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Washington University Record, April 17, 2008

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Record



Washington University in St. Louis

April 17, 2008

record.wustl.edu

Nano-sized technology has super-sized effect on tumors

By GWEN ERICSON

Anyone facing chemotherapy would welcome an advance promising to dramatically reduce their dose of these often harsh drugs. Using nanotechnology, School of Medicine researchers have taken a step closer to that goal.

The researchers focused a powerful drug directly on tumors in rabbits using drug-coated nanoparticles. They found that a drug dose 1,000 times lower than used previously for this purpose markedly slowed tumor growth.

"Many chemotherapeutic drugs have unwanted side effects, and we've shown that our nanoparticle technology has the potential to increase drug effectiveness and decrease drug dose to alleviate harmful side effects," said lead author Patrick M. Winter, Ph.D., research assistant professor of medicine and of biomedical engineering.

The nanoparticles are extremely tiny beads of an inert, oily compound that can be coated with a wide variety of active substances. In an article published online in *The FASEB Journal*, the researchers describe a significant reduction of tumor growth in rabbits treated with nanoparticles coated with a fungal toxin called fumagillin. Human clinical trials have shown that fumagillin can be an effective cancer treatment in combination with other anticancer drugs.

In addition to fumagillin, the nanoparticles' surfaces held mole-

cules designed to stick to proteins found primarily on the cells of growing blood vessels. So the nanoparticles latched onto sites of blood vessel proliferation and released their fumagillin load into blood vessel cells. Fumagillin blocks multiplication of blood vessel cells, so it inhibited tumors from expanding their blood supply and slowed their growth.

Human trials also have shown that fumagillin can have neurotoxic side effects at the high doses required when given by standard methods. But the fumagillin nanoparticles were effective in very low doses because they concentrate where tumors create new blood vessels. The rabbits that received fumagillin nanoparticles showed no adverse side effects.

Senior author Gregory M. Lanza, M.D., Ph.D., associate professor of medicine and of biomedical engineering, and Samuel A. Wickline, M.D., professor of medicine, of physics and of biomedical engineering, are co-inventors of the nanoparticle technology. The nanoparticles measure only about 200 nanometers across, or 500 times smaller than the width of a human hair. Their cores are composed mostly of perfluorocarbon, a safe compound used in artificial blood.

The nanoparticles can be adapted to many different medical applications. In addition to carrying drugs to targeted locations, they also can be manufactured to highlight specific targets in MRI, nuclear and ultrasound imaging and CT scanning.

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Winter

Kling, 89, former provost, vice chancellor, dean and professor

Merle Kling, Ph.D., former provost, executive vice chancellor, dean of the faculty of Arts & Sciences and professor of political science, died April 8 of esophageal cancer in St. Louis. He was 89.

A scholar of the governments and politics of Latin America and comparative politics, Kling was the author of two books — "The Soviet Theory of Internationalism" (1952) and "A Mexican Interest Group in Action" (1961) — and a contributor to numerous professional journals.

Kling joined WUSTL in 1946 as a lecturer in political science. Soon after his arrival, he advanced to instructor, was named assistant professor in 1950, associate professor in 1954 and full professor in 1961. He twice served as dean of the faculty of Arts & Sciences, from 1966-69 and 1973-76, when he assumed the position of provost. In 1980, he received the additional title of executive

vice chancellor.

"Merle Kling was one of the greats of Washington University," said Chancellor Emeritus and Life Trustee William H. Danforth, M.D., who presided over the University from 1971-95.

"He was a wonderful teacher who had a lasting effect on his students. In every role, his insights, his clarity of mind and his wisdom guided his colleagues and students. His balance and good sense protected both academic freedom and academic quality through the late 1960s and early '70s and kept Washington University a humane

and decent place. More than any other person, he taught me what a university is and how we could all join in making it better," Danforth said.

Kling was a member of the American Political Science Association and a former editor of *The Midwest Journal of Political Science*. He served as

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Kling



International entertainment (From left) Lutfiya Farhodova, Aygun Azizova and Turana Aliyeva, all students at the George Warren Brown School of Social Work, perform during the school's International Festival April 13 in the Rettner Gallery of the Lab Sciences Building. In addition to a forum on international social work issues, the festival featured food, exhibits and entertainment from the homelands of the Brown School's international students.

Technique developed to trace origins of disease genes in mixed races

By TONY FITZPATRICK

A team of researchers from Washington University and the Israeli Institute of Technology (Technion) in Haifa, Israel, has developed a technique to detect the ancestry of disease genes in hybrid, or mixed, human populations.

The technique, called expected mutual information (EMI), determines how a set of DNA markers is likely to show the ancestral origin of locations on each chromosome. The team constructed an algorithm for the technique that selects panels of DNA markers in order to render the best picture of the ancestral origin of disease genes. They then tested the algorithm to show that it is more powerful and accurate than standard algorithms that are in use.

The result is easier identification of inherited genes that cause diseases in people of mixed races, which researchers call "population admixture." Nephrologists, for instance, have noted that African-Americans are far more likely than Americans of European descent to die rapidly of end-stage, progressive renal failure due to kidney disease. Many African-Americans, though, have genes that originated in Europe due to ethnic mixing.

The technique helps researchers isolate the genetic

causes of disease by detecting from which continent the recurrent disease genes originated.

A current research goal is to treat or even prevent kidney disease with gene or drug therapies.

"This technique will allow researchers to analyze which regions of the genome are associated with end-stage, progressive renal failure," said Alan R. Templeton, Ph.D., the Charles Rebstock Professor of Biology in Arts & Sciences and associate professor of biomedical engineering.

"Once the regions are identified, then you look at the individual genes and ask: Are there

with this algorithm and use it on a diversity of diseases," he said.

"Our novel approach extends previous methods by incorporating knowledge on population admixture, drawing a more precise picture of the mosaic of ancestries along an individual's genome," said Sivan Bercovici, Templeton's colleague at Technion and primary author of a research paper about this study published in the current issue of *Genome Research*.

The researchers analyzed DNA from 575 cases of African-Americans with end-stage progressive renal failure and compared it to controls who did not have the disease.

They came up with a panel of approximately 2,000 genetic markers. Enough, Templeton said, "to cover the whole genome."

To tease out the origins of disease-causing genes, researchers use a technique called

mapping by admixture linkage disequilibrium (MALD), a powerful approach to identify regions of the genome that have genes associated with disease.

MALD takes advantage of differences in disease prevalence between populations to look for variation patterns that are over-represented in groups with high susceptibility to a certain disorder.

Both EMI and the algorithm make MALD more accurate and efficient.

"We can look at many different hybrid human populations with this algorithm and use it on a diversity of diseases."

ALAN R. TEMPLETON

genetic factors involved with this, and, if so, what are the candidates?" Templeton said.

It's a good bet, Templeton said, that the disease genes are highly likely to have emerged from Africa, as African-Americans have shown the tendency to die more quickly of the disease.

The technique and algorithm apply beyond this particular disease, Templeton added.

"We can look at many different hybrid human populations

First Olin Award for research given to Nickerson, Zenger

By SHULA NEUMAN

Two professors at the Olin Business School are the winners of the first annual Olin Award: Recognizing Research That Transforms Business.

Jackson Nickerson, Ph.D., the Frahm Family Professor of Organization and Strategy, and Todd Zenger, Ph.D., the Robert and Barbara Frick Professor of Business Strategy, will share the \$10,000 honorarium in recognition of their research that examined the negative impact that social comparison, or envy, causes in the workplace.

The Olin Award was initiated by Richard J. Mahoney, former chairman and CEO of Monsanto Co. and a current executive-in-residence at Olin.

Mahoney said creating an award that recognizes the link between academic research and business practice was motivated by his exposure to the variety and quality of work the Olin Business School professors produce.

In addition to showcasing Olin's excellent research, the award is designed to remind researchers that the ultimate pur-

pose of all business research is to improve results.

