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# Record

April 21, 2006

Volume 30 No. 30



Washington University in St. Louis

## Repeated testing better than repeated studying

By GERRY EVERDING

Despite their reputation as a cruel tool of teachers intent on striking fear into the hearts of unprepared students, quizzes — given early and often — may be a student's best friend when it comes to understanding and retaining information for the long haul, suggests new psychology research from WUSTL.

"Our study indicates that testing can be used as a powerful means for improving learning, not just assessing it," said Henry L. "Roddy" Roediger III, Ph.D., the James S. McDonnell Distinguished University Professor and an internationally recognized scholar of human memory function. "Students who self-test frequently while studying on their own may be able to learn more, in much less time, than they might by simply studying the material over and over again."



Roediger

"Incorporating more frequent classroom testing into a course may improve students' learning and promote retention of material long after a course has ended."

Perhaps equally important, this study demonstrates that students who rely on repeated study alone often come away with a false sense of confidence about their mastery of the material.

In an experiment in which students either took quizzes or were permitted to study material repeatedly, students in the study-only group professed an exaggerated confidence, sure that they knew the material well, even though important details already had begun slip-sliding away. The

See **Testing**, Page 6



**Earth Day in the Quad** Chancellor Mark S. Wrighton and Chancellor Emeritus William H. Danforth assist in the planting of a Valley Forge Elm in Brookings Quadrangle April 14. In recognition of Earth Day 2006, 10 Northern Red Oaks were planted along Forsyth Boulevard and one Valley Forge Elm was planted in the Quad. The elm replaces the tree that had stood in the area but died a couple of years ago. All of the trees planted were grown by the University on the property just east of the Brookings Hall parking lot, between Lindell Boulevard and Forest Park Parkway.

## Research programs for undergraduates evaluated nationally

By JENNIE IVERSON

When you give a college student a choice between a summer full of lazy mornings languishing on the couch or a summer of getting up early to engage in scientific research in a full-fledged lab, the choice might seem easy.

However, at Washington University and other schools across the country, there are numerous undergraduates taking advantage of summer research opportunities. The University has a long tradition of undergraduate partici-

pation in research, one developed further by programs created by Sarah Elgin, Ph.D., professor of biology in Arts & Sciences, of biochemistry and molecular biophysics in the School of Medicine and of education in Arts & Sciences, with financial support from the Howard Hughes Medical Institute (HHMI).

Elgin has spent her career as a genomic biologist at the University often embracing those individuals who are not usually a part of scientific research and creating scientific research opportunities for them. She continues to participate in a program that places approximately

35 fellows in a university lab to do summer research.

Elgin believes that the goal of education is to learn "how knowledge is created in a discipline," and a summer research opportunity is the first step to achieving this goal.

Elgin spoke at the recent annual meeting of the American Association for the Advancement of Science in St. Louis.

In an attempt to evaluate the efficacy of the summer science research program, Elgin looked to a collaborative national effort. With

See **Programs**, Page 6

## One gene provides fruit fly both antenna & color vision

By TONY FITZPATRICK

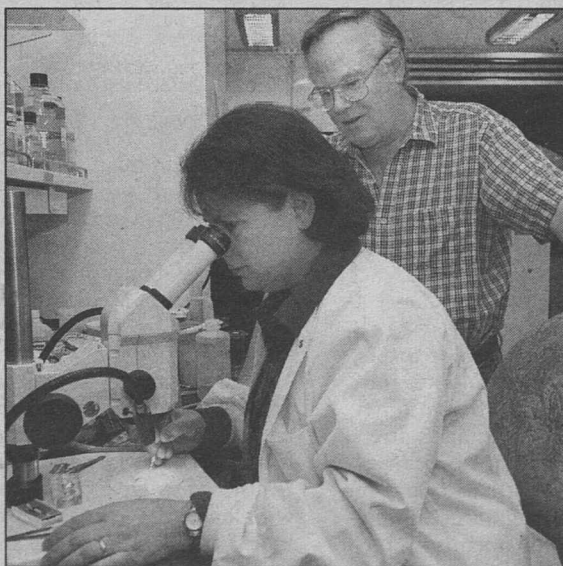
A team of researchers that includes WUSTL biologists has discovered that a gene involved in the development and function of the fruit fly antenna also gives the organism its color vision.

Claude Desplan, Ph.D., professor of biology at New York University, and his students made the discovery and provided the data. Ian Duncan, WUSTL professor of biology in Arts & Sciences, and his wife, research assistant Dianne Duncan, provided the Desplan laboratory fruit fly (*Drosophila*) clones and mutants and technical assistance that helped locate where the gene, called "spineless," is expressed in the retina.

The Duncans have a long history with the spineless gene. Their interest has been in the role spineless plays in directing development of the antenna, *Drosophila*'s primary olfactory organ. Years ago, they deleted the spineless gene and found that the mutants then produced a leg instead of an antenna.

"Spineless plays a key role in the antenna and maxillary palp, the two major olfactory organs of the fly," Ian Duncan said. "It's also important in mechanosensory bristles and in the taste receptors of the legs, wings and mouth parts. There has been a sensory theme to the gene, and now we learn from Claude's work that it plays a key role in color vision."

See **Fruit fly**, Page 7



Dianne and Ian Duncan examine fruit fly (*Drosophila*) specimens in their lab. The husband-and-wife duo in the Department of Biology in Arts & Sciences provided fruit fly clones and mutants and technical assistance that helped locate where a gene called "spineless" is expressed in the retina.

## 13 appointed McDonnell Academy ambassadors

By ANDY CLENDENNEN

The University has named 13 faculty members as ambassadors to partner universities in the McDonnell International Scholars Academy.

"In general terms, our ambassadors are expected to build what I have called an 'academic commerce' between Washington University and the partner universities," Chancellor Mark S. Wrighton said. "By this I mean working to develop meaningful research and educational collaborations in a bilateral sense with Washington University and/or multilateral collaborations with us and other partner universities of the McDonnell Academy."

The ambassadors and their partner universities are:

- Pratim Biswas, Ph.D., the Stifel and Quinette Jens Professor of Environmental Engineering Science, director of the Environmental Engineering Science Program and principal investigator of the WUSTL Aerosol and Air Quality Research Laboratory

See **Ambassadors**, Page 6

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# Nehorai installed as Lohman professor in engineering

By BARBARA REA  
& TONY FITZPATRICK

**A**rye Nehorai, Ph.D., chair of the Department of Electrical and Systems Engineering in the School of Engineering & Applied Science, was installed as the Eugene and Martha Lohman Professor March 7 in the auditorium of Uncas A. Whitaker Hall for Biomedical Engineering.

Nehorai joined the University Jan. 1, succeeding R. Martin Arthur, Ph.D., the Newton R. and Sarah Louisa Glasgow Wilson Professor of Engineering, who had served as interim chair since 2002.

"We are fortunate to have such a distinguished researcher, professor and inventor as Arye Nehorai join our university, and equally fortunate to receive this wonderful gift from Eugene and Martha Lohman," Chancellor Mark S. Wrighton said. "This is an excellent example of how our alumni and friends' gifts enable us to secure world-class faculty."

Nehorai earned a bachelor's and master's degree in electrical engineering from the Technion, Is-



**Arye Nehorai, Ph.D. (center), chair of the Department of Electrical and Systems Engineering in the School of Engineering & Applied Science, is installed as the Eugene and Martha Lohman Professor. Presenting Nehorai with his professorship medallion is Christopher I. Byrnes, Ph.D. (left), dean of the School of Engineering & Applied Science, and Chancellor Mark S. Wrighton.**

rael, and earned a doctorate in electrical engineering from Stanford University. His research areas include signal processing, biomedicine and communications.

Over the course of his career,

he has received more than 25 grants and currently serves as lead principal investigator on three multi-university grants as well as two others.

He holds two patents and is

the recipient of numerous awards.

He is a fellow of the Institute of Electrical and Electronic Engineers (IEEE) and of the Royal Statistical Society.

Nehorai has published nine book chapters, 100 journal papers and 130 conference papers, and he has served on 11 editorial boards for scholarly journals. He has served as editor in chief of the *IEEE Transactions on Signal Processing*.

From 1995-2005, Nehorai served on the faculty of the University of Illinois at Chicago. Before that, he taught at Yale University.

"Arye will add great distinction to this excellent department and invigorate its leadership," said Christopher I. Byrnes, Ph.D., dean of the School of Engineering and Applied Science and the Edward H. and Florence G. Skinner Professor of Systems Science and Mathematics. "I'm confident that the challenges that await this profession in the 21st century will be ably met by Arye's vision and dedication."

Eugene W. Lohman earned a bachelor's degree in architectural engineering from WUSTL in 1928.

He then joined family members in managing the William J. Lohman Inc. agency.

In the mid-1940s, they established the New Jersey-based Chelsea Fan and Blower Co., which was sold to Allied Thermal Co. in 1966. In addition to serving as president of the firm until his retirement in 1971, Lohman ran a brokerage business and had a seat on the New York Stock Exchange.

In 1994, he received the School of Engineering & Applied Science's Alumni Achievement Award, and a year later he was given the Robert S. Brookings Award for exemplifying, through his commitment and generosity, the alliance between the University and the St. Louis community.

Over the years, the Lohmans were generous supporters to the School of Engineering & Applied Science. In addition to funding this professorship, they established a scholarship fund that has benefited more than 100 students in the school.

Martha Lohman died in 1996; Eugene Lohman died in 2000.

## A grand challenge: Solutions sought for carbon sequestration, hydrogen production

By TONY FITZPATRICK

**I**n just six months of collaboration, a Department of Energy "grand challenge project" led by the University has resulted in the sequencing and annotation of a cyanobacterium gene that could yield clues to how environmental conditions influence key carbon fixation processes at the genome-mRNA-protein levels in an organism.

Two of the most critical environmental and energy science challenges of the 21st century are being addressed in a systems biology program funded by the W.R. Wiley Environmental Molecular Sciences Laboratory (EMSL), a national facility managed by the Pacific Northwest National Laboratory (PNNL) for the Department of Energy. This program features an elaborate international collaboration involving six university laboratories and 10 national laboratory groups.

The challenges are carbon sequestration and hydrogen production; the organisms that could provide answers are cyanobacteria (blue-green algae); and the leader of the program is Himadri Pakrasi, Ph.D., professor of biology in Arts & Sciences.

Pakrasi is leading a grand challenge project in membrane biology that is using a systems approach to understand the network of genes and proteins that govern the structure and function of membranes and their components responsible for photosynthesis and nitrogen fixation in two species of unicellular cyanobacteria, specifically *Cyanothece* and *Synechocystis*.

