Medical School, *Investing for Health: Addressing the Social Determinants of Health*, 2 months, $7,000 **Marsha Guess**, Robert Wood Johnson Foundation, *Vaginal Smooth Muscle Cell Differentiation in Pelvic Organ Prolapse*, 4 years, $416,558 **Handan Gunduz-Bruce**, National Alliance for Research on Schizophrenia and Depression, *Modeling Glial Dysfunction in Psychotic and Mood Disorders*, 2 years, $60,000 • **Matija Hedl**, Crohn's & Colitis Foundation of America Inc., *Nod2-Mediated Self-Tolerance and Cross-Tolerance to Toll-Like Receptors 2 and 4*, 2 years, $57,447 • **Robert Heimer**, State of CT Dept. of Public Health, *Preventing HIV and Other Infection by Expanding Syringe Access over the Counter and by Prescription*, 2.5 years, $166,290 • **Mark Horowitz**, Maine Medical Center Research Institute, *Mouse Models to Delineate a Unique Metabolic and Skeletal Network*, 1 year, $144,644 • **Tamas Horvath**, Michael J. Fox Foundation for Parkinson's Research, *Ghrelin Protects Nigral Dopamine Cells*, 1 year, $75,000 • **Richard Kibbey**, American Diabetes Association, Inc., *Interaction of Mitochondrial GTP, Calcium and Anaplerotic Metabolism to Regulate Insulin Secretion,* 3 years, $414,000 • **Donald Lannin**, Susan G. Komen Breast Cancer Foundation, *Molecular Definition of DCIS that has Become Invasive*, 2 years, $1,465,856 • **Qiang Leng**, American Heart Association, National Center, *Identification, Characterization and Regulation of Intermediate Conductance 70 pS K Channel in Kidney,* 4 years, $308,000 • **Richard Lifton**, Fondation Leducq, *Transatlantic Network on Hypertension: Renal Salt Handling in the Control of Blood Pressure*, 1 year, $3,000,000 **Yilun Liu**, Breast Cancer Alliance, Inc., *Understanding the Role of RAD51C Complexes in DNA Repair and Tumor Avoidance*, 2 years, $125,000 • **Paul Lombroso**, Wesleyan University, *Regulation of Epileptogenesis by STEP*, 1 year, $16,089 • **Jinyu Lu**, American Cancer Society, Inc., *Deciphering the Genetic Basis of Tumor Metastasis in* Drosophila, 2 years, $94,000 • **Shuangge Ma**, University of Iowa, *Regularized Classification and Survival Analysis for Expression Profiling of Cancer,* 4 years, $306,420 • **Mark Mamula**, Juvenile Diabetes Research Foundation International, *Post-Transitional Protein Modifications in Diabetes Autoantigens*, 1 year, $110,000 **Wang Min**, AtheroGenics, Inc., *Atherogenics Testing Agreement*, 1 year, $19,860 • **Yorgo Modis**, The Lupus Research Institute, *The Structural Basis of Endogenous Nucleic Acid Recognition by Toll-Like Receptors 7 and 9*, 3 years, $300,000 • **Alexander Neumeister**, The Patrick and Catherine Weldon Donaghue Medical Research Foundation, *Contribution of Life Trauma to the Neurobiology of Depression*, 5 years, $467,110 • **Jennifer Prah Ruger**, The Patrick and Catherine Weldon Donaghue Medical Research Foundation, *Ethics and Economics of Healthcare Disparities*, 5 years, $595,796 • **Lynne Regan**, Breast Cancer Alliance, Inc., *Novel Hsp90 Inhibitors as Potential Anti-Breast Cancer Agents*, 1 year, $100,000 **Lei Song**, National Organization for Hearing Research Foundation, *Cable Properties of Outer Hair Cell Cylinder*, 1 year, $20,000 **Mario Strazzabosco**, PKD Foundation for Research in Polycystic Kidney Disease, *Angiogenesis and Progression of Liver Cysts in ADPKD*, 2 years, $150,000 • **Mary Tinetti**, John A. Hartford Foundation, *Hartford Foundation Center of Excellence in Aging at Yale*, 5 years, $750,000 • **Christopher Tormey**, College of American Pathologists Foundation, *The Development of a Laboratory-Based Assay for the Identification and Evaluation of Transfusion Reactions*, 1 year, $10,000 • **Hong Wang**, William J. Clinton Foundation, *Expert Advice on Non-ARV Costs, China*, 6 months, $27,500 **Tong Wang**, Research Foundation of State University of New York, *Cytoskeletal Mechanisms of the Epithelial Mesenchymal Transition Induced by the Receptor for Advanced Glycation End Products: The Role in Diabetic Kidney Disease*, 1 year, $16,027 • **Lauren Zenewicz**, American Cancer Society, Inc., *The Role of the Cytokine IL-22 in Liver Inflammation*, 2 years, $94,000 • **Edward Zigler**, Foundation for Child Development, *PCD Book*, 1 year, $12,500