"Often the applied portion of research builds on highly theoretical basic research models. Both kinds of research — theoretical and applied — are highly valued and receive equal consideration for the Olin Award," Mahoney said.

Olin professors have been recognized internationally for their prolific research. The Financial Times, for example, ranked the school 14th worldwide for research productivity.

"The Olin Award is designed to encourage the continuation of that great strength," Mahoney said.

The competition's winners, Nickerson and Zenger, succeeded in doing just that, according to the remarks made by members of the panel of 10 judges.

For example, James H. Quigley, Global CEO, Deloitte Touche Tohmatsu, said of the winning paper: "With respect to my first choice, I appreciated the discussion of 'social comparison costs' and agree that they should play a critical role in shaping the design of the work, employee rewards

and the organization itself. The supporting examples are strong, and the arguments are financially significant to most businesses across all industries."

Nickerson and Zenger's research examined how firms design and structure their organizations to minimize what the researchers call "comparison costs," the costs brought on when individuals feel slighted in their rewards.

"Comparison costs are incurred when people within a firm have the perception of being treated unfairly," Zenger said.

"Workers begin to reduce their efforts or lobby management to change the distribution of rewards. They might actually try to sabotage the firm. Any of these actions becomes costly to the firm; these are comparison costs," he said.

The professors contend that managers consistently underestimate and misunderstand comparison costs. Consequently, they make poorly informed decisions about such things as adopting incentive programs, acquiring another company and even outsourcing.

"Social comparison costs can cause all kinds of problems for organizations," Nickerson said. "Despite sophisticated financial analyses, three-quarters of all mergers and acquisitions fail, and we believe social comparison is a prime culprit."

"Our theory helps managers figure out when and what to outsource, how to compensate employees and even where to locate them. This new theory improves our understanding of how social phenomena shape organizational choices," Nickerson said.

Nickerson and Zenger foresee future applications of their research to predict when and how to make acquisitions successful.

"Be suspicious of claims an acquisition will be untouched because workers from the acquiring company may become dissatisfied," Zenger said.

Nickerson and Zenger will be honored at the 2008 Distinguished Alumni Awards presentation April 24 at The Ritz-Carlton, St. Louis.

In addition to Quigley, the panel of judges included:

• Robert Dilenschneider,

principal and founder, The Dilenschneider Group Inc.;

• Hugh Grant, CEO, chairman and president, Monsanto Co.;

• Michael Heinz, president, MHH Systems Corp., and former vice president and general manager at Boeing Co.;

• Jean P.L. Montupet, executive vice president, Emerson;

• Joseph McCue, visiting professor, University of Edinburgh Management School in Scotland, and former director and executive vice president of Barclays Bank;

• David Peacock, executive vice president of marketing, Anheuser-Busch Cos.;

• James Weddle, managing partner, Edward Jones;

• Murray Weidenbaum, Ph.D., the Edward Mallinckrodt Distinguished Professor of Arts & Sciences and chairman of the Weidenbaum Center on the Economy, Government and Public Policy;

• Virginia Weldon, M.D., chairman of the board, Saint Louis Symphony, and former director for the Study of American Business at WUSTL.



So much to see, so much to hope for Cheryl Nelson (left) and Avis May, both St. Louis Public Schools community education specialists, attend Faces of Hope, a University-wide celebration of civic engagement and community service May 8 at Whitaker Hall. Hosted by the Gephardt Institute for Public Service, Faces of Hope featured a poster session highlighting community service by WUSTL students and faculty.

Health Information Privacy and Security Week raises awareness of HIPAA laws

The Washington University Health Insurance Portability and Accountability Act (HIPAA) Security and Privacy Offices remind everyone of the importance of protecting patients' protected health information during Health Information Privacy and Security Week April 13-19.

Sponsored by the American Health Information Management Association, activities during the week are designed to raise awareness about HIPAA laws that protect patients' health information. Among the activities are a luncheon to recognize department liaisons, daily HIPAA compliance hints and a trivia contest.

The HIPAA laws, which affect patients and health-care providers, have granted patients the right to access or amend their

own medical record, request a restriction, seek an account of disclosures of and specify authorizations for their health information. Health-care providers are required to notify patients of their rights and how their protected health information will be used, secure all forms of health information and monitor compliance. Failure to comply with the federal regulations could result in civil or criminal penalties.

The Privacy Office and the Information Security Office offer these reminders:

- Patient information should only be accessed on a need-to-know basis and access the minimum necessary.
- Patient information can be shared when appropriate.
- Do not share user-specific

passwords to any patient databases.

- Be aware of department procedures, privacy office and liaisons and the HIPAA Web site at hipaa.wustl.edu.

- All employees can help keep patient information secure by notifying either the Privacy or Security Office of any concerns.

- The new security portal can be accessed at portal.wustl.edu/mscits/informationsecurity/default.aspx.

- Do not e-mail protected health information to external recipients without securing the contents.

- No one should ever ask for your password or personal information via e-mail or phone.

- Lock your workstation if you will be away from it for an extended period of time.

MetLife to give workshops on special-needs dependents

WUSTL's Office of Human Resources cordially invites all faculty and staff to an annual workshop on "Planning For the Future of a Child or Other Dependents With Special Needs."

A representative from MetLife's Division of Estate Planning for Special Kids will conduct the workshop and discuss a service called MetDesk. MetLife underwrites WUSTL's life-insurance coverage.

The topics that will be addressed are: eligibility for government benefits, guardianship/conservatorship, and financial security and funding options.

"Parents of children with special needs, no matter what the child's age or disability, may have many serious questions about how best to provide for their child's future," said Tom Lauman, director of benefits.

"We realize that some employees face unusually difficult planning decisions regarding the welfare of their child, and

the most important of those is probably how to provide for ongoing care after their death," Lauman said.

These workshops will provide important information about developing a personal plan. Please note that even though a MetLife representative will be making the presentation, employees are under no obligation to use a MetLife estate planner.

The schedule is as follows:

Tuesday, April 22, Medical Campus, Farrell Learning and Teaching Center, Room 222, noon;

Wednesday, April 23, Danforth Campus, North Brookings Hall, Room 222, noon;

April 24, West Campus, Library Conference Center, Room A/B, noon.

Reservations are not required. For more information, contact your Benefits Department at 935-5931 for Danforth Campus employees or at 362-4929 for School of Medicine employees.

Record

Volume 32, Number 30

Founded in 1905 • Washington University in St. Louis community news

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Record (USPS 600-430; ISSN 1043-0520). Published for the faculty, staff and friends of Washington University. Produced weekly during the school year, except school holidays, and monthly during June, July and August by the Office of Public Affairs, Washington University, Campus Box 1070, One Brookings Drive, St. Louis, MO 63130. Periodicals postage paid at St. Louis, MO.

Where to send address changes

Postmaster and nonemployees: Record, Washington University, Campus Box 1070, One Brookings Drive, St. Louis, MO 63130.
Employees: Office of Human Resources, Washington University, Campus Box 1184, One Brookings Drive, St. Louis, MO 63130.

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Washington University in St. Louis

School of Medicine Update

New genetic links to psoriasis uncovered

By CAROLINE ARBANAS

In the first comprehensive study of the genetic basis of psoriasis, School of Medicine researchers have discovered seven new sites of common DNA variation that increase the risk of the troublesome skin condition. They also found that variations in one genetic region link psoriasis and a related joint disorder — psoriatic arthritis — to four autoimmune diseases: type 1 diabetes, Graves' disease, celiac disease and rheumatoid arthritis.

The study's results appeared April 4 in PLoS Genetics.

"Our research shows that small but common DNA differences are important in the development of psoriasis," said lead investigator Anne Bowcock, Ph.D., professor of genetics. "Although each variation makes only a small contribution to the disease, patients usually have a number of different genetic variations that increases their risk of psoriasis and psoriatic arthritis."

The DNA variations uncovered by the researchers point to different biological pathways that underlie psoriasis and may eventually lead to targeted drugs and treatments, Bowcock said.