This is one of two grand challenge projects recently funded by EMSL-PNNL. Another project, not involving WUSTL and led by PNNL laboratory fellows and chief scientists John Zachara and Jim Fredrickson, is probing the fundamental question of how subsurface metal-reducing bacteria interact with and transfer electrons to the mineral surfaces on which they live.

Pakrasi spoke at the recent annual meeting of the American Association for the Advancement of Science in St. Louis.

According to Pakrasi, the team has made extraordinary progress in five key areas. Through Washington University's Genome Sequencing Center, researchers have sequenced and annotated 99 percent of the *Cyanothece* 51142 genome, designed a microarray for global transcriptional analysis of the organism and have completed half of a proteomic map — some 2,400 proteins.

A novel photobioreactor has been designed for mass balance analysis of *Cyanothece* cells during circadian cy-

cles, and atomic structures for five proteins involved in sequestering such key nutrients as iron, nitrate and bicarbonate have been determined through X-ray crystallography.

According to Pakrasi, this kind of work cannot be done without access to an Energy Department user facility such as EMSL.

"Cyanobacteria have played an influential role in the evolution of the terrestrial environment," Pakrasi said. "They precede chloroplasts in evolution and are largely responsible for today's oxygen-rich environment. They make significant contributions to harvesting solar energy, sequestering carbon, bio-assimilating metals and the production of hydrogen in marine and freshwater ecosystems. "Cyanobacteria also are model microorganisms for studying the fixation of carbon dioxide and nitrogen at the biomolecular level. Learning the intricacies of these organisms could lead to breakthroughs in the understanding of both biological carbon sequestration and hydrogen production."

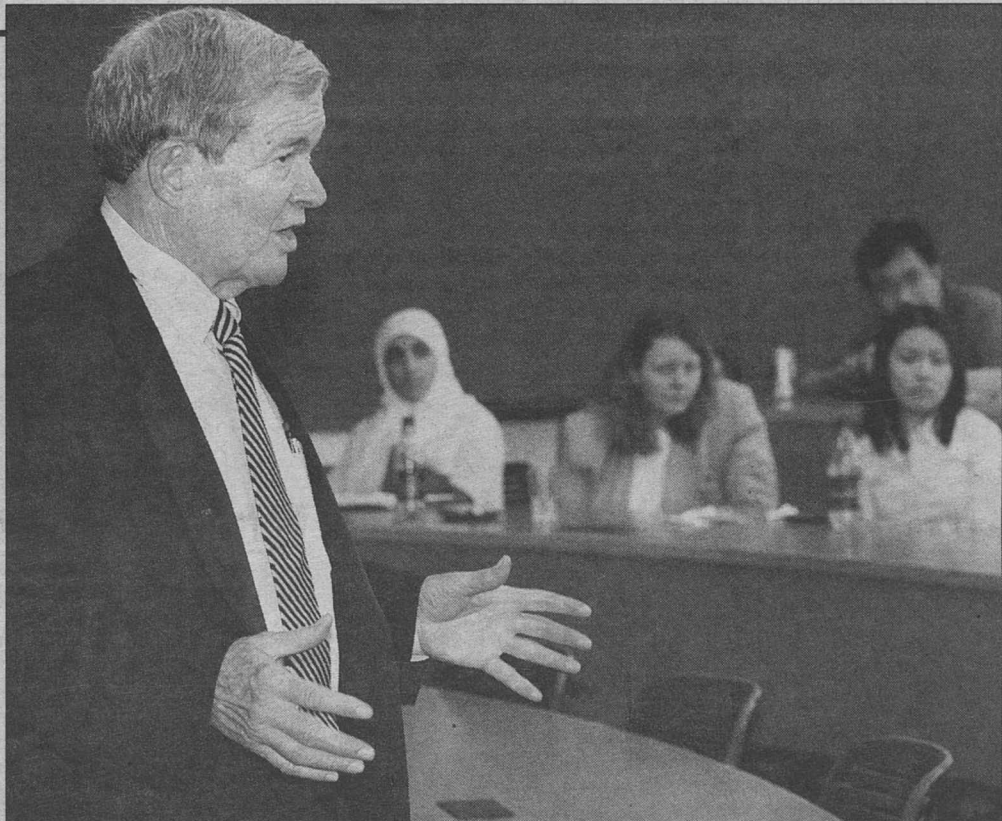
A systems approach integrates all available temporal information into a predictive, dynamic model to understand the function of a cell and the cellular membranes. Because cyanobacteria make significant contributions to harvesting solar energy, planetary carbon sequestration, metal acquisition and hydrogen production in marine and freshwater ecosystems, the genetics and biochemistry of these organisms are particularly suitable for such an approach.

Specifically, Pakrasi and his collaborators are focusing on the amazing *Cyanothece*, a one-celled marine cyanobacterium, which is a bacterium with a well-defined circadian rhythm, or biological clock. In particular, *Cyanothece* has the uncanny ability to produce oxygen and assimilate carbon through photosynthesis during the day while fixing nitrogen through the night, all within the same cell.

Incredibly, even though the organism has a circadian rhythm, its cells grow and divide in 10-14 hours.

To unravel the mystery, Pakrasi and his collaborators are growing *Cyanothece* cells in photobioreactors, testing cells every hour to try to understand the cycles at different times of the day. With the combined diverse expertise of 16 different laboratories, the grand challenge scientists and engineers are examining numerous biological aspects of the organism.

The results of the project will provide the first comprehensive systems-level understanding of how environmental conditions influence key carbon fixation processes at the genome-mRNA-protein levels in an organism.



**Competing in the global economy** U.S. Sen. Christopher "Kit" Bond, R-Mo., chats with students and faculty April 14 in Uncas A. Whitaker Hall for Biomedical Engineering. Bond was in town for a roundtable discussion on his efforts to prevent the loss of U.S.-educated international students with degrees in science, engineering and math to foreign companies. Bond recently introduced an amendment to immigration legislation to prevent high-tech graduates from being forced out of the country, a change necessary for the United States to keep its competitive edge in the global economy. "The United States demands invention and innovation to succeed," Bond said. "This success requires our country to have the best and brightest minds fueling new products for U.S. workers to manufacture. It is U.S. workers who lose out when employers can't get the high-tech graduates they need to compete with foreign companies in the 21st-century economy."

## Therapy

*'With advanced cancer, a patient may get only one shot'*

— from Page 1

were found to be independent of the anatomical origin of the tumor. So, for instance, the colon tumors studied varied widely in the levels of these proteins. The same variation in protein levels held true for all the tumor types the researchers examined.

"This study provides evidence that the pharmacological pathway of a drug is important, with significant treatment implications," said Rochelle M. Long, Ph.D., of the National Institute of General Medical Sciences and program director for the NIH Pharmacogenetics Research Network.

The researchers found that, independent of anatomical origin, some tumors had high amounts of irinotecan's cellular target, a protein labeled TOP1, while other tumors had very little. Irinotecan would likely be ineffective in tumors with low TOP1 levels. They also found that tumors varied greatly in the amounts of proteins that transport irinotecan into and out of their cells and in the amounts of proteins that break down irinotecan. These variations determine how well irinotecan will work in a particular tumor.

"Because tumor response can't be predicted

from anatomical location, we should start selecting treatments based on what genes and proteins can tell us about how the tumor will respond to a drug," McLeod said. "If we rely just on what has clinically been shown to work in some cases for a particular anatomically defined cancer, we may not initially choose the best therapy for the individual patient."

"And with advanced cancer, a patient may get only one shot at the right therapy; making the wrong choice could be deadly."

Under current treatment selection methods, virtually no chemotherapeutic drug has been successful in more than 50 percent of patients with advanced cancer, according to McLeod. But instead of considering a drug that works only 10 percent of the time as a failure, he said it would be better to consider such a drug effective for one in 10 tumors and to search for the agents among the current arsenal of chemotherapeutic drugs that will work for the rest.

"We have more than 70 FDA-approved drugs that potentially could be useful for a particular tumor," McLeod said. "We are now working on methods that can be used to identify those drugs that will work for each patient's tumor."

Having a good tumor-drug match not only would improve survival rates, but it would also be cost-effective, according to McLeod.

"Since modern cancer therapies can be expensive — sometimes approaching the cost of a bone marrow transplant — the high cost reinforces the necessity of choosing the right therapy the first time," he said.



## School of Medicine Update

# Medical students take health care to those in need

By BETH MILLER

About 30 first- and second-year School of Medicine students got hands-on medical experience during recent spring-break trips to a Navajo reservation and Nicaragua.

The Forum for International Health and Tropical Medicine (FIHTM), a student group that works to expose the medical community firsthand to international health concerns, sponsored the trips. In addition to receiving money from the medical school for the trips, the group raised about \$2,000 through bake sales, a pasta dinner and a raffle. Area physicians, clubs and churches donated medications and medical supplies.

Eighteen first-year students spent a week in the Teec Nos Pos region of the Navajo Nation in north-eastern Arizona teaching elementary, middle- and high-school students about aspects of health care relevant to the culture and observing the health-care system.

Michelle Sabo, a first-year medical student, said the group spent several days teaching the pupils about obesity and diabetes, a major health problem for American Indians. They played games with the younger children to instill the importance of exercise and proper nutrition. They also talked with older children about why alcohol and tobacco are unhealthy.

All 18 students bunked in the living room of a reservation youth worker's small home, which was stressful, Sabo said, but the overall trip was a worthwhile experience that taught them a lot about the life of American Indians.

"I learned a lot about public health and about a whole different culture within our country's boundaries," Sabo said. "I also learned about myself in situations of stress, which was as important as working with the kids."

"We're going to be doctors in a lot of high-stress situations. The more we are exposed to those situations and learn how to deal with them, the better off we are," Sabo said.

Under supervision of physicians with International Service Learning, the second-year students provided health care in Nicaragua to those who don't have access to it. They took with them 11 duffel bags of medical supplies and medications.

Shada Rouhani, a second-year student who coordinated the trip, said the experience was "eye opening."

"We saw a number of medical conditions that we don't see in the United States," she said. "We saw people in unfortunate situations handling problems that you'd hope they wouldn't have to deal with."

The 11 second-year students went house-to-house in Pearl Lagoon and Bluefields, on the Atlantic coast of the Central American country, talking with residents and determining health-care needs. For those who needed diagnosis and treatment, the students gave them appointments to go to a clinic the next day. Patients could also come without an appointment.

On the morning the students arrived to work in the clinic in Pearl Lagoon, there were 200 patients waiting to be seen, Rouhani said. The group was only able to see about half of the patients, many of whom had infectious diseases, pneumonia, complications of diabetes and high blood pressure, and infections, among other issues.

"It was frustrating because if they lived in the United States, these things could be treated easily," Rouhani said. "For these patients, there is no treatment available locally, and even if there were, they couldn't afford it."