COURTESY OF VINZENZ UNGER

With support from the National Institutes of Health, electron microscopist Vinzenz Unger, associate professor of molecular biophysics and biochemistry, is determining the structure of biologically important molecules. This image depicts a three-dimensional reconstruction of a gap junction channel found in the human heart.

Motility *from page 5*

"When they don't function properly, even though everything may look okay, that often is the cause of the patients' symptoms."

Sheth's program offers recently developed, specialized tests to diagnose these elusive symptoms.

The Bravo pH monitoring system, a catheter-free instrument that measures acidity levels in patients suspected of having gastroesophageal reflux disease (GERD), is a small capsule attached to the wall of the esophagus. It transmits data to a pager-sized receiver, which is worn by the patient for 48 hours. During the test, the patient pushes a button whenever he or she experiences symptoms, so doctors can see if the symptoms correlate with episodes of acid reflux. When the test is over, data from the receiver is downloaded to pH analysis software, where it is analyzed.

The SmartPill capsule, a new technology available at only about a dozen medical centers around the country, is an ingestible device that measures pressure, pH and temperature as it moves through the GI tract, allowing physicians to identify where abnormalities in intestinal transit are located. The SmartPill transmits information to a data receiver worn by the patient. After the capsule has passed from the body, the patient returns the receiver to the physician, who is able to display and analyze the data within minutes.

Impedance monitoring is a catheter-based system that enables doctors to diagnose non-acid reflux, in which bile or other digestive fluids other than stomach acid enter the esophagus. The patient wears the monitoring system for 24 hours, and pushes a button whenever he or she experiences symptoms. Physicians then download and analyze the data to determine whether the reflux is acidic or non-acidic and whether the symptoms correlate with incidents of reflux. Other motility tests offered by the program include high-resolution esophageal manometry for evaluation of swallowing difficulty; anorectal manometry with biofeedback for the evaluation and treatment of constipation and fecal incontinence; and hydrogen breath testing for the diagnosis of bacterial overgrowth.

Because of these and other new tools, advances in the diagnosis of GI disorders have outpaced treatment, Sheth says. "We're able to diagnose and explain things much better than we were 10 years ago, but treatment needs to catch up." He's hoping Yale's Gastrointestinal Motility Program will become a center for cutting-edge research and testing. "We have a couple of protocols ongoing and I anticipate this center becoming a leader in clinical trials for motility disorders."

The motility program treats adult patients, and collaborates with specialists from pediatrics when necessary. Given how many people suffer from gastrointestinal disorders, Sheth predicts a sharp jump in referrals once community physicians become aware of the program's existence.

"It's an exciting area of research and clinical care," he says." It's an area where technology is advancing and where there's long been a need."