An estimated 7 million Americans have psoriasis, an autoimmune disease that occurs when the body's immune cells

mistakenly attack the skin. The condition is characterized by red, scaly patches that can be itchy, painful or both. Some 10 percent to 30 percent of patients with psoriasis develop painful and debilitating psoriatic arthritis.

The researchers focused on points of common variation in the genome called single nucleotide polymorphisms, or SNPs. While most of the 3 billion nucleotides that constitute DNA are thought to be identical in humans, some 10 million SNPs build variation into the genome and make each individual unique. Some of these SNPs play a crucial role in a person's predisposition to disease or good health.

The investigators scanned more than 300,000 SNPs in the genomes of 223 psoriasis patients, including 91 who had psoriatic arthritis. They compared the DNA variations in people with psoriasis to those found in healthy control patients, looking for specific differences that may be linked to the disease. They then replicated their findings in a larger set of patients and healthy controls.

Bowcock and her team found seven novel DNA variations linked to psoriasis. The researchers found the strongest genetic risk for psoriasis lies in a region of the genome that contains the major histocompatibility complex

(MHC), a collection of genes involved in distinguishing the body's own cells from foreign invaders.

"Although this region has been known to play a major role in psoriasis, DNA variations in the MHC alone have been known to not be enough to trigger disease," Bowcock said. "Only 10 percent of patients with variations in the MHC developed psoriasis. This

tells us that other genetic or environmental factors also contribute to the disease."

Notably, DNA variations on chromosome 4 were strongly linked to psoriatic arthritis. These same variations were also associated with psoriasis and had been previously linked to type 1 diabetes; rheumatoid arthritis; Graves' disease, caused by an

overproductive thyroid gland; and celiac disease, caused by the inability to digest gluten.

"Doctors have noticed that some psoriasis patients have these autoimmune diseases," Bowcock said. "But we didn't know whether this was a coincidence. Now we know there is a genetic component underlying all of these diseases."



'Put on a happy face' (From left) Josiah Gerdts and Isabelle Chumfong, both first-year students in the School of Medicine, play the leads in "Bye Bye Birdie," the spring musical production by School of Medicine students. Performances will be held April 24, 25 and 26 at 8 p.m. and April 26 at 2 p.m. at the Whelpley Auditorium on the St. Louis College of Pharmacy campus. Tickets are \$8 for students and children and \$10 for adults in advance; \$10 for students and children and \$15 for adults at the door. To purchase tickets, contact Michelle Moniz at monizm@msnotes.wustl.edu or 757-2280.

Cardiologist Reiss appointed Fox Distinguished Professor in Medicine

By GWEN ERICSON

Craig K. Reiss, M.D., has been named the Sam and Marilyn Fox Distinguished Professor in Medicine. Reiss, a cardiologist, directs the Washington University Cardiology Consultants and the Heart Care Institute at Barnes-Jewish West County Hospital.

The professorship is the second named for Sam and Marilyn Fox, both prominent civic leaders in the St. Louis community. In 2006, the couple established a distinguished professorship in orthopedic surgery.

"Over many years, Sam and Marilyn Fox have given of themselves, both financially and personally, to support Washington University, and we are deeply indebted to them," Chancellor Mark S. Wrighton said. "They have longstanding ties to the University and have championed a wide range of programs and initiatives here. We are very grateful for their involvement with us, their hard work and their numerous and varied contributions."

"Sam and Marilyn Fox have played an important role in the continued growth of Washington University and the outstanding success of the School of Medicine," Larry J. Shapiro, M.D., executive vice chancellor for medical affairs and dean of the School of Medicine, said.

"In naming Dr. Reiss as the recipient of this professorship, their newest gift will support the work of a very talented, dedicated and admired cardiologist and administrator and help ensure the continued success of the Cardiovascular Division," Shapiro said.

A St. Louis native, Reiss earned a combined bachelor's/

medical degree from the University of Missouri-Kansas City. He pursued his internship and residency in internal medicine at Brigham and Women's Hospital in Boston and completed a cardiology fellowship and then a chief residency in internal medicine at the same institution.

"To receive a professorship named after two such remarkable role models for the Washington University and St. Louis communities is an incredible and humbling honor," Reiss said.

"As a clinician who loves to care for patients as my primary duty and who has the privilege of learning from and teaching medical students, residents and fellows at an institution of this high caliber, it is very gratifying to be recognized in this way."

In his clinical practice in general cardiology, Reiss has special interest in valvular disease, congestive heart failure, cardiomyopathy, arrhythmia, coronary artery disease and preventive cardiology.

Both Sam and Marilyn Fox have long played prominent roles in civic affairs in the St. Louis region. A WUSTL alumnus, Sam Fox is founder, chairman and CEO of Harbour Group Ltd., a private holding company. In 2007, President George W. Bush named Fox ambassador of the United States to Belgium.

"I have great esteem for Dr. Reiss," Sam Fox said. "He's a brilliant and caring physician whose commitment to his patients is extraordinary. I'm happy that he is the first recipient of this professorship, which we have established to acknowledge the role of the School of Medicine in outstanding health care in the St. Louis region."



Reiss

Brain network in children less complex than in adults

By MICHAEL C. PURDY

A brain network linked to introspective tasks — such as forming a self-image or understanding the motivations of others — is less intricate and less well connected in children, School of Medicine scientists have learned. They also showed that the network establishes firmer connections between various brain regions as an individual matures.

The scientists are working to establish a picture of how these connections and other brain networks normally develop and interact. They want to use that picture to conduct more detailed assessments of the effects of aging, brain injuries and conditions such as autism on brain function.

"Having this information will not only help us understand what's going wrong in these patients, it will also allow us to better assess whether and how future interventions are providing those patients with effective treatment," said senior author Bradley L. Schlaggar, M.D., Ph.D., associate professor of pediatrics, of radiology, of neurology and of anatomy and neurobiology.

"Autism spectrum disorder first manifests earlier than the time period we were studying," Schlaggar said. "But many of the functions it affects have been associated with the default network, so we're eager to see if analysis of this network and its development can give us new insights into autism."

The results appear online in The Proceedings of the National Academy of Sciences.

Neuroscientists, including co-author Marcus E. Raichle, M.D., professor of radiology, of anatomy and neurobiology and of neurology, first identified the network, called the default

network, in 1996.

Schlaggar, Raichle and colleagues including Steve Petersen, Ph.D., the James McDonnell Professor of Cognitive Neuroscience and professor of neurology and of psychology in Arts & Sciences, have been using a new technique called resting-state functional connectivity MRI to identify brain networks and analyze their functions and development. Resting-state connectivity scans brains after the subjects have been asked to rest. The scans reveal changes in the oxygen levels in blood flowing to different areas of the brain. Researchers interpret correlations in the rise and fall of blood oxygen to different brain areas as a sign that those areas

likely work together. This means the regions have functional connectivity.

Damien A. Fair, a graduate student in Schlaggar's lab, led the recent study, which compared functional connectivity in 13 brain regions linked to the default network in children ages 7-9 and adults ages 21-31.

"The difference between children and adults is profound," Fair said. "In a graph depicting the strength of connections between the brain regions we studied, children's minds have just a few connections between some regions, while the adult brains have a web-like mesh of many different interconnecting links involving all the regions."

PET scans' impact on cancer care confirmed

By MICHAEL C. PURDY

A national review has revealed that positron emission tomography (PET) scans of cancer patients led clinicians to change treatment plans for more than one third of the patients, scientists reported in the Journal of Clinical Oncology.

Researchers analyzed data on nearly 23,000 cancer patients nationwide to obtain the results. The data came from the National Oncologic PET Registry (NOPR), which compiled information from more than 1,200 imaging centers.

Study authors, including Barry A. Siegel, M.D., professor of medicine and of radiology, plan to cite the findings as proof that PET scans can make positive contributions to cancer care. Siegel and others will use the results to advocate for expanded Medicare coverage of PET scans for different types of cancers.