One patient was severely anemic and needed to be transported to another town where there was a hospital for a blood transfusion. However, the group learned that in Nicaragua, patients must bring blood with them for a transfusion or buy it from the hospital, which for many is much more than they can afford.

Rouhani said the trip was a good learning experience and strengthened her resolve to include international health in her future career plans.

"The learning curve in four days was unbelievable," she said. "We learned things about diagnosis, treatment, health and socioeconomic conditions that we could never learn in the classroom."



Second-year medical students Funmi Okuyemi (left) and Amanda Raya with new friends in front of a medical clinic that a group of 11 students set up in Bluefields, Nicaragua, over spring break. Two of the children were seen as patients at the clinic.

## Salmonella bacteria use RNA to assess, adjust magnesium levels

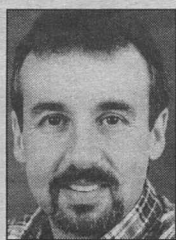
By MICHAEL C. PURDY

Researchers in the School of Medicine have added a gene in the bacterium *Salmonella* to the short list of genes regulated by a new mechanism known as the "riboswitch."

The *Salmonella* riboswitch is the first to sense and respond to a metal ion, substantially expanding the types of molecules that riboswitches can detect to help cells assess and react to their environments.

First identified in 2002, ribo-

switches sense when a protein is needed and stop the creation of the protein if it isn't. While scientists have long known of sensors in the cell that can cause molecules to bind to DNA to turn protein production on and off, a riboswitch doesn't rely on anything binding to DNA. Instead, the switch is incorpo-



Groisman

rated into messages for construction of proteins. These messages are protein-building instructions copied from DNA into strands of RNA. The riboswitch is a sensor within the RNA that can twist it into different configurations that block or facilitate the production of the protein encoded in the message.

Previously identified riboswitches respond to organic compounds such as nucleotides and sugars. The *Salmonella* riboswitch, reported in the April 7 issue of the journal *Cell*, responds

to magnesium ions, key elements in the stability of cell membranes and reactants in an energy-making process that fuels most cells.

The *Salmonella* riboswitch is the first to sense and respond to a metal ion, substantially expanding the types of molecules that riboswitches can detect to help cells assess and react to their environments.

"Magnesium ions are essential to the stability of several different critical processes and structures in the cell, so there has to be a fairly intricate set of regulators to maintain consistent levels of it," said senior investigator Eduardo A. Groisman, Ph.D., professor of molecular microbiology. "To approach such a complex system, we study it in a simpler organism, the *Salmonella* bacterium."

Groisman and his colleagues uncovered the magnesium riboswitch while they were investigating the MgtA gene, which is controlled by the major regulator of *Salmonella* virulence, the *phoP/phoQ* system. The MgtA gene codes for a protein that can transport magnesium across the bacterium's cell membrane. Groisman's group showed 10 years ago that the *phoP/phoQ* system controls when *Salmonella* makes MgtA.

When *Salmonella* experiences a low-magnesium environment, *phoQ* chemically modifies *phoP*. The changed *phoP* binds to DNA, increasing the number of times instructions for making MgtA and more than 100 other proteins are copied from DNA.

But when *Salmonella* encounters a high-magnesium environment, *phoQ* deactivates *phoP*, and fewer copies of the instructions for making MgtA are made.

When Groisman and his colleagues created a mutant strain lacking the *phoQ* gene, though, they were surprised to find that

production of the instructions to make the MgtA protein could still somehow respond to magnesium, producing less of its protein at high magnesium levels.

Researchers used a computer program to determine how RNA copied from the MgtA gene might be folding up. The program predicted RNA copied from the gene could have two significantly different configurations.

Because of the significant differences between these configurations, Groisman, who also is a Howard Hughes Medical Institute investigator, became interested in a region at the beginning of the RNA strand that contains no protein-building instructions. He theorized that it might be a riboswitch that responded to high magnesium levels by twisting the RNA into a configuration where its protein-building instructions somehow could not be used or were invalidated.

"One of our tests to see if this was something more than a computer fantasy was to take this segment that contains no protein-building instructions off the MgtA gene and paste it into another genetic configuration," Groisman said. "We wanted to see if it conferred sensitivity to magnesium levels, which it did."

Groisman's group also showed that one RNA configuration was common in low magnesium levels while another was common in high magnesium levels.

They also searched the genomes of other bacteria with MgtA genes to see if their DNA included a sequence similar to the riboswitch in *Salmonella*.

## University wins high-profile research case

After more than a year in court, a federal judge ruled April 14 in favor of Washington University in an important case against William J. Catalana, M.D., a former faculty member, regarding ownership of tissue samples used in research.

The comprehensive ruling by U.S. District Judge Stephen N. Limbaugh has implications for future research, the use of donated specimens and public policy.

While still at the University, Catalana collected consenting donors' blood and tissue samples that were to be used in prostate cancer research. Catalana left the University in 2003 and wanted to take the samples, and samples collected by other University faculty members, with him. Without the approval of the University or its Human Studies Committee, he also asked the tissue donors to appeal to the University to move the samples.

In his ruling, Limbaugh determined that the University developed, paid for and maintained the repository of the samples, and that the donors signed consent forms to give the tissue to the University to use in re-

"The integrity and utility of all biorepositories would be seriously threatened if (research participants) could move their samples from institution to institution any time they wanted."

STEPHEN N. LIMBAUGH

search. The judge also granted the University the authority to continue to use the tissue and share it with other researchers, including Catalana, in pursuit of a cancer cure.

"The safety and welfare of human subject participants is protected through a variety of legal and professional standards administered by committees of persons schooled in the fields most privy to the needs of the medical/science community," Limbaugh said in his ruling. "Medical research can only advance if access to these

materials to the scientific community is not thwarted by private agendas."

"If left unregulated and to the whims of a (research participant), these highly prized biological materials would become nothing more than chattel going to the highest bidder. It would no longer be a question of the importance of the research protocol to public health, but rather who can pay the most."

"The integrity and utility of all biorepositories would be seriously threatened if (research participants) could move their samples from institution to institution any time they wanted," Limbaugh wrote.

Faculty members here will resume using the tissue samples for their cancer research in a manner consistent with the consent forms signed by the donors. A peer-review mechanism for providing these samples to researchers at the University and elsewhere will be re-established as soon as possible.

For more information and to read Limbaugh's complete ruling, go online to [prostate.cure.wustl.edu](http://prostate.cure.wustl.edu).



## University Events

Imani Winds to present *The Josephine Baker Project*

BY LIAM OTTEN

St. Louis native Josephine Baker was one of the most acclaimed, controversial and ultimately beloved African-American performers of the 20th century. Her sensual allure and sharp comic timing caused a sensation in Paris during the 1920s, a time when U.S. popular culture remained largely segregated.

At 8 p.m. April 28, the Edison Theatre OVATIONS! Series will celebrate the 100th anniversary of Baker's birth with a one-night-only performance of *The Josephine Baker Project: A Life of Le Jazz Hot*, which premiered earlier this month at the August Wilson Center for African-American Culture in Pittsburgh.

Conceived and developed by Imani Winds, the innovative Latino and African-American wind quintet, *The Josephine Baker Project* combines many of Baker's signature songs — performed by acclaimed jazz vocalist René Marie — with French and American Jazz Age repertoire; archival film footage; and original music by ensemble members Valerie Coleman (flute) and Jeff Scott (French horn).

Directed by Bobbi Leann Williams, the show also features percussionist Rolando Morales-Matos as well as solo dance works choreographed by Christopher Huggins, a former member of Alvin Ailey American Dance Theatre, and performed by Rachel Ashley.

**Josephine Baker**

Baker was born June 3, 1906, to Carrie McDonald, a St. Louis washerwoman, and Eddie Carson, a vaudeville drummer who soon abandoned the family. At age 13, she began waiting tables at The Old Chauffeur's Club, where she met and married Willie Wells, the first



The innovative wind quintet Imani Winds will help celebrate the 100th anniversary of St. Louis native Josephine Baker's birth with a performance of *The Josephine Baker Project: A Life of Le Jazz Hot* at 8 p.m. April 28 as part of the Edison Theatre OVATIONS! Series.

of her four husbands.

In 1919 she toured the United States, performing with The Jones Family Band and The Dixie Steppers, and in 1922 she became a chorus girl in *Shuffle Along*, the first all-African-American Broadway musical.

Following a stint at New York's Plantation Club, Josephine (now married to Willie Baker) traveled to Paris as a dancer in *La Revue Nègre*. Her skimpy costumes, un-

inhibited movements and charming, mock-clumsy demeanor caused an overnight sensation (and led to an estimated 1,500 marriage proposals).

By 1927 she was the highest-paid entertainer in Europe, starring in stage productions such as *La Folie du Jour* as well as four films, most notably *Zou-Zou* (1934) and *Princess Tam Tam* (1935).

Baker became a French citizen in 1937, and during World War II

she worked undercover for the French resistance, smuggling messages on her sheet music.

In the 1950s and '60s, she became increasingly involved with the U.S. Civil Rights Movement, skirmishing with Walter Winchell, the pro-segregation columnist, and speaking at the 1963 March on Washington.

Baker died of a cerebral hemorrhage in 1975.

**Imani Winds**

Founded in 1997, Imani Winds explores the links between European, African and American musical traditions. (The name is derived from a Swahili word for "faith.") The group's innovative repertoire combines classical wind instrumentation — horn, flute, bassoon, clarinet and oboe — with influences drawn from jazz and world music as well as original compositions by ensemble members.

"Its goal is nothing less than to change the face — literally — of the classical wind quintet," noted *The Washington Post*. "Imani Winds represents nothing less than the future of the once-quiet notion of the wind quintet."

Imani Winds has performed extensively across the United States. Recordings include *Umoja* (2002), the group's self-produced debut, and *The Classical Underground* (2005), nominated for a Grammy Award as "Best Classical Crossover Album."

Its latest release is *Imani Winds* (2006).

**René Marie**

Marie is one of today's most acclaimed jazz vocalists, frequently compared to the likes of Ella Fitzgerald and Sarah Vaughan. She began performing profession-

Additional  
all-ages matinee

Imani Winds will also present an all-ages matinee performance of *How Jeff Got His Groove Back* — a musical adventure that follows Jeff, a young French horn player beset by a bassoon-riding witch — as part of the ovations! for young people series at 11 a.m. April 29. Tickets are \$7.

ally as an R&B singer at age 15 but married one of her bandmates three years later and put her career on hold for the next two decades.

She began performing again in 1996, with the encouragement of her sons, and in 1998 released her self-produced debut, *Renaissance*.

*Live At Jazz Standard* (2003), hit Billboard's jazz charts a month before its official release. Her most recent release, *Serene Renegade* (2004), features nine original songs inspired by her own remarkable story and by the lives of her family members.