Head Start founder is honored for his lifetime of leadership

Edward F. Zigler, PH.D., Sterling Professor Emeritus of Psychology at Yale, is the 2008 recipient of the Award for Outstanding Lifetime Contribution to Psychology, the highest honor bestowed by the American Psychological Association (APA). Zigler received the award in August during the APA's annual convention in Boston.

"There are very few psychologists whose work has made such a difference as his," said APA President Alan E. Kazdin, PH.D., the John M. Musser Professor of Psychology and professor of child psychiatry in the School of Medicine's Child Study Center (CSC).

Zigler was one of the principal architects of the federal Head Start program, founded in 1965. Administered by the U.S. Department of Health and Human Services' Administration for Children & Families, Head Start promotes school readiness by enhancing the social and cognitive development of children from low-income families through the provision of educational, health, nutritional, social and other services.

TERRY DAGRADI

Edward Zigler has been a major figure in educational policy for more than 40 years.

More recently, Zigler founded the School of the 21st Century (21C) initiative, a community school model that operates in conjunction with state governments and private foundations to incorporate childcare and family support services into schools. Schools that take part in the initiative offer guidance and support for parents; all-day, year-round preschool; before- and after-school and vacation care for school-age children; health education and services; training for childcare providers; and information and referral services for families. Its overall goal is to promote the optimal growth and development of children beginning at birth.

Since 1988, more than 1,300 schools in 20 states have implemented the 21C program, which has proven successful in urban, rural and suburban settings, as well as in affluent, middle-class and economically challenged communities.

Zigler received his PH.D. in clinical psychology from the University of Texas at Austin in 1958. He joined the psychology department at Yale in 1959 and also served on the faculty of the CSC at the medical school. He founded and is director emeritus of the CSC's Edward Zigler Center in Child Development and Social Policy (formerly the Bush Center), one of the first sites in the nation to combine training in developmental science and social policy.

During his 50-year career, Zigler helped to plan several other national projects and policies, including Early Head Start and the Family and Medical Leave Act. In the early 1970s he served as the founding director of the U.S. Office of Child Development (now the Administration on Children, Youth and Families) and chief of the U.S. Children's Bureau.

Zigler is the author, co-author or editor of over 800 scholarly publications and more than 38 books. He is a member of the Institute of Medicine and the American Academy of Arts and Sciences and has received many honorary degrees.

Zigler remains as active as ever in his scholarly and social policy endeavors. He regularly consults with state governors and legislatures on child development issues and he is actively lobbying the 2008 presidential candidates to include universal child care in their platforms.

Scientist lauded for studies of dormant stem cells as therapy

Erik M. Shapiro, PH.D., assistant professor of diagnostic radiology and biomedical engineering at the School of Medicine, has been awarded a $1.5 million New Innovator Award by the National Institutes of Health (NIH).

Shapiro, who arrived at Yale in 2006 and directs the Molecular and Cellular Magnetic Resonance Imaging Laboratory in the Department of Diagnostic Radiology, is developing new ways to enhance cellular and molecular magnetic resonance imaging (MRI) technology to allow scientists to observe, measure and even manipulate cell migration in living tissue.

"Erik is an internationally respected researcher, and as evidenced by this award, is doing some of the most exciting and innovating research in MRI today," says R. Todd Constable, PH.D., professor of diagnostic radiology, neurosurgery and biomedical engineering, and a colleague and mentor of Shapiro.

Grappling with the cellular damage or cell death caused by brain diseases and injury, including stroke, is one of Shapiro's interests.

There has been great interest in using stem cells to repair damaged brain regions, but creating a reliable and effective source of human embryonic stem cells, the most clinically promising type, has been politically charged and scientifically challenging. In recent years, scientists have discovered "stem cell niches"—microenvironments in the adult body in which dormant stem cells can be activated in response to tissue injury—and Shapiro envisions steering large numbers of these quiescent stem cells to specific locations in the body to repair damaged tissue.