"Based on this data, Medicare

should strongly consider opening up its coverage of these scans to include their use in diagnosis, staging and restaging for all cancers," said Siegel, who is chief of the Division of Nuclear Medicine at the Mallinckrodt Institute of Radiology and a member of the Siteman Cancer Center.

The NOPR gathers data from referring physicians on intended patient management before and after PET scans that use the radioactive imaging agent fluorodeoxyglucose (FDG). The imaging agent helps highlight differences between healthy and diseased tissue.

Analysis of the data showed that FDG-PET is associated with a 36.5 percent change in the decision of whether or how to treat a patient's cancer. After FDG-PET scans, physicians were able to determine that biopsies were unnecessary for nearly three in every four patients originally scheduled to receive such procedures.

University Events

PAD's 'The Lion and the Jewel' explores culture and colonization

Men versus women, modern versus traditional, culture versus colonization. Such conflicts lie at the heart of "The Lion and the Jewel," a sly and subversive comedy by Nobel Prize-winning author Wole Soyinka.

Beginning this weekend, the Performing Arts Department (PAD) in Arts & Sciences will present this deceptively lighthearted carnival of dance and song as its spring mainstage production.

Performances take place in Edison Theatre at 8 p.m. Friday and Saturday, April 18 and 19, and at 2 p.m. Sunday, April 20. Performances continue the following weekend at 8 p.m. April 25 and 26 and at 2 p.m. April 27.

Set in Ilujinle, a Yoruba tribal village in western Nigeria, "The Lion and the Jewel" explores the rivalry between Lakunle, a progressive but self-important westernized schoolteacher, and Baroka, the domineering village chief. Both men attempt to woo Sidi, a local beauty known as "the Jewel," though both also leave much to be desired as suitors. Lakunle is arrogant and condescending, belittling traditional ways — from tribal dress to "bride-prices" — while the "Old Lion" Baroka simply wishes Sidi to join his already large collection of wives and concubines.

Yet when Sidi's portrait appears in a magazine, her newfound celebrity turns the men's competition inside out. What follows is an engaging mix of deception, manipulation and misunderstanding, as Sidi attempts to chart her own destiny somewhere between the old and the new.

"The Lion and the Jewel" is directed by Ron Himes, the Henry E. Hampton Jr. Artist-in-Residence and founder and producing director of the St. Louis Black Repertory Company. The cast of 17 is led by seniors Jimmy Brooks as Lakunle, Revocat Murayi as Baroka and Erin Vaughn as Sidi. Also featured are sophomore Maryse Pearce as Sadiku, Baroka's head wife; junior Alpa Banker as The Favorite; Hal Bates Jr. as a local wrestler; Rob Demery as the surveyor; and Arthur Moore as the drummer.

Sets and props are by Angela Bangford, lecturer in the PAD, with costumes by senior lecturer Bonnie Kruger. Lighting is by lecturer Sean Savoie. Choreography is by Keith Tyrone.

Soyinka is widely considered Africa's greatest living playwright. He has written some 20 plays, including "The Trials of Brother Jero" (1964), "Madmen and Specialists" (1970) and "King Baabu" (2001). Other works include two novels, a pair of film scripts, several memoirs, numerous essay collections and a half-dozen volumes of poetry. In 1986, he became the first black African to receive the Nobel Prize for literature. Soyinka divides his time between Nigeria and the United States.

Tickets are \$15 — \$9 for students, senior citizens, faculty and staff — and are available through the Edison Theatre Box Office and through all MetroTix outlets.

For more information, call 935-6543 or visit padarts.wustl.edu.



Seniors Erin Vaughn and Revocat Murayi as Sidi and Baroka in the PAD production of "The Lion and the Jewel." The show opens this weekend at Edison Theatre with performances Friday and Saturday at 8 p.m. and Sunday at 2 p.m.

Anatomy Lessons from Rome • Snowbird on Mars • Turbulence

"University Events" lists a portion of the activities taking place April 17-30 at Washington University. Visit the Web for expanded calendars for the Danforth Campus (webevent.wustl.edu) and the School of Medicine (medschool.wustl.edu/calendars.html).

Exhibits

"Miniature Books: Four Thousand Years of Tiny Treasures." Through June 6. Olin Library. 935-5418.

"Thaddeus Strode: Absolutes and Nothingness." Through April 21. Kemper Art Museum. 935-4523.

"On the Margins." Through April 21. Kemper Art Museum. 935-4523.

"Senior Sculpture Exhibition." April 18. (6 p.m. Opening Reception.) Des Lee Gallery, 1627 Washington Ave. 935-9347.

"First Year Exhibition Part I." April 25. (6 p.m. Opening Reception.) Des Lee Gallery, 1627 Washington Ave. 935-9347.

Film

Friday, April 18

8 p.m. Italian Film Festival. "Mio Fratello E Figlio Unico." (My Brother Is An Only Child.) Brown Hall, Rm. 100. 422-3102.

Saturday, April 19

8 p.m. Italian Film Festival. "Rosso Come Il Cielo." (Red Like The Sky.) Brown Hall, Rm. 100. 422-3102.

Lectures

Thursday, April 17

2 p.m. Research Integrity 1st Biennial Conference. "Responsible Conduct of Research Education, Instruction and Training." (Continues 8 a.m.-6 p.m. April 18; 8:30 a.m.-12:30 p.m., April 19.) Renaissance St. Louis Grand & Suites Hotel, 800 Washington Ave. To register: <http://epi.wustl.edu/epi/rcr2008.htm>.

4 p.m. Chemistry Seminar. "The Development of New Stereoselective Organocatalytic Processes." Jon Antilla, asst. prof. of chemistry, U. of S. Fla. McMillen Lab., Rm. 311. 935-6530.

4 p.m. Vision Science Seminar Series. "Phr1: An Activity and Ephrin Independent Regulator of Retinogeniculate." Susan Culican, asst. prof. of ophthalmology & visual sciences. Maternity Bldg., Rm. 725. 362-3315.

4:15 p.m. Earth & Planetary Sciences Colloquium. "From Continents to Atoms; Environmental Geochemistry at all Scales." Martin Goldhaber, senior scientist, U.S.

Geological Survey, Earth & Planetary Sciences Bldg., Rm. 203. 935-5610.

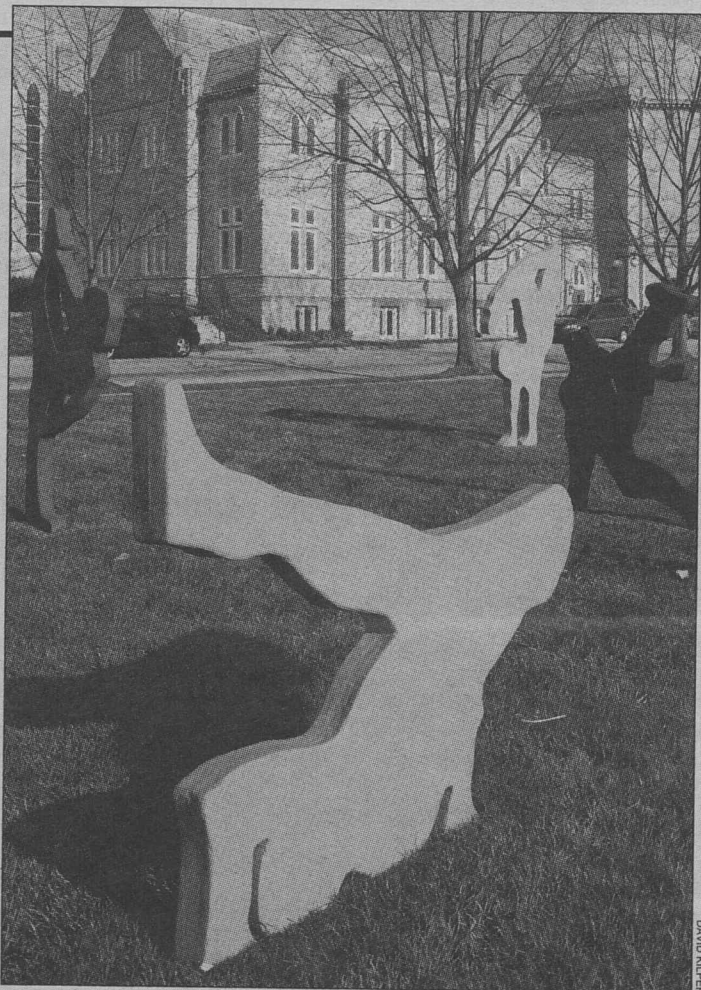
5 p.m. Becker Medical Library Lecture. Historia Medica Lecture. "Realdo Colombo and Michelangelo: Anatomy Lessons From Renaissance Rome." Caroline Hillard, dissertation fellow in art history & archaeology. Bernard Becker Medical Library, Lvl. 7, Kenton King Center. 362-2774.