**Edison Theatre**

Edison Theatre programs are made possible with support from the Missouri Arts Council, a state agency; the Regional Arts Commission, St. Louis; and private contributors.

Tickets are \$28; \$24 for seniors and WUSTL faculty and staff; and \$18 for students and children. Tickets are available at the Edison Theatre Box Office and through all MetroTix outlets.

For more information, call 935-6543 or go online to [edison.theatre.wustl.edu](http://edison.theatre.wustl.edu).

## Visual Poetry • April Welcome • Run for Research

"University Events" lists a portion of the activities taking place April 21-May 4 at Washington University. Visit the Web for expanded calendars for the Hilltop Campus ([calendar.wustl.edu](http://calendar.wustl.edu)) and the School of Medicine ([medschool.wustl.edu/calendars.html](http://medschool.wustl.edu/calendars.html)).

## Exhibits

**April Welcome.** Through April 30. Olin Library, Lvl. 1, Whispers Café Cube. 935-6626.

**Road Show.** Through May 5. Olin Library, Lvl. 1, Whispers Café Cube. 935-6626.

**Sam Fox School Core Show.** Bixby Hall. 935-9347.

**Spire: Washington University's Intercollegiate Arts & Literary Magazine.** Through April 30. Olin Library Lobby. 935-6626.

**Visual Poetry.** Olin Library, Grand Staircase Lobby and Ginkgo Reading Rm. 935-5495.

**Tuesday, April 25**

6:15 p.m. Sam Fox School Visual Communications Senior Thesis Presentations. (5:30 p.m. reception. Also April 26-27.) Simon Hall, May Aud. 935-8403.

**Friday, April 28**

6-8 p.m. Sam Fox School M.F.A. Thesis Exhibition Opening Reception. Des Lee Gallery, 1627 Washington Ave. 935-9347.

## Film

**Friday, April 21**

7 p.m. Sam Fox School Presentation. *Unsettled Ground*. Steinberg Hall Aud. 935-9347.

## Lectures

**Friday, April 21**

8:30 a.m.-4 p.m. Center for the Application of Information Technology One-day

**Workshop.** "The Business-IT Partnership: Delivering Business Results." Cost: \$900, reduced fees available for CAIT member organizations. CAIT, 5 N. Jackson Ave. To register: 935-4444.

**Noon. Cell Biology & Physiology Seminar.** "The Non-lysosomal Actions of Lysosomal Enzymes — Involvement in Cardiovascular Development and Disease." Aleksander Hinek, prof. and sr. scientist, dept. of laboratory medicine & pathobiology, U. of Toronto. McDonnell Medical Sciences Bldg., Rm. 426. 362-2254.

7:30 p.m. Saint Louis Astronomical Society Meeting. "Stone Sky-art: Astronomical Petroglyphs and Pictographs in Missouri." Carol Diaz-Granados, research assoc. in anthropology. McDonnell Hall, Rm. 162. 935-4614.

**Saturday, April 22**

10 a.m.-6 p.m. Colonialism and Empire Undergraduate Conference. "Torture, Terror and the State: Some Lessons From Colonial Kenya." David Anderson, Oxford U. Student papers to be presented. MacMillan Hall, Rm. 219. 935-5690.

**Monday, April 24**

**Noon. Molecular Biology & Pharmacology Seminar.** "Gonadotropin Structure Function: Bench Science to Therapeutics." Irving Boime, prof. of molecular biology & pharmacology and of obstetrics & gynecology. South Bldg., Rm. 3907, Philip Needleman Library. 747-3339.

4 p.m. Center for the Humanities Faculty Fellows' Lecture. "In the House of Mirrors: Painting and Experience in the Dutch Republic." Mariët Westermann, dir., Inst. of Fine Arts, N.Y.U. Anheuser-Busch Hall, Rm. 305. 935-5576.

4 p.m. Immunology Research Seminar Series. "Toll Pathway of Host Defense." Ruslan Medzhitov, prof. of immunobiology, Yale U. Moore Aud., 660 S. Euclid Ave. 362-2763.

4 p.m. Romance Languages & Literatures Lecture. Annual Isidore Silver Memorial Lecture. "Ronsard's Subversive Mentor." Cathy Yandell, W.I. and Hulda F. Daniell Professor of French Literature, Language and Culture, Carleton College. Duncker Hall, Rm. 201, Hurst Lounge. 935-5175.

**Tuesday, April 25**

Noon. Molecular Microbiology & Microbial

**Pathogenesis Seminar Series.** "Molecular Pathogenomics of Group A Streptococcus, the Flesh-eater." James Musser, Fondren Foundation Distinguished Endowed Chair, executive v.p. and co-dir., Center for Molecular and Translational Human Infectious Diseases Research, Methodist Hospital Research Inst., Houston. Cori Aud., 4565 McKinley Ave. 362-3692.

3 p.m. Physics Theory Seminar. "Living with non-Hermitian Hamiltonians." Hugh Jones, prof. of physics, Imperial College, London. (2:30 p.m. coffee.) Compton Hall, Rm. 241. 935-6276.

4 p.m. Chemistry Seminar. "Low-valent Palladium Complexes and Their Interactions With Silanes." Mark Fink, prof. of chemistry, Tulane U. McMillen Lab., Rm. 311. 935-6530.

**Wednesday, April 26**

4 p.m. Biochemistry & Molecular Biophysics Seminar. "Rapid Assembly of Enzyme Inhibitors from Substrate Fragments and Molecular Pieces." James Stivers, assoc. prof. of pharmacology. Moore Aud. 362-4152.

4 p.m. Physics Colloquium. "Einstein as a Philosopher of Science." Don Howard, prof. of philosophy, U. of Notre Dame. (3:30 p.m. coffee, Compton Hall, Rm. 245.) Crow Hall, Rm. 204. 935-6276.

7 p.m. Science on Tap Lecture. "Chernobyl Twenty Years Later — The Tragic Fallout in Belarus." Richard Chapman, sr. lecturer in film & media studies. Schlafly Bottleworks, Crown Room, 7260 Southwest Ave. 241-2337.

**Thursday, April 27**

3 p.m. Physics Theory Seminar. "Local Currents for Quantum Mechanics With a Fundamental Length Scale." Gerald A. Goldin, university dir., science and mathematics partnerships, Rutgers U. (2:30 p.m. coffee.) Compton Hall, Rm. 241. 935-6276.

4 p.m. Anesthesiology Lecture. Annual C.R. Stephen Lecture. "HMG1 and the Inflammatory Reflex." Kevin J. Tracey, dir. and CEO, Feinstein Inst. for Medical Research, New York. Eric P. Newman Education Center. 454-8701.

4 p.m. Chemistry Seminar. "Ent-Steroids: A Perspective and Recent Developments." Douglas Covey, prof. of molecular biology & pharmacology. McMillen Lab., Rm. 311.

## Benefits informational meetings

To help better understand the details of the University's "Benefits Plan for the Future," informational meetings have been scheduled by the Office of Human Resources. Reservations are not required. The schedule is:

**Medical Campus**

- April 21, 10 a.m., Wohl Hospital Aud., lower level
- April 25, 10 a.m., Yalem Bldg., Steinberg Amphitheater

935-6276.

4 p.m. History Colloquium. "The Strange Career of Annie Lee Moss: Rethinking Race, Gender, & McCarthyism." Andrea Friedman, assoc. prof. of history. Duncker Hall, Rm. 201, Hurst Lounge. 935-5450.

7 p.m. Whitney R. Harris Inst. for Global Legal Studies Talk. "Odyssey to America: Reflections of a Holocaust Survivor." John Stoessinger, author and political analyst. Missouri History Museum, Lee Aud. 935-7988.

**Friday, April 28**

9 a.m.-5 p.m. African and African American Studies Conference. "Linguistic Profiling and Linguistic Human Rights." (Continues 9 a.m.-12:30 p.m. April 29.) Goldfarb Hall, Rm. 132. 935-4978.

9:15 a.m. Pediatric Grand Rounds. "Fetal Homeland Security: Mechanisms by Which Maternal Diabetes Modifies Embryonic and Fetal Development." Kelle Moley, assoc. prof. of obstetrics & gynecology. Clifton Aud., 4950 Children's Place. 454-6006.

**Noon. Cell Biology & Physiology Seminar.** "Control of Metaphase Arrest in Unfertilized Egg by Cytostatic Factor." James L. Maller, prof. of pharmacology, U. of Colo. McDonnell Medical Sciences Bldg., Rm. 426. 362-6812.

2:30-6:45 p.m. Siteman Cancer Center Gynecologic Oncology CME Course. "Fourth Annual Gynecologic Cancer Conference." Cost: \$45. Eric P. Newman Education Center. To register: 362-6891.

4 p.m. Cell Biology & Physiology Lecture. Annual Erlanger-Gasser Lecture. "Actin

- April 25, 2 p.m., Farrell Learning and Teaching Center, Connor Aud.

- April 27, 10 a.m., Children's Hospital Aud., third floor

**Hilltop Campus**

- April 26, 9 a.m., Psychology Bldg., Rm. 216 A/B

**West Campus**

- April 26, 1 p.m., Library Conference Center, Rm. A/B

Filament Dynamics During Cellular Motility and Cytokinesis." Thomas D. Pollard, Sterling Professor and chair of molecular, cellular, and developmental biology, Yale U. Farrell Learning & Teaching Center, Connor Aud. 362-3964.

7:15 p.m. Chabad on Campus Shabbat Dinner Faculty Guest Series. Yossi Aviv, assoc. prof. of operations and manufacturing management. 7240 Forsyth Blvd. 721-2884.

**Saturday, April 29**

7:30 a.m.-3 p.m. Gastroenterology CME Course. "Liver Disease Therapeutic Challenges 2006." Cost: \$135. The Ritz-Carlton St. Louis. To register: 362-6891.

**Monday, May 1**

**Noon. Work, Families, and Public Policy Brown Bag Seminar Series.** "The Market for Executive Education." Gautam Gowrisankaran, asst. prof. of economics. Eliot Hall, Rm. 300. 935-4918.

4 p.m. Immunology Research Seminar Series. Paul E. Lacy Lecture. "AID for Generation of Antigen-induced Immune Diversity." Tasuku Honjo, dept. of medical chemistry, Kyoto U., Japan. Eric P. Newman Education Center. 362-2763.

4 p.m. Physics & Center for Materials Innovation Seminar. "Superconductivity in Ba<sub>2</sub>YRu<sub>1-x</sub>Cu<sub>x</sub>O<sub>6</sub> Paradigms in Danger?" William B. Yelon, depts. of chemistry & materials research, U. of Mo.-Rolla; dept. of physics, U. of Mo. (3:45 p.m. coffee.) Compton Hall, Rm. 241. 935-6276.