Using MRI technology *in vivo* on single cells in intact animals, Shapiro is studying the influence of nano- and micro-particles, whose MRI properties can be engineered to be sensitive to various stimuli, on the number, direction and destination of migrating cells.

Erik Shapiro

"Our hypothesis is that increasing the number of neuroprogenitor cells that migrate to a stroke site will increase the ability of that stroke site to restructure itself, to heal." Shapiro says. "It could lead to a new type of stem cell therapy. Instead of delivering stem cells from another source, we'll manipulate the stem cells that already exist in the body. Whether this approach completely supplants cells from other sources, or adds to them, remains to be seen."

The New Innovator Awards cover laboratory costs over a five-year period and are given to young researchers who have not yet received NIH research grants. This year, NIH awarded 47 scientists $138 million under its New Innovator and Pioneer Award programs. Recipients are chosen through rigorous application and evaluation processes involving several hundred scientific experts. Recommendations for awards are made to NIH Director Elias A. Zerhouni, M.D.

"This award will allow us the freedom to take a high risk/high reward approach to a novel type of stem cell therapy, namely the biochemical steering of endogenous, adult multipotential cell migration," Shapiro says. "The use of MRI to monitor these experiments is important because, if these procedures prove successful, we can further implement the same imaging methodologies in translation to primate and human studies."

Shapiro received his PH.D. from the University of Pennsylvania in 2001, and then completed a postdoctoral fellowship in molecular and cellular imaging at the NIH's National Institute of Neurological Disorders and Stroke. Prior to his appointment at Yale, he was an assistant professor of diagnostic radiology at New York University School of Medicine.

Psychologist, community leader receives Yale's highest honor

Roslyn Milstein Meyer

Roslyn Milstein Meyer, PH.D., a clinical psychologist and assistant clinical professor in psychiatry at the School of Medicine, is one of five recipients of the 2008 Yale Medal, awarded by the Association of Yale Alumni (AYA). A 1971 graduate of Yale College who received her doctorate in clinical psychology in 1977 from Yale's Graduate School of Arts and Sciences, Meyer is well known in the New Haven area for her leadership of a wide array of programs and a long-standing commitment to Yale and the university's environs.

Most recently, Meyer has supported research and treatment programs at Yale for melanoma, one of the most aggressive forms of cancer. With a gift of $10 million to the school last spring, she and husband Jerome H. Meyer, M.D., lecturer in psychiatry, are helping to establish the Milstein Meyer Center for Melanoma Research and Treatment, which will enable the development of more investigator-initiated clinical trials and improve Yale's ability to design new treatments for the often-fatal illness.

The Meyers' gift builds on the medical school's strengths: Yale's immunobiology research and dermatology programs are widely viewed as among the very best in the nation, and the last three years have seen the development of a strong program in medical oncology that has attracted nearly a dozen new faculty members with expertise in all the major cancers.

Known to friends and colleagues as "Roz," Meyer is a trustee of Yale-New Haven Hospital, a patient advocate for Yale's NIH-funded Specialized Program of Research Excellence (SPORE) in Skin Cancer and a co-founder of both New Haven's International Festival of Arts and Ideas and the Leadership, Education, and Athletics in Partnership (LEAP) program. She has served as a member of the Volunteer Council for Women's Health Research at Yale, as a board member of the Yale University Art Gallery and as a trustee for Yale's Joseph Slifka Center for Jewish Life.

Inaugurated in 1952, the Yale Medal is the highest award presented by the AYA and is conferred to recognize and honor outstanding individual service to the university. Since its inception, the Yale Medal has been presented to 267 individuals who exemplify the university's ideals and who have given outstanding service to Yale as a whole or to one of its many schools, institutes or programs.

Other recipients of the Yale Medal this year are Edward A. Dennis '63; Linda Koch Lorimer, J.D. '77, vice president and secretary of Yale; Don T. Nakanishi '71; and William H. Wright II '82.