7 p.m. School of Medicine Mini-Medical School II. Cost: \$125. (Continues weekly through May 15.) Eric P. Newman Education Center. To register: 362-6585.

Friday, April 18

9:15 a.m. Pediatric Grand Rounds. "Malnutrition is an Enteric Infectious Disease: Devastating, Long-Term Effects on Child Development." Richard Guerrant, prof. of international medicine, U. of Va. School of Medicine. Clopton Aud., 4950 Children's Place. 454-6006.

11 a.m. Energy, Environmental & Chemical Engineering Seminar Series. "Earth Day: Originated in the U.S., Lost in the U.S., Can it be Rediscovered?" Lilia Abron, pres. PEER Consultants, P.C. Lopata Hall, Rm. 101. 935-5548.



'The Rhythm Section' Artwork by junior Emily Silber is one of seven projects unveiled April 6 as part of the Sam Fox School of Design & Visual Arts' 22nd annual University City Sculpture Series. This program allows students to create and install public artworks throughout University City. Silber's entry, located at the intersection of Trinity and Washington avenues, reflects the creative energy of the nearby 560 Music Center and Center of Creative Arts. It consists of five colorful dancing figures, each poised in a "moment of balance, feet in the air, as if they have just hit the accented beat in a song with a burst of movement," Silber said. The series remains on view through May 11. For more information, call 505-8612.

1 p.m. East Asian Studies Roundtable Discussion. "Celebrating A Thousand Years of The Tale of Genji." Charo d'Etcheverry, assoc. prof. of East Asian languages & literatures, U. of Wis.-Madison, Michael Emmerich, lecturer in East Asian studies, Princeton U., Jamie Newhard, asst. prof. of Japanese, and Haruo Shirane, prof. of Japanese literature, Columbia U. Women's Bldg. Formal Lounge. 935-4448.

2 p.m. Association of Women Faculty Colloquium. "A Sustainable World, What it Means to Us." Peter Raven, prof. of botany. (Panel discussion and reception follows.) Whitaker Hall Aud. 935-6160.

4 p.m. East Asian Studies Lecture. Annual Stanley Spector Memorial Lecture on East Asian History and Civilization. "Envisioning the Tale of Genji: Canonization, Popularization and Visual Culture." Haruo Shirane, prof. of Japanese literature, Columbia U. (Reception follows.) Women's Bldg. Formal Lounge. 935-4448.

7:30 p.m. Saint Louis Astronomical Society Meeting. "Snowbird: The Phoenix Lander on Mars." Selby Cull, graduate fellow in earth sciences. McDonnell Hall, Rm. 162. 935-4614.

Saturday, April 19

10 a.m. Physics Saturday Science Lecture Series. "Are There More Than Four Dimensions?" Michael Ogilvie, prof. of physics. Crow Hall, Rm. 201. 935-6276.

Monday, April 21

11 a.m. Computer Science & Engineering Colloquium. "Harnessing Computing Power Through Communication." Natalie Jerger, fellow in electrical & computer engineering, U. of Wis.-Madison. Whitaker Hall, Rm. 218. 935-6160.

4 p.m. Breast Cancer Research Group Seminar Series. "Preliminary Results From the Physical Activity and Lymphedema Trial." Kathryn H. Schmitz, asst. prof. of biostatistics & epidemiology, U. of Pa. School of Medicine. Center for Advanced Medicine, Farrell Conference Room 2. 454-8981.

4 p.m. Immunology Research Seminar Series. "CXCL12 and Leukocyte Trafficking at the Blood-Brain Barrier." Robyn Klein, asst. prof. of medicine. Farrell Learning & Teaching Center, Connor Aud. 362-2763.

4 p.m. Physics Condensed Matter/Materials and Biological Physics Seminar. "Electronic Duality in the Pressure-Tuned Quantum Critical Metal CeRhIn5." Tuson Park, Los Alamos National Lab. (3:45 p.m. coffee.) Compton Hall, Rm. 241. 935-6276.

5:30 p.m. Cardiac Bioelectricity & Arrhythmia Center Seminar. "Gap Junction Remodeling in Ischemic Heart Disease: Molecular Mechanisms and Arrhythmogenesis." Andrew L. Wit, prof. of pharmacology, Columbia U. (5 p.m. reception.) Whitaker Hall, Rm. 218. 935-7887.

6:30 p.m. Architecture Lecture Series. Patricia Patkau, Patkau Architects, Vancouver, Canada. (6 p.m. reception, Givens Hall.) Steinberg Aud. 935-9300.

7 p.m. The Writing Program Spring Reading Series. Second-year students in the MFA program read from their poetry & fiction. (Also 7 p.m. April 23.) Duncker Hall, Rm. 201, Hurst Lounge. 935-7130.

Tuesday, April 22

Noon. Molecular Microbiology & Microbial Pathogenesis Seminar Series. "Death of the Tubercle Bacillus." William Jacobs, prof. of microbiology, immunology & molecular genetics, Albert Einstein College of Medicine. Cori Aud., 4565 McKinley Ave. 362-8873.

4 p.m. Economics Graduate Student Association Lecture. Douglass C. North Honorary Lecture Series. "On the Pragmatics of Persuasion: A Game Theoretic Approach." Ariel Rubinstein, prof. of economics, Tel Aviv U. Co-sponsored by the School of Law Center for Interdisciplinary Studies. (Reception follows.) Lab Sciences Bldg., Rm. 300. 935-7988.

6 p.m. Center for the Study of Ethics & Human Values Lecture. "Discussion on Ethical Concerns Around Prostitution." (Food provided.) Ridgely Hall, Holmes Lounge. To register: 935-9358.

6:15 p.m. Germanic Languages & Literatures Lecture. "Prekäres und Unverhofftes Glück Anmerkungen zur Klassischen Deutschen Literatur." David E. Wellbery, prof. of Germanic studies, U. of Chicago. Eads Hall, Rm. 116. 935-5106.

7 p.m. School of Medicine Mini-Medical School I. Cost: \$125. (Continues weekly through May 13.) Eric P. Newman Education Center. To register: 362-6585.

Wednesday, April 23

4 p.m. Biochemistry & Molecular Biophysics Seminar. "MAPKs — Nuclear Import and Transcriptional Regulation in Pancreatic Beta Cells." Melanie Cobb, prof. of pharmacology, The U. of Texas Southwestern Medical Center at Dallas. McDonnell Medical Sciences Bldg., Rm. 264. 362-4152.

4 p.m. Physics Colloquium. "The Optical Frequency Comb-A Really Versatile Tool." John L. Hall, adjunct prof. of physics, U. of Colo. (3:30 p.m. coffee, Compton Hall, Rm. 245.) Crow Hall, Rm. 204. 935-6276.

Thursday, April 24

Noon. Genetics Seminar. "Molecular Mechanisms Underlying Vertebrate Regeneration." Ely Tanaka, Max Planck Institute of Molecular Cell Biology and Genetics, Germany. Cori Aud., 4565 McKinley Ave. 362-2139.

4 p.m. Chemistry Seminar. "Spontaneously Formed Composite Nanostructures for Catalysis and Magnetism." Ram Seshadri, assoc. prof. of materials, U. of Calif., Santa Barbara. McMillen Lab., Rm. 311. 935-6530.