5:30 p.m. Cardiac Bioelectricity & Arrhythmia Center Seminar. "Mechanisms of Atrial



## Sports

### Men's tennis extends win streak to 16

The No. 8 men's tennis team went 3-0 at home to extend its home winning streak to 16 matches. Senior Ari Rosenthal notched his 39th and 40th win of the season to lead the Bears to a 6-1 victory over Lindenwood University April 11. WUSTL followed that with a 7-0 win over McKendree College April 12. Rosenthal teamed with freshman Charlie Cutler to post an 8-2 win at No. 1 doubles to improve their overall record to 12-1.

Rosenthal is 19-3 in singles and 21-2 in doubles for a combined 40-5 record. The Bears extended their home winning streak to 16 matches with a 7-0 win over Principia College April 13.

### Baseball team pounds MacMurray; now 29-5

The baseball team went 3-0 to improve to 29-5. On April 11, WUSTL defeated MacMurray College, 17-0, at home. Senior Alan Germano went 3 for 4 with six RBIs, including a two-run home run in the second inning. Junior Andy Shields picked up the win. On April 15, the Bears swept a doubleheader from DePauw University, 3-1 and 10-5. Junior Brent Buffa turned in another strong performance in game one, pitching a complete game to improve to 8-0. Buffa gave up just six hits and struck out seven. Shields went 3 for 3 including a team single-season record seventh triple this year. In Game 2, Shields picked up the win with seven strikeouts in 6 2/3 innings.

### Softball team splits with No. 19 Central

The No. 15 softball team split a doubleheader with No. 19 Central College April 14 at the WUSTL Softball Field. The Bears won Game 1, 3-1, and then fell in the nightcap, 5-2. The loss snapped the Bears' 10-game winning streak and dropped their record to 23-4.

In the opener, junior Laurel Sagartz struck out 10 as she improved to 13-1. The victory for Sagartz was the 51st of her career, tying Victoria Ramsey for first place on the all-time WUSTL list. In Game 2, Central scored four runs in the fourth inning to gain the split.

### Women's tennis closes home season with wins

The No. 13 women's tennis team (12-7) went 2-0 to close out its regular-season home schedule. The Bears defeated McKendree College, 7-2, April 11. Junior Erin Fleming upped her career wins total (singles and doubles) to 114, which is tied for the ninth-most wins all-time at WUSTL. On April 13, WUSTL upended Principia College, 8-1. Freshman Shweta Pai moved up to No. 1 singles for the first time this season, where she posted a 6-1, 6-1 win.

### Track & field competes at scoreless quad

The track and field team completed its home schedule with the WUSTL Quad April 13. Although no team scores were kept, there were many strong performances at the meet. The men's 4x100 meter relay squad ran an NCAA provisional qualifying time of 41.97 seconds to take second place. Junior Cameron Williams also turned in his strongest high jump performance of the outdoor season, clearing 2.00 meters (6-6).

Junior Aaron Mangold registered a season-best mark in the pole vault, clearing 4.30m (14-1). Senior Drew Martin also notched a season-best performance in the shot put, recording a throw of 15.28m (50-1). Junior Delaina Martin remained sharp in the throws. She posted a season-best mark of 12.31 m in the shot put and followed with a mark of 46.18m in the hammer throw. Moreover, the women's 4x100 relay squad also notched a season-best time (49.09).

## U. City sculpture series in full bloom

By ANDY CLENDENNEN

Joe Edwards, proprietor of Blueberry Hill and many other business in The Loop, has certainly made his presence felt in the renovation of the area.

But for another year, at least, some University students are doing their part to help beautify the area. Once again, the students have adorned the community with various public art projects ranging from the colorful and whimsical to the strange and imaginative.

The 20th Annual University City Sculpture Series is on display through May 5.

Although designed for temporary installation at various U. City locations, some pieces find permanent homes as did *Rain Man* in Epstein Plaza (by the post office) and *Waiting for the Bus* bench in front of the Market in the Loop.

The 2006 series includes the following artwork.

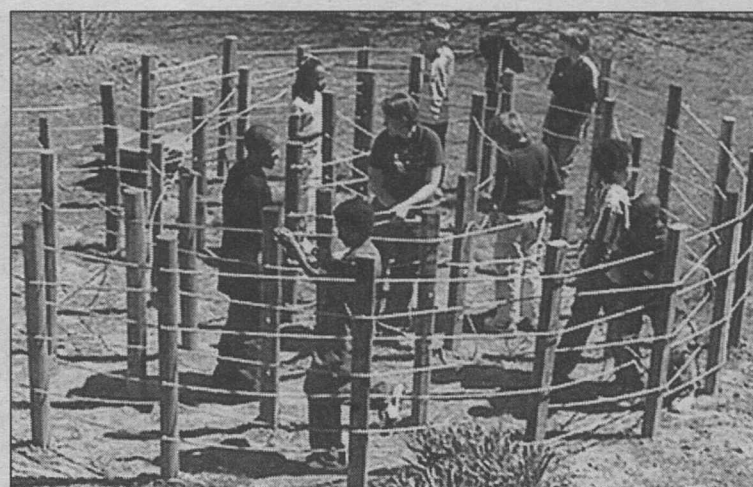
• *Labyrinths* by Lauren O'Neill is a wood and rope labyrinth constructed with help from a sixth-grade class at Delmar-Harvard Elementary School. This is an exercise in the rite of passage for these students, who are about to progress on to middle school, to give them a sense of self-calming and empowerment.

It is located on the front lawn of Delmar-Harvard school at 711 Kingsland Ave.

• *Death Bed* by Ji Woong Yoon is a replica of a deathbed. The project is to make people aware of the death penalty and give them an opportunity to think about the execution scene. The artist's intent is to raise the issue and argue for the abolition of the death penalty.

The location of the project is on Delmar Boulevard in the Epstein Plaza, adjacent to *Rain Man*.

• *Seasoning* by Joy Christensen is a curtain of leaves hung on monofilament. The purpose of the project is to display the leaves in a group to emphasize the way they function as a collection and to treat them as souvenirs of the



Children play on the interactive sculpture *Labyrinths*, by WUSTL student Lauren O'Neill. *Labyrinths*, located on the front lawn of Delmar-Harvard Elementary School, is part of the 20th Annual University City Sculpture Series, on display through May 5.

seasons.

The leaves are displayed in the upper window of the University City Library facing the corner of Delmar and Kingsland.

• *Cultural Borders* by Kiyoto Koseki are painted borders along the sidewalks of University City. The purpose is to view individual and societal cultures as fluid identities.

These are located throughout The Loop.

• *The Woman's Magazine Building* is a project of four quilts that were made by Amanda Harper and various students and nursing-home residents. The quilts were made to celebrate the American Women's League that E.G. Lewis helped found and to celebrate the City Hall building.

The quilts are on display in the central staircase of City Hall at 6801 Delmar Blvd.

• *101 Tips (on How to be a Better University City Citizen)* by Lindsey Chesky comprises 1.5-foot flags in the shape of dollar signs made from green sugar sculptures. Each flag has a rip-stop nylon kite attached to it that has text sprayed on it to deliver various messages on how to be a better U. City citizen.

The project is at Centennial Commons, 7210 Olive Blvd.

• *Habitual Habitats* by Brian Smeets is a guided walking tour of

the park, local neighborhoods, prairies, wetlands and woods that asks local citizens to interact with their environment simply by walking through it.

The walk is meditated through points of interest marked by monumental and visually stimulating arrows laid directly into the landscape.

The walk begins at The Green Center, 8025 Blackberry Ave., and ends at McKnight Road.

• *Small Change* by Nic Albonico is a single column of pennies, stacked in bricks of pennies. The artist's intent is to draw attention to the money the city spends every year on the sculptures along with showing the relationship between the resources the community provides and the artist who makes use of those resources.

The project is in the first-floor lobby of the University City Library.

The sculpture series is a sponsored event by the Municipal Commission on Arts & Letters of University City along with a grant from the Regional Arts Commons.

A program that includes a location map is available at Centennial Commons, City Hall and the U. City Library. For more information, call Cheryl Thompson at 505-8623.

Fibrillation." Albert Waldo, Walter H. Pritchard Professor of Cardiology, prof. of medicine, prof. of biomedical engineering, Case Western Reserve U. (5 p.m. refreshments.) Whitaker Hall, Rm. 218. 935-7887.

### Tuesday, May 2

Noon. **Molecular Microbiology & Microbial Pathogenesis Seminar Series.** "Virulence Gene Expression by Bacillus Anthracis and Implications for the Host." Theresa M. Koehler, prof. of microbiology & molecular genetics, U. of Texas Health Science Center, Houston. Cori Aud., 4565 McKinley Ave. 286-2891.

Noon. **Program in Physical Therapy Research Seminar.** "Adaptive Modification of Locomotor Trajectory in Healthy People and People With Parkinson's Disease." Minna Hong, movement science program, program in physical therapy. 4444 Forest Park Blvd., Lower Lvl., Rm. B112. 286-1404.

### Wednesday, May 3

7 a.m.-7:30 p.m. **Internal Medicine CME Course.** "The Washington Manual Comprehensive Internal Medicine and Board Review Course." (Continues May 4-7.) Cost: \$995 for physicians, \$795 for residents, fellows, and allied health professionals. Eric P. Newman Education Center. For schedule and to register: 362-6891.

### Thursday, May 4

Noon. **Center for Health Policy Brown Bag Seminar Series.** "The Prevention of Child Maltreatment." John Constantino, assoc. prof. of child psychiatry, McDonnell Medical Sciences Bldg., Shaffer Conference Rm. 935-9108.

3 p.m. **Siteman Cancer Center Basic Science Seminar Series.** Lewis Cantley, prof. of systems biology, Harvard U. Eric P. Newman Education Center. 454-7029.

4 p.m. **Molecular Biology & Pharmacology Lecture.** Annual David M. Kipnis Lecture. "Sir2 Genes, Calorie Restriction and Aging." Leonard P. Guarente, Novartis Professor of Biology, Mass. Inst. of Technology. Cori Aud., 4565 McKinley Ave. 362-0198.

## Music

### Thursday, April 27

8 p.m. **Jazz at Holmes.** Willy Akins, saxophone. Ridgley Hall, Holmes Lounge. 935-4841.

## On stage

### Friday, April 21

8 p.m. **OVATIONS! Series.** Alonzo King's LINES Ballet. Co-presented by Dance St. Louis. (Also 8 p.m. April 22 & 2 p.m. April 23.) Cost: \$28, \$24 for seniors, WUSTL faculty & staff, \$18 for students & children. Edison Theatre. 935-6543.

8 p.m. **Performing Arts Dept. Presentation.** Violet. (Also 8 p.m. April 22, 27 & 29, 2 p.m. April 23 & 30.) Cost: \$15, \$9 for students, children, seniors, WUSTL faculty & staff. Mallinckrodt Student Center, A.E. Hotchner Studio Theatre. 935-6543.

### Friday, April 28

8 p.m. **OVATIONS! Series.** The Josephine Baker Project: Le Jazz Hot. Imani Winds featuring René Marie. Cost: \$28, \$24 for seniors, WUSTL faculty & staff, \$18 for students & children. Edison Theatre. 935-6543.

### Saturday, April 29

11 a.m. **ovations! for young people series.** How Jeff Got His Groove Back. Imani Winds. Cost: \$7. Edison Theatre. 935-6543.

## Sports

### Friday, April 21

4 p.m. **Softball vs. Fontbonne U.** WUSTL Field. 935-4705.

### Tuesday, April 25

2 p.m. **Baseball vs. Westminster College.**

Kelly Field. 935-4705.

### Wednesday, April 26

3:30 p.m. **Softball vs. Ill. College.** WUSTL Field. 935-4705.

### Friday, May 5

4 p.m. **Softball vs. McKendree College.** WUSTL Field. 935-4705.

## And more...

### Saturday, April 22

9 a.m. **Program in Physical Therapy Run for Research.** 5K run and one-mile walk. (8:15 a.m. registration & check-in.) Tower Grove Park. To register: pt.wustl.edu.

### Monday, April 24

8 p.m. **Writing Program Reading Series.** M.F.A. readings. Duncker Hall, Rm. 201, Hurst Lounge. 935-7130.

### Tuesday, April 25

9 a.m. **Center for the Humanities Faculty Fellows' Workshop.** "Silence and Noise in Dutch Paintings of Manners." Mariët Westermann, dir., Inst. of Fine Arts, N.Y.U. Simon Hall, Rm. 108. 935-5576.

### Wednesday, April 26

8 p.m. **Writing Program Reading Series.** M.F.A. readings. Duncker Hall, Rm. 201, Hurst Lounge. 935-7130.

### Friday, April 28

Noon. **Goldstein Leadership Awards in Medical Student Education Presentation.** Moore Aud., 660 S. Euclid Ave. 362-7800.

Noon-5:30 p.m. **Medical Education Day.** Moore Aud., 660 S. Euclid, and Farrell Learning & Teaching Center. 362-7800.

5-7 p.m. **University Libraries Event.** Kranzberg Illustrated Book Studio Open House. West Campus, Lower Lvl., Kranzberg Book Studio. 935-6569.

## School of Social Work sponsors annual International Festival

By JESSICA MARTIN

From thought-provoking presentations and informative exhibitions to traditional foods and lively entertainment, international students in the George Warren Brown School of Social Work will offer a taste of their homelands during the 12th annual International Festival April 27 and 29.

The theme of this year's festival, which is free and open to the public, is "Bringing the World to You."

The celebration will kick off with a forum on religion, called "Religious Pluralism: Engaging People of Different Faiths to Create a More Just Society," from 12-2 p.m. April 27 in Brown Lounge.

The forum's panel discussion, moderated by Nancy Vosler, Ph.D., associate professor of social work, is designed to facilitate discussion on religious issues that cut across national boundaries and impact the field of social work. It will also address interfaith activities and programs in the St. Louis area that work to bridge the divide between religious communities.

On April 29, attendees can sample food from more than 20 countries at an international banquet from 5-6:30 p.m. in the main hallways of Goldfarb and Brown halls. Cultural exhibits will be on display in Goldfarb Hall, Room 124.

**"Our school has become a ground where the most varied cultures and traditions come together in harmony. We encourage Washington University to join us for this memorable event."**

SHIKHA MANANDHAR

After the banquet, students will present dance, music, song and poetry from around the world in Brown Hall, Room 100.

"Our school has become a ground where the most varied cultures and traditions come together in harmony," said Shikha Manandhar, a second-year social work student and one of the event's organizers. "We encourage Washington University to join us for this memorable event."

For more information and to reserve free tickets for the April 29 performance, go online to [gwbweb.wustl.edu/virtualgwb/groups/festival](http://gwbweb.wustl.edu/virtualgwb/groups/festival) or e-mail [intfestival@gwbmail.wustl.edu](mailto:intfestival@gwbmail.wustl.edu).



## Westermann to conclude Center for the Humanities Faculty Fellows Series

Mariët Westermann, Ph.D., director of the Institute of Fine Arts at New York University, will lecture on "In the House of Mirrors: Painting and Experience in the Dutch Republic" at 4 p.m. April 24 in Anheuser-Busch Hall, Room 305.

Westermann is the final speaker appearing this spring as part of The Center for the Humanities in Arts & Sciences' 2006 Faculty Fellows Lecture and Workshop Series. Her talk will center around her recent work on the mirror as a luxury item in 17th-century Dutch culture and as a model for new kinds of painting.

In addition, Westermann will lead a graduate-student workshop titled "Silence and Noise in Dutch Paintings of Manners" at 9 a.m. April 25 in Simon Hall, Room 108. This session, organized with the help and support of Paul Crenshaw, Ph.D., assistant professor of art history in Arts & Sci-

ences, will be devoted to the problems of sound and soundlessness in painting — an interest that Westermann has been pursuing in relation to the history of the mirror as source and analogue of painting in the Netherlands.

Westermann has written widely on 17th-century Dutch art. Books include *Johannes Vermeer, 1632-1675* (2005); *Art and Home: Dutch Interiors in the Age of Rembrandt* (2001); *Rembrandt* (2000); *The Amusements of Jan Steen: Comic Painting in the Seventeenth Century* (1997); and *A Worldly Art: The Dutch Republic 1585-1700* (1996).

She earned a doctorate from the Institute of Fine Arts in 1997.

The lecture is free and open to the public. The workshop is limited in space and is designed for current WUSTL graduate students and faculty in related fields. RSVPs are requested in advance for both.

For seat reservations or more information, call 935-5576.

## Programs

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additional grant funding from HHMI, she developed a collaborative group to work with David Lopatto, Ph.D., professor of psychology at Grinnell College, who created an online assessment tool for the undergraduate summer research participants to take after their research experience.

In its first year, 1,135 students participated in the online survey. The second year brought approximately 2,000 students' participation.

What Elgin and Lopatto discovered is that the summer research program is not only working, but it is also acting as a confirmatory event in many of these students' lives. The majority of students responded that they had been planning a career in the sciences and that the summer experience confirmed their desire to pursue such a career. Interestingly, the 4 percent of students who decided to change their future career plans from science to another field was equaled by the percentage of students who changed career plans from a nonscience field to one of a scientific bent.

Additionally, through the national collaboration, Elgin and her colleagues were able to look for differences and similarities between collegiate and university summer internship programs.

Through the online survey results, they determined that the quality of mentoring at both types of institutions is similar. Moreover, males and females as well as minorities all have similarly positive experiences in summer research programs, regardless of institution type.

"At a college level, generally the major professor of the lab is also

the 'bench' mentor, meaning that the professor instructs the summer interns in appropriate techniques throughout their research experience," Elgin said. "However, at a university level, the major professor provides oversight, but is unlikely to be the 'bench' mentor — most likely the postdocs and current graduate students will be mentoring the summer intern at the bench."

An important bonus is that there seems to be an increase in self-reported independent learning throughout the following fall and spring semesters in students who engaged in the summer research internships.

"All of this is supportive of the idea that it is important to engage students in summer undergraduate research opportunities," Elgin said. "It helps students realize themselves as contributors — as investigators — in their field."

As the HHMI grant progresses and comes up for renewal, Kathy Miller, Ph.D., professor of biology, the WUSTL program director, and her colleagues will be adding some key components, such as organized "mentoring" training for graduate students and postdocs. The training will not only allow graduate students and postdocs at the University level to learn to be effective mentors to the summer research students, but also give them an opportunity to evaluate their position as "mentees" of the principal investigator of their labs.

Overall, Elgin and her colleagues have successfully created summer programs in which undergraduate students can discover, from their own efforts, how knowledge is created in science — and thus are working to build a scientific work force with early confirmation that science can be fun, interesting and incredibly rewarding, even more so than a summer spent on the couch.



(From left) Pratin Biswas, Ph.D., Gautam N. Yadama, Ph.D., and Stephen H. Legomsky, J.D., D.Phil., are three of the 13 University faculty members named ambassadors to partner universities in the McDonnell International Scholars Academy. The three were attending a training workshop April 15 at the Charles F. Knight Education Center. Also attending were Chancellor Mark S. Wrighton and James V. Wertsch, Ph.D., the Marshall S. Snow Professor in Arts & Sciences and director of the academy.

## Ambassadors

Included are David Ho and Barbara Schaal

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tory; Indian Institute of Technology, Bombay;

• **John R. Bowen**, Ph.D., the Dunbar-Van Cleave Professor in Arts & Sciences and professor of anthropology in Arts & Sciences; University of Indonesia;

• **Shirley Dyke**, Ph.D., the Edward C. Dicke Professor of Engineering; University of Tokyo;

• **David Ho**, Ph.D., professor of biology in Arts & Sciences; National Taiwan University;

• **Stephen H. Legomsky**, J.D., D.Phil., the Charles F. Nagel Pro-

fessor of International and Comparative Law; University of Hong Kong;

• **James T. Little**, Ph.D., professor of finance and economics in the Olin School of Business; Fudan University;

• **T.S. Park**, M.D., the Shi H. Huang Professor of Neurosurgery and neurosurgeon in chief at St. Louis Children's Hospital; Korea University, Seoul National University, Yonsei University;

• **Ralph S. Quatrano**, Ph.D., the Spencer T. Olin Professor and chair of the Department of Biology in Arts & Sciences; China Agricultural University;

• **Barbara A. Schaal**, Ph.D., the Spencer T. Olin Professor in Arts & Sciences in biology; Peking University;

• **Michael W. Sherraden**,

Ph.D., the Benjamin E. Youngdahl Professor of Social Development at the George Warren Brown School of Social Work; National University of Singapore;

• **Ping Wang**, Ph.D., the Seigle Family Professor in Arts & Sciences and chair of the Department of Economics in Arts & Sciences; Chinese University of Hong Kong;

• **Gautam N. Yadama**, Ph.D., director of international programs and associate professor in the George Warren Brown School of Social Work; Chulalongkorn University; and

• **Frank C.P. Yin**, M.D., Ph.D., the Stephen F. and Camilla T. Brauer Professor of Biomedical Engineering and chair of that department; Tsinghua University.

## Testing

— from Page 1

group that took tests on the material, rather than repeatedly reading it, actually did better on a delayed test of their knowledge.

Recently published in the journal *Psychological Science*, Roediger's study was co-authored with graduate student Jeffrey D. Karpicke, a research colleague in the Department of Psychology in Arts & Sciences.