4 p.m. History Colloquium. "Trespassing in Gusuiland: The Burden and Opportunity of Tribe in Colonial Kenya." Tim Parsons,

'A French Baroque Ensemble performs Kingsbury Baroque Carnival'

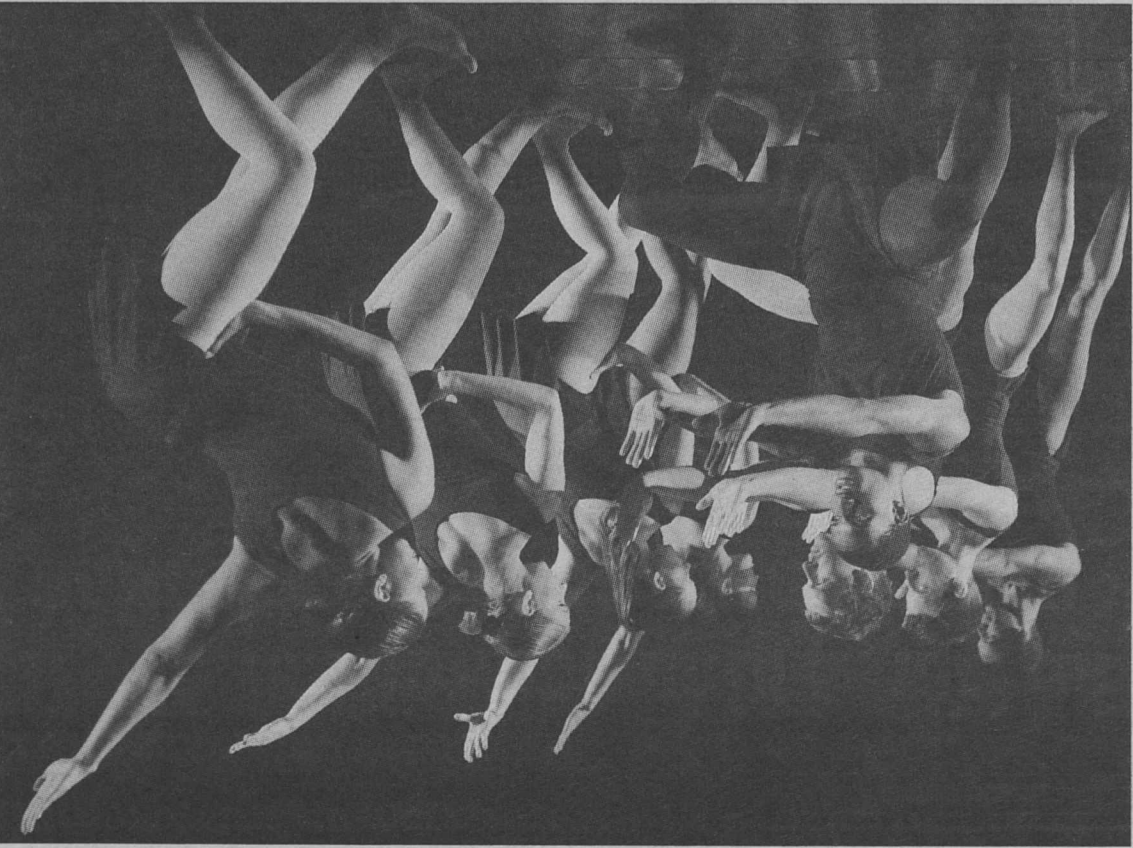
Return to the court of Louis XIV with New York dancers Carlos Fitante and Caroline Copeland, who will join the Kingsbury Ensemble — St. Louis premiere early-music group — for a special, one-night-only concert, "A French Baroque Carnival," at 8 p.m. Saturday, April 19, in Holmes Lounge, Ridgley Hall. Founded in 1999, the Kingsbury Ensemble specializes in Baroque, Classical and early Romantic music, employing historical instruments and performing in acoustically appropriate settings. Harpsichordist Maryse Carlin, instructor in the Department of Music in Arts & Sciences, directs the ensemble, which draws on a pool of early music specialists both regionally and nationwide.

The concert will feature Fitante and Copeland performing country chaconnes and minuets designed to transport viewers to the island of Cythere, in mythology the birthplace of Aphrodite, the Greek goddess of love. The program is set to music of Baroque composers Marc-Antoine Charpentier, Jean-Baptiste Lully, Jean-Joseph Mouret and Andre Campra.

Copeland is a member of the New York Baroque Company, directed by Catherine Turocy, where her featured roles included the title role in Handel's "Terpsichore," Euridice in Gluck's

Dance students take top honors at ACDFA Central Region conference

Students performed Cecili Slaughter's "Grid," last fall at a Washington University Dance Theatre concert. In June, they'll reprise the piece at the National College Dance Festival in New York.



By LIAM OTTEN

A group of 18 student dancers from the Performing Arts Department (PAD) in Arts & Sciences has taken top honors at the Central Region conference of the American College Dance Festival Association (ACDFA).

The conference was held March 4-9 at Friends University in Wichita, Kan. The students were recognized for their performance of "Grid," an original work choreographed by Cecili Slaughter, senior lecturer in dance. "Grid" was one of only eight pieces selected — from a field of 26 contenders — for a gala concert that concluded the conference.

In addition, "Grid" was one of only two works selected from the Central Region — which includes Arkansas, Illinois, Kansas, Missouri and Nebraska — for presentation at the ACDFA's biennial National College Dance Festival, which will take place June 4-6 at Barnard College in New York.

"It's been said that the ACDFA festivals are to college dance what the NCAA Tournament is to college basketball, but this competition focuses on creativity in choreography and performance," said Mary-Jean Cowell, Ph.D., associate professor of dance and coordinator of the PAD's Dance Program. "It is a great achievement for any dance program to present work at the National Festival," she said, noting that the University was last represented there in 1996.

Launched in 1981, the National Festival brings together hundreds of student and faculty dancers from across the United States. The event features a wide variety of master classes and lecture/demonstrations as well as three evening-length concerts showcasing the very best in contemporary college dance.

This year's performances will include a total of 30 works drawn from the 429 dances adjudicated at 10 regional conferences.

Slaughter, a 14-year veteran of the Dayton Contemporary Dance Company, joined the PAD in 1999 and also directs Washington University Dance Theatre. Launched in 1973, the ACDFA includes 347 member institutions representing all 50 states and the District of Columbia. The group is dedicated to raising standards of excellence in college and university dance programs; to providing opportunities for college dancers to have their works adjudicated and critiqued by established professionals; and to provide regional and national visibility for college-trained choreographers and performers.

Tickets for the National College Dance Festival go on sale Sunday, April 20.

For more information or online registration, visit regonline.com/national2008.

prof. of history. (Reception follows.)

Dunker Hall, Rm. 201, Hurst Lounge.

9:15 p.m. Earth & Planetary Sciences

Colloquium: Larry A. Haskin Memorial

Colloquium: "Laser-Induced Breakdown

Spectroscopy (LIBS): A New Technique

for Planetary Surface Analyses." Roger

Wiens, principal investigator Los Alamos

National Lab, Earth & Planetary Sciences

Bldg., Rm. 203, 935-5610.

4 p.m. Vision Science Seminar Series.

"The Unique Biological and Immuno-

logical Characteristics of the Ocular

Surface Epithelium: From the Clinician's

Scientists' Point of View." Shigeno

Kinoshita, prof. of ophthalmology, Kyoto

Prefecture U. of Medicine, Kyoto, Japan.

Maternity Bldg., Rm. 725, 362-3315

Friday, April 25

9:15 a.m. Pediatric Grand Rounds, "Bron-

chitis — Is There a State of the Art?"

Howard M. Cornell, prof. of pediatrics, U.

of Utah, Clifton Aud., 4950 Children's

Place, 454-6006.