In two experiments, one group of students studied a prose passage for about five minutes and then took either one or three immediate free-recall tests, receiving no feedback on the accuracy of answers. Another group received no tests in this phase, but was allowed another five minutes to restudy the passage each time their counterparts were involved in a testing session.

After phase one, each student was asked to take a final retention test presented at one of three intervals — five minutes, two days or one week later. When the final test was presented five minutes after the last study or testing session, the study-study-study-study (SSSS) group initially scored better, recalling 81 percent of the passage as opposed to 75 percent for the repeated-test group.

However, tested just two days later, the study-only group had forgotten much of what they had learned, already scoring slightly lower than the repeated-test group. Tested one week later, the study-test-test-test group scored dramatically better, remembering 61 percent of the passage as compared with only 40 percent by the study-only group.

The study-only group had read the passage about 14 times, but still recalled less than the repeated testing group, which had read the passage only 3.4 times in its one and only study session.

"Taking a memory test not only assesses what one knows, but also enhances later retention, a phenomenon known as the 'testing effect,'" Roediger said.

"Our findings demonstrate that the testing effect is not simply a result of students gaining

re-exposure to the material during testing, because students in our repeated-study group had multiple opportunities to re-experience 100 percent of the material but still produced poor long-term retention.

"Clearly, testing enhances long-term retention through some mechanism that is both different from and more effective than restudy alone."

### Improving instruction

Previous research, Roediger said, offers a number of theories on why this phenomenon takes place. One suggests we learn more efficiently when placed in difficult situations — think of that sinking feeling in your stomach when a pop quiz is announced.

Others suggest that repeated testing improves long-term recall by forcing students to practice the very skills they will need to recollect this information at a later date, a memory quirk that might be called the "use-it or lose-it" effect.

The fact that study-only students did relatively well when tested after only five minutes is consistent with other research showing that massed presentation or "cramming" improves performance primarily in the short-run, whereas studies spaced over intervals tend to result in better long-term retention.

This study, Roediger said, re-

veals just how strong the testing effect is: Even though repeated study across intervals offers known benefits to long-term retention, students in the repeated-testing group still produced much better results on a delayed test of recollection.

Roediger is involved in number of research projects designed to use new knowledge from the cognitive sciences to improve classroom instruction. This research was supported by a grant from the Institute of Educational Sciences and by a Collaborative Activity Grant from the James S. McDonnell Foundation.

Although the participants in this study were college undergraduates ages 18-24, the study's findings have important implications for all classrooms. Many students, Roediger noted, continue to rely heavily on repeated-study techniques, often with the encouragement of their teachers.

Even better long-term retention may be possible, he suggests, if students are alerted that they will be tested often, encouraged to review at least once before each test and then given timely feedback on the accuracy of their answers.

"We believe the time is ripe for a thorough examination of the mnemonic benefits of testing and its potentially important consequences for improving childhood educational practice," he said.

## Campus Watch

The following incidents were reported to University Police April 12-17. Readers with information that could assist in investigating these incidents are urged to call 935-5555. This information is provided as a public service to promote safety awareness and is available on the University Police Web site at [police.wustl.edu](http://police.wustl.edu).

### April 12

9:25 a.m. — A student reported a bicycle stolen from the volleyball area in the South 40. The bike had been left unsecured, and was taken between 4-7 p.m. April 8.

### April 15

2:44 a.m. — A person reported that between 1 p.m. April 13 and 2:30 a.m. April 15, an unknown person stole his mountain bike, which was secured by a cable lock to a bike rack located on the north

side of Givens Hall.

### April 17

5:55 p.m. — A person left his laptop in the lounge area on the third floor of Anheuser-Busch Hall April 13. The student returned April 14 and found it had been stolen.

University Police also responded to six larcenies, two auto accidents, two reports of harassment and one report each of lost article and property damage.

## Record

Founded in 1905  
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## Notables

## School of Law to present six Distinguished Alumni Awards

BY JESSICA MARTIN

The School of Law will celebrate the outstanding achievements of six individuals today at its annual Distinguished Alumni Awards Dinner at The Ritz-Carlton, St. Louis.

Presenting the awards will be Dean Kent Syverud, J.D., the Ethan A.H. Shepley University Professor.

Distinguished Law Alumni Award recipients will be Dave L. Cornfeld, Orion L. Douglass, Norman S. London and Charles A. Newman. Raymond W. Gruender and Susan Nell Rowe will receive Distinguished Young Law Alumni Awards.

**Cornfeld, J.D.**, is being honored for his outstanding career accomplishments and contributions to the law school. Nationally recognized for his expertise in tax and estate planning, Cornfeld is of counsel and a former senior partner in Husch & Eppenger's St. Louis office.

Cornfeld co-authored the book *Missouri Estate Planning & Will Drafting and Estate Administration Forms*. He served as senior associate articles editor for *Probate & Property* magazine, editor in chief of the journal *The Tax Lawyer* and vice chairman of publications for the American Bar Association Section of Taxation. Cornfeld was an adjunct professor in the School of Law's graduate tax program for more than 20 years.

**Douglass, J.D.**, is being recognized for his career achievements and contributions to the community. He is serving his fourth term on the State Court of Glynn County, Georgia. Douglass is a past president of the Council of State Court Judges and a fellow of the Lawyers Foundation of Georgia.

He was a member of the Georgia Supreme Court's Commission on Racial and Ethnic Bias in the Courts and a member of the Governor's Special Advisory Panel for the Handicapped. Douglass and other prominent African-Americans formed the Fourteen Black Men of Glynn, a mentorship program. He is active with the Okefenokee Area Council of the Boy Scouts of America and the Brunswick Second Presbyterian Church. Douglass was inducted as an honorary initiate into the University's Order of the Coif in 2004.

**London, J.D.**, is being honored for his success as a criminal defense lawyer. During the past 40 years, he represented some of the wealthiest, most powerful people in Missouri and Illinois. In 1995, he accepted an appointment as federal public defender for the Eastern District of Missouri.

London has served as the Missouri attorney general's representative to the Committee to Review Criminal Laws of Missouri; as special adviser to the Committee to Draft Pattern In-

structions in Criminal Cases, adopted by the Missouri Supreme Court; and as a member of the state's Urban Violence Task Force.

He has been an adjunct professor at the law school since 1981.

**Newman, J.D.**, is being recognized for his career achievements and numerous contributions to the community and law school. A partner at Bryan Cave, Newman has appeared in more than 260 class actions in federal and state courts in 33 states and Canada. He co-founded The Employment Connection, a nonprofit agency providing job-readiness and placement services to ex-offenders.

In 2005, FOCUS St. Louis honored Newman for his work to reduce recidivism. He has served on many civic boards, including the Board of Governors of the Missouri Bar, the Jewish Federation of St. Louis, and Legal Services of Eastern Missouri.

Newman also was a lecturer in law and helped establish the David M. Becker Public Service Fund.

**Gruender, J.D.**, is being recognized for his outstanding legal and civic service. Gruender has served on the U.S. Court of Appeals for the Eighth Circuit since 2004. From 2001-04, he served as the U.S. attorney for the Eastern District of Missouri, overseeing 60 assistant U.S. attorneys.

Gruender spent nine years in private practice, first as an associate at Lewis, Rice & Fingersh and later as a partner at Thompson

Coburn. Active in civic affairs, Gruender serves on the allocations committee of the St. Louis Variety Club, from which he received the 2003 Have a Heart, Lend a Hand volunteer award. He is a member of the School of Law's national council.

**Rowe, J.D.**, a partner in the litigation department of The Stolar Partnership, is being recognized for her successful career and service to the legal community.

Focusing on employment law and general civil litigation, Rowe has represented employers in all employment issues, including the litigation of claims under federal

and state employment statutes.

A member of the board of directors of Legal Services of Eastern Missouri Inc. (LSEM) since 1992, Rowe has served as its president since 2002. Her leadership has been instrumental in preserving LSEM as an independent, community-based legal services program.

She also is a member of the law school's Alumni Executive Committee and mentor in the school's mentoring program. Rowe received the St. Louis Daily Record's 2003 Woman of the Year Award and LSEM's 2004 Equal Access to Justice Award.

## Diekman named president-elect of ADA

BY NEIL SCHOENHERR

Connie Diekman, director of University nutrition, has been named president-elect of the American Dietetic Association (ADA).

"The honor of being chosen by my peers to serve the association is tremendous," Diekman said. "The privilege of having the opportunity to lead the 65,000-member organization is overwhelming, exciting and reward-

ing. I'm eager to share with the organization the skills I've developed as a member of ADA to achieve our mission of 'Leading the Future of Dietetics.'"

Diekman will serve as president-elect from June 1-May 31, 2007, when she will assume the role of president until May 31, 2008.

She has been an active member of ADA for more than 30 years, first joining when she completed an internship at the

then-Barnes Hospital.

She has served as president of the Missouri Dietetic Association and is a member of the ADA board of directors.

As ADA president, Diekman will work with the board and staff to forward the group's strategic plan and work with partner organizations to share the group's mission and goals in an effort to improve the nutrition knowledge and health of Americans.

## Fruit fly

*Dioxin receptor studied in cancer biology*  
— from Page 1

In humans, the closest known homolog (counterpart) is the aryl-hydrocarbon ("dioxin") receptor, a key protein in human health that senses a wide variety of synthetic compounds and then activates expression of detoxification genes.

The dioxin receptor is studied closely in cancer biology and toxicology.

Recently, the Duncans had found a relationship between spineless and a gene called "homothorax."

Desplan's group had shown that homothorax plays an important role in the *Drosophila* eye, and after hearing Ian Duncan make a presentation on the homothorax-spineless relationship in the antenna, the Desplan laboratory decided to study spineless in the eye.

The collaborators published their results in a recent issue of *Nature*.

## Random pattern

The *Drosophila* retina comprises clusters of photosensitive cells called ommatidia. Two types of ommatidia are present; one is sensitive to long-wave light and the other to short-wave light.

This difference is due to the

expression of different light-sensitive pigments (rhodopsins) in the two central photoreceptor cells (R7 and R8) of each ommatidial cluster. Spineless determines the long-wave type by activating expression of rhodopsin-4 in R7 cells. In ommatidia where spineless is not expressed, R7 expresses the short-wave sensitive rhodopsin-3.

"The fascinating thing in this work is that the longer wavelength-sensitive ommatidia are randomly positioned," Ian Duncan said.

"About 70 percent of the ommatidia sense longer wavelength and 30 percent sense short wavelength. It's been a mystery how you generate a random pattern like that and still have that ratio."

Using the tools that the Duncan laboratory provided, Desplan's group mapped the regulatory region in the spineless gene that drives the random pattern mechanism.