11 a.m. Computer Science & Engineering

Colloquium: "Recent Progress in

Heuristic Search: A Case Study of the

4-Peg Towers of Hanoi Problem." Richard

E. Korf, prof. of computer science, UCLA.

Cupples II Hall, Rm. 217, 935-6160.

3 p.m. Genome Sequencing Center

National DNA Day Symposium, "The

Human Genome Sequence: A Foundation

for Biological Inquiry." Elaine Mardis,

assoc. prof. of genetics, (Poster session

1 p.m., reception follows, Seashell

Lobby), McDonnell Medical Sciences

Bldg., Ertanger Aud. and Cori Aud.,

4565 McKinley Ave., 286-1800.

Saturday, April 26

7:30 a.m.-12:25 p.m. Hospital Care CME

Course: "Care of the Hospitalized Patient:

Update 2008." Cost: \$95 for physicians,

\$75 for allied health professionals.

Queeny Tower Restaurant. To register:

362-6891.

10 a.m. Physics Saturday Science Lecture

Series: "Turbulence." Carl Bender, prof.

of physics, Crow Hall, Rm. 201,

935-6276.

Monday, April 28

3 p.m. Association of Women Faculty Col-

loquium: "Reproducing Gender in Aca-

demia: A Discussion About Inequalities."

Ann McGinley, prof. of law, U. of Nev.,

Las Vegas. Co-sponsored by the

Academic Women's Network. Whitaker

Hall, Rm. 218, 935-6160.

4 p.m. Immunology Research Seminar

Series: Paul E. Lacy Lecture, "Mechan-

isms of Malignant Progression." Robert

Weinberg, Whitehead Inst. for Biomedical

Research, Farrel Learning & Teaching

Center, Connor Aud., 362-2763.

Tuesday, April 29

9 a.m.-4:30 p.m. Center for the Appli-

cation of Information Technology

Executive & Management Forum.

Music

8 p.m. Concert. Jazz Band, Ridgley Hall, Holmes Lounge, 935-5566.

Thursday, April 17

7 p.m. Graduate Voice Recital, Courtney

Dey, Graham Chapel, 935-4841.

8 p.m. Jazz at Holmes, Tony Viviano, vocal-

ist, Music of Tony Bennett & Frank Sinatra,

Ridgley Hall, Holmes Lounge, 935-5566.

Friday, April 18

6 p.m. Kemper Presents Concert Series.

Final Veil, Kemper Art Museum, 935-4523.

Saturday, April 19

8 p.m. Concert, "A French Baroque Cam-

aval," Kingsbury Ensemble, Cost: \$15, \$10

for students, Ridgley Hall, Holmes Lounge,

862-2675.

Monday, April 28

8 p.m. Concert, Small Chamber

Ensembles, Graham Chapel, 935-4841.

Tuesday, April 29

8 p.m. Concert, Flute Choir, Graham

Chapel, 935-4841.

Monday, April 28

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Chapel, 935-4841.

Tuesday, April 29

8 p.m. Concert, Small Chamber

Ensembles, Graham Chapel, 935-4841.

Tuesday, April 29

8 p.m. Student Recital, Recital Hall,

560 Trinity Ave., Wednesday, April 23, 935-

4841

On Stage

8 p.m. Concert. Jazz Band, Ridgley Hall, Holmes Lounge, 935-5566.

Thursday, April 24

6:30 p.m. Jazz Recital, Dan Silver, saxo-

phone, Andrew Kline, piano, Ben

Wheeler, bass; Mark Daus, drums,

Recital Hall, 560 Trinity Ave., 935-4841.

Friday, April 18

8 p.m. Performing Arts Dept.

Presentation, "The Lion and the Jewel,"

(Also 8 p.m., April 19, 25 & 26; 2 p.m.,

April 25 & 26; 2 p.m., April 26.) Cost:

\$15, \$10 for children & WUSTL stu-

dents, St. Louis College of Pharmacy,

Wheipley Hall, 757-2280.

Thursday, April 24

8 p.m. School of Medicine Spring

Musical, "Bye Bye Birdie," (Also 8 p.m.,

April 25 & 26; 2 p.m., April 26.) Cost:

\$15, \$10 for children & WUSTL stu-

dents, St. Louis College of Pharmacy,

Wheipley Hall, 757-2280.

Friday, April 18

All Day, Women's Tennis, UAA Champion-

ship, (Continues All Day April 19 & 20.)

Tao Tennis Center, 935-4705.

Friday, April 18

8 p.m. Women's Tennis, UAA Champion-

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Tao Tennis Center, 935-4705.

Sports

7:30 p.m. Passover Seder, Hosted by

Chabad on Campus. (Also 8:30 p.m.,

April 20.) 7420 Forsyth Blvd., 721-2884.

Saturday, April 19

4 p.m. Softball vs. Greenville College.

WUSTL Field, 935-4705.

Tuesday, April 29

4 p.m. Men's Tennis vs. McKendree U.

Tao Tennis Center, 935-4705.

Wednesday, April 23

4 p.m. Softball vs. Mo. Baptist U., WUSTL

Field, 935-4705.

Tuesday, April 22

4 p.m. Men's Tennis vs. Lindenwood U.

Tao Tennis Center, 935-4705.

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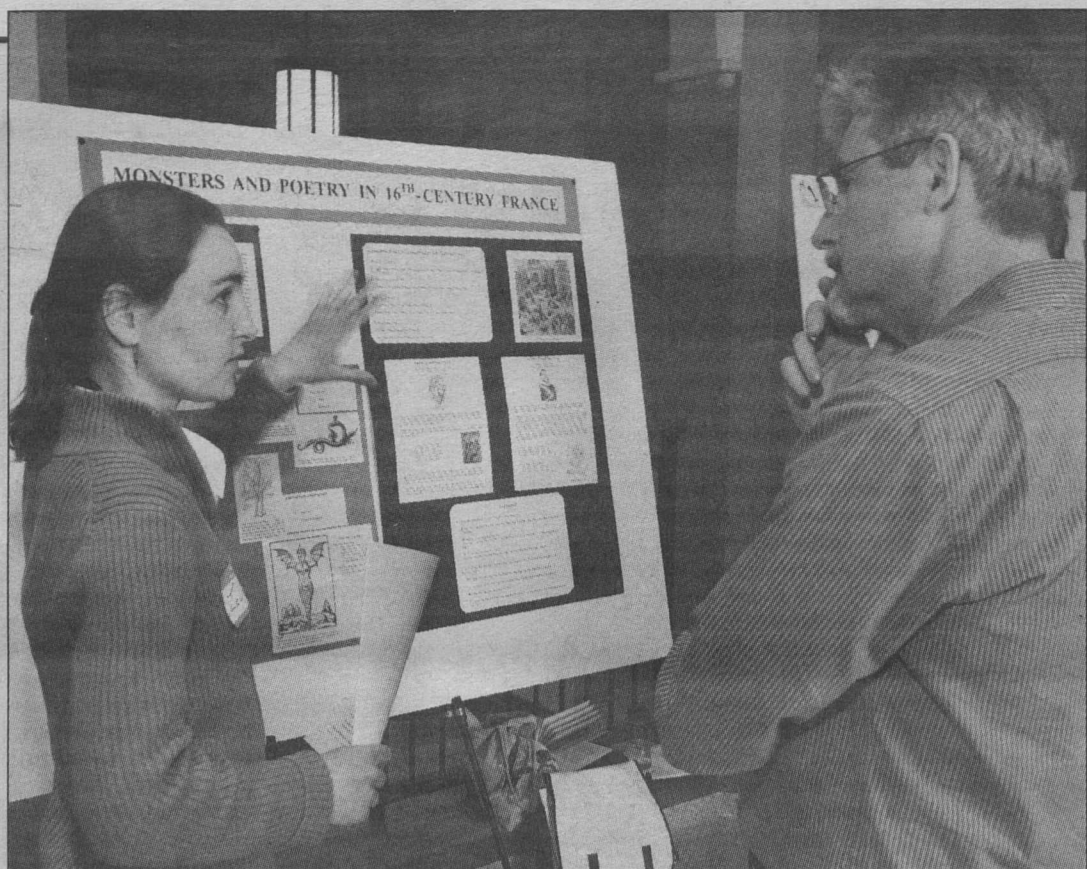
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Tao Tennis Center, 935-4705.