"Nobody knew what controlled this random pattern," Dianne Duncan said. "Now we know it's spineless."

"We've known for a while that spineless has several sensory functions, and we thought it might be a bit underrated in developmental biology."

"Now we add color vision to its duties."

Spineless also appears to control communication between the R7 and R8 photoreceptors.

"It has been known for some time that the expression of

rhodopsin genes in R7 and R8 is coupled with the particular genes expressed in R8 being determined by the adjacent R7 cells," Ian Duncan said.

"An additional important finding in the paper is that spineless controls this signaling between R7 and R8."

## Link to human odor

The Duncans will continue to look for other genes that spineless controls in making an antenna.

They have shown that spineless acts together with two other factors, Homothorax and Distalless, and identified downstream target genes by virtue of their having clustered binding sites for these factors.

And they are looking into similarities between spineless and the mammalian dioxin receptor.

In a collaboration with a University of Wisconsin researcher, they have put the mammalian dioxin receptor gene into *Drosophila*, where, surprisingly, it specifies the making of an antenna.

"When you think about it, the antenna is quite special," Dianne Duncan said.

"It contains many proteins not expressed anywhere else in the fly. These include many odor receptor proteins that are expressed in subsets of cells within the antenna."

"Our hope is that by unraveling how development of the *Drosophila* antenna is controlled, we will gain important insights into how human odor perception works."



**Westward expansion** The extension of the west side of the Psychology Building is nearing completion. The project, started last year, will add nearly 16,500 square feet to the current structure and allow for continued growth and development of the Department of Psychology in Arts & Sciences. The addition, at Tolman Way at Forsyth Boulevard, is expected to be completed this summer. When finished, the façade of the addition will match the pre-existing building.

## For the Record

## Of note

**Cagri Besirli**, an M.D./Ph.D. candidate, received the 2006 Dr. Philip Needleman Pharmacology Prize, which is awarded to a graduating student for outstanding achievements in pharmacology.

**Kathryn Moynihan** and **Suzanne Wahrle**, both doctoral candidates, were co-recipients of the 2006 Jakschik Award, which is given to an outstanding female graduate student in her final year of doctoral research whose work is focused on metabolic regulation. ...

**Jean Schaffer**, M.D., associate professor of molecular biology and pharmacology and of medicine, was one of only 10 physician-scientists nationwide to receive the Clinical Scientists Award in Translational Research from the Burroughs Wellcome Fund. The five-year, \$750,000 award will support her work on understanding how diabetes contributes to heart failure.

## Obituary

## Yeo, first-year student in Arts &amp; Sciences; 18

Justin Allan Yeo, a first-year student in Arts & Sciences and resident of Beaumont House residence hall, died Sunday, April 16, 2006, at St. Mary's Health Center. He was 18.

Medical authorities have yet to determine the exact cause of his death; however, there is no known health risk to people with whom he had been in contact.

Yeo was a member of the Catholic Student Center and the Asian American Association.

Counseling and support is being offered at the Habib Health and Wellness Center.

A resident of Rosemead, Calif., he is survived by Mr. and Mrs. Samsone Yeo.

For more information, call 935-6666.



## Washington People

**D**aniel Brennan, M.D., already had his foot solidly in the door when he interviewed for a job at the School of Medicine 13 years ago. Administrators from the school had, after all, recruited him to come to town for an interview.

So he arguably would have received the job even if he hadn't helped revive a VIP later that same day at the Department of Surgery's Christmas party.

"The wife of the former chairman of surgery collapsed, and I basically helped resuscitate her," recalls Brennan, a professor of medicine. "My first reaction was to think that impressed the doctor who was then the head of surgery."

"I later started to wonder if that was all in my mind, but then I heard one of the surgeons telling this story at a surgery conference, so I knew it had given me some real notoriety."

Brennan, who was 33 at the time, came to the University in 1993 as head and sole member of a new section, transplant nephrology. With his expert guidance, the kidney transplant program at Barnes-Jewish Hospital doubled the number of transplants it performed, jumping from 59 the pre-



**Daniel Brennan, M.D., reviews patient results in the Center for Advanced Medicine clinic with nurse Anita Williams. "Dan is an unselfish and natural leader and a creative and compassionate physician, and it's no accident that he's built a world-class transplant nephrology section at Washington University essentially from scratch," says Marc R. Hammerman, M.D., the Chromalloy Professor of Renal Diseases.**

## One of a kind

Daniel Brennan is the lone faculty member in the area of transplant nephrology

By MICHAEL C. PURDY

vious year to 120 in Brennan's first year.

"That's pretty much where we've been since then — somewhere between 100 and our high, which was 150," he says.

"What we're really proud of, though, is the fact that in the years since 1996 we've consistently driven acute kidney rejection rates down to less than 5 percent. That rate used to be in the 50 percent range."

Brennan, 46, is still the section's only full-time faculty member, but he now sees patients with two kidney specialists he trained — Brent Miller, M.D., associate professor of medicine, and Matt Koch, M.D., assistant professor of medicine — and a third nephrologist, Marcos Rothstein, M.D., professor of medicine.

"Dan is an unselfish and natural leader and a creative and compassionate physician, and it's no accident that he's built a world-class transplant nephrology section at Washington University essentially from scratch," says Marc R. Hammerman, M.D., the Chromalloy Professor of Renal Diseases.

For Brennan, helping patients is the central focus and biggest reward of his work.

"I'll be having a bad day and feeling sorry for myself, and then I'll get to the clinic and think to myself, 'You know what? I don't have kidney disease, and I never did,'" he says. "All my patients have kidney disease, and I want to

help them."

Brennan enjoys getting to know the patients and their families and the positive nature of the transplant process when it works well.

"They tried to recruit me into industry last year, and I turned them down because even though they were going to let me see patients, they wouldn't be patients in my clinic," he says.

Born in Wisconsin and raised in suburban Chicago, Brennan likes to say what's on his mind but doesn't seem inclined to do so in an abrasive or self-centered way.

For example, he's humble enough to freely admit that he first became interested in his undergraduate college, Cornell College in Mount Vernon, Iowa, largely on the basis of mistaken identity. He thought it was the Ivy League Cornell University.

"I asked my dad, 'Dad, where's Cornell?' and he said, 'Ithaca, New York,' and I said, 'Not Mount Vernon, Iowa?'"

Brennan's laughter when he recalls this incident rings with gratitude: The mistake worked out well for him.

His mother, an immunologist, had previously had positive experiences with Cornell College student interns, and he was impressed by the campus and the opportunities it offered when he visited, so he decided to pass on the Ivy League experience for an Iowa university.

Seated in his office in a special chair that he uses because of a back injury, Brennan, who's wearing a Beatles tie given to him by one of his daughters, remembers his years in Iowa with great fondness.

He met his wife, Susan, then a philosophy student, at Cornell. They married after he finished his third year as a medical student at the University of Iowa.

When a discussion with a mentor helped fix Brennan's interest in the area of transplant nephrology, the mentor recommended he go to Brigham and Women's Hospital in Boston. Four years later, Brennan transferred to a post in transplant nephrology at the University of Omaha and Bishop Clarkson Hospital in Omaha, Neb., his wife's hometown.

At WUSTL, Brennan has established a reputation both as a dedicated and energetic clinician and an innovative researcher.

With the help of frequent collaborator Greg Storch, M.D., the Ruth L. Siteman Professor of Pe-

diatrics and professor of molecular microbiology and of medicine, Brennan has conducted pioneering research into the threats viruses pose to kidney transplant recipients.

"Dan manages to integrate his interests in patients and clinical research very effectively," Storch says. "He's very enthusiastic and committed, and that makes him fun to work with."

Brennan praises Storch as "the best mentor I've ever had."

He is particularly excited about their research into the BK virus (so named for the initials of the first patient diagnosed with it).

The virus is widespread in the general population; by the time they're teenagers, 90 percent test positive for it.

The virus normally doesn't cause any problems, but when the immune system is suppressed — as in patients who've just received a kidney transplant — it can become a harmful infection.

Brennan estimates the virus infects the new kidney in less than 5 percent to 10 percent of kidney transplant patients, but notes that 50 percent of those patients will lose their new kidney to the infection and the remainder will be left with a kidney that is only marginally functional.

Brennan and his colleagues showed that taking patients off immune suppression drugs when the BK virus began showing up in their blood could prevent the virus from getting into the kidney.

"In transplantation, you want to be like Goldilocks — just the right amount of immune suppression, not too much and not too little," he says. "If there's too much, the patients can get infections and cancers; too little, and they reject the new kidney."

Brennan says BK has been "almost like a gift from the transplant gods" because testing for the viruses' reactivation in the bloodstream lets clinicians clearly know when they've given their patients too much immune suppression.

Another major branch of Brennan's research involves the systems used to allocate organs for transplantation.

In these studies, he collaborates with former student Mark Schnitzler, who has a doctorate in economics and is now director of Saint Louis University's Center for Outcomes Research.

In a recent paper, Brennan and Schnitzler's analysis suggested that an effort to increase the number of kidneys available to African-American patients was misguided.

"The system organizers recently eliminated the points given to potential patient-organ matches on the basis of immune compatibility factors that frequently differ slightly between white and African-American patients," Brennan says.

"We showed that this created a lose-lose situation because African-American patients frequently do better on dialysis than on transplantation, while the reverse is true in white patients."

Brennan and Schnitzler argued that a better way to increase organs allocated to African-American patients would be to try to increase what are known as conversion rates among families of potential African-American organ donors.

The term refers to the percentage of families who sign the final agreement to release a donor's organs into the transplant system.

"We argued that all that we need to eliminate the disparity in organ availability is to increase the conversion rate among African-American families by 10 percent," he says. "We don't even need more donors to eliminate the racial disparity."

When not dealing with the intricacies of organ transplants and allocation, Brennan spends his spare time biking, swimming, playing guitar and enjoying St. Louis with his family.

Brennan jokingly notes that he and his wife, Susan, have added a child in every state they've lived in. Katie, the eldest at 18, was born in Iowa; Chris, 15, in Boston; Meaghan, 13, in Omaha; and Maddy, 11, in Missouri.

He praises St. Louis for its accessibility.

"St. Louis is a city that can be used," he says. "It's livable — you can go down to The Hill for dinner, you can go see the Arch or a museum in Forest Park, or you can go to professional sporting events."



**Daniel Brennan, M.D., and his family enjoy making music together. (From left) Maddy, Meaghan, Chris, Katie and Susan.**

### Daniel Brennan

**Position:** Professor of medicine; head and sole full-time faculty member of transplant nephrology

**Hobbies:** Biking, swimming, playing guitar and enjoying St. Louis with his family

**Years at the University:** 13

**Family:** Wife, Susan; children Katie, Chris, Meaghan and Maddy