A monster project The Graduate Student Research Symposium, held April 5 in the Lab Sciences Building, enabled students to polish their communication skills in presenting their research to members of the WUSTL community. Doctoral student Laure Gonin-Hartman (left) explains her project, "Monsters and Poetry in 16th-Century France," which earned her second prize in the humanities, to judge Mark Henson, a doctoral student in the School of Engineering and Applied Science. "You'd be surprised to see how interested people can be in your subject when you find a way to reach out," Gonin-Hartman said. "The symposium is a great event because it also opens your eyes to other graduate students' research in a relaxed way."

Fair housing to be subject of School of Law's colloquium

Civil rights attorney Bradley Blower, J.D., will be the keynote speaker for the School of Law's colloquium on "America's Fair Housing and Immigration Challenges" 8:45 a.m.-5 p.m. Thursday, April 17, in the Bryan Cave Moot Courtroom of Anheuser-Busch Hall. The annual event is free and open to the public.

Blower, who has successfully represented scores of plaintiffs and public interest organizations in individual and class action discrimination cases for almost 20 years, will speak on "Using Fair Housing Laws to Combat Racial Segregation."

Co-sponsored by the law school's Clinical Education Program and the Metropolitan St. Louis Equal Housing Opportunity Council, the colloquium commemorates Fair Housing Month and the 40th anniversary of the Fair Housing Act. In addition, 2008 marks the 60th anniversary of *Shelley v. Kraemer* and the 40th anniversary of *Jones v. Mayer*, both landmark fair housing cases.

"We also are celebrating the 35th anniversary of the Clinical Education Program," said Karen Tokarz, J.D., the Charles Nagel Professor of Public Interest Law and Public Service.

Among the conference presenters is Sam Liberman, J.D., the plaintiff's lawyer who successfully argued *Jones v. Mayer* in the U.S. Supreme Court and the first director of the school's Clinical Education Program (1973-79).

Tokarz, who has served as the law school's clinical director since 1980, will step down at the end of this semester.

The colloquium also highlights the intersection of housing and immigration issues and features two of the country's leading immigration experts. Bryan Lonegan, J.D., visiting assistant clinical professor at Seton Hall School of Law, will speak on "The Land of Oz: Following the Deportation Path" at 11:15 a.m. Stephen Legomsky, J.D., the John S. Lehmann University Professor, will present the closing address on "Debating Immigration in the Twenty-First Century" at 3:30 p.m.

This colloquium is the law school's eighth annual Access to Equal Justice Colloquium, designed to foster University and community collaborations to improve access to justice in the region.

For more information, contact Tokarz at 935-6414 or visit law.wustl.edu/clinicaled/index.asp?id=6352.

Sports

Track teams place second at Quad Meet

The men's and women's track and field teams came in second place out of five teams at the Washington University Quad Meet April 11.

Junior Danielle Wadlington turned in the best individual performance of the meet, provisionally qualifying for the NCAA Outdoor Championships in the 100-meter hurdles. She placed second in the event with a time of 14.78.

The women's team had a total of four student-athletes earn first-place finishes at Friday's meet, while the men's squad grabbed wins in the pole vault (Scott Pettit — 4.70 meters) and the long jump (Ben Harmon — 6.68 meters). Both teams compete at the University Athletic Association championships April 19-20 in Chicago.

Softball sweeps doubleheader

Senior Kaylyn Eash threw a perfect game and went 3-for-5 with three home runs and seven RBIs as the No. 19 softball team swept



Danielle Wadlington hurdled her way into provisionally qualifying for the NCAA Outdoor Championships at the Quad Meet April 11.

a doubleheader against Westminster College April 9 at the softball field.

Freshman pitcher Claire Voris had 10 strikeouts in the 5-0 victory in Game 1, and then Eash threw a perfect game in the Bears' 13-0 win in five innings in Game 2, the seventh perfect game

in school history. Voris improved to 13-3 on the mound.

Men's tennis extends streak; Women win two

The No. 2 men's tennis team extended its winning streak to five matches with a pair of 9-0 victo-

ries over No. 25 Coe College and Rhodes College April 12.

WUSTL improved its overall record to 11-3 and to 4-0 at home this season — including winning 31 of its last 32 matches at home. Under seventh-year head coach Roger Follmer, the Bears are 57-6 (.905) when playing on home courts.

The No. 24 women's tennis team defeated both No. 29 Coe College and Rhodes College, April 12. Against Coe, the Bears entered singles play trailing, 2-1, but won four of the six singles matches. The Bears swept doubles play against Rhodes in the nightcap on Saturday and went on to earn a 3-3 split in singles competition.

Baseball drops twinbill at DePauw

The baseball team lost a pair of games at No. 14 DePauw University April 8. The Bears lost Game 1, 4-1, and fell in the second game, 7-2.

Junior Brian Williams held

DePauw scoreless through the first five innings of play in Game 1 but gave up four runs in the bottom of the sixth. WUSTL took at 1-0 lead in the top of the first inning of the second contest, but the Tigers scored a pair of runs in the second and third innings to go ahead, 4-1, and the Bears never regained the lead.

Edwards earns more coaching honors

Head men's basketball coach Mark Edwards has been named The UPS Store/NABC Division III Coach of the Year.

Edwards was presented the award at the AT&T/NABC Guardians of the Game awards show April 6 at the Lila Cockrell Theatre in San Antonio, Texas. Edwards, who was also honored as the D3hoops.com and Molten/DIII News National Coach of the Year, led Washington University to a school-record 25-6 overall mark and the school's first-ever NCAA Division III National Championship in 2008.

Kling

Memorial to be held later this spring

— from Page 1

president of both the Midwest Conference of Political Scientists and the Missouri Association for the United Nations and held membership in honorary fraternities that included Phi Beta Kappa, Alpha Kappa Delta and Pi Sigma Alpha. He is listed in "Who's Who in America."

The son of a shopkeeper who placed great emphasis on the value of education, Kling was born in Poland in 1919. When he was 2, his family moved to St. Louis.

He was a three-time graduate of WUSTL, where he earned bachelor's (1940), master's (1941) and doctoral (1949) degrees, all in political science. He conducted graduate work at the University of California,

Berkeley.

He served as a visiting professor at the University of the Americas in Mexico City and the University of Illinois at Urbana-Champaign and was a research associate at Princeton University's Center of International Studies.

Prior to earning a doctorate, Kling served in the U.S. Army from 1942-45.

In 1964, the Alumni Board of Governors awarded Kling a faculty citation for outstanding teaching.

His civic service included membership on the priorities committee of the City of Clayton, Mo., and on the board of directors of the Model Housing and Development Corp. of St. Louis. He was a former member of the St. Louis Jewish Light board of trustees.

Kling retired from WUSTL in May 1983 and subsequently was awarded an honorary degree at Commencement ceremonies.

The Merle Kling Professorship in Modern Letters was estab-

lished that same year in honor of his service to the University.

A year later, he agreed to serve as interim president of Mercy College in Dobbs Ferry, N.Y., while the college conducted a search for a president.

Kling was married to Ann Ruth Yasgur for more than 25 years. She preceded him in death in 1976. The couple had one son, Arnold.

Kling later married Sandra Schoenberg, who died in 1990.

He is survived by his son, Arnold, daughter-in-law, Jackie, three grandchildren, Rachel, Joanna and Naomi, all of Silver Spring, Md.; and his longtime companion, Dorothy Martin of St. Louis.

A private graveside ceremony took place in St. Louis April 9. Plans are underway for a memorial to be held at the University in late spring.

Memorial contributions may be made to Washington University in St. Louis, Campus Box 1082, One Brookings Drive, St. Louis, Mo., 63130.

Technology

— from Page 1

In this study, researchers loaded blood vessel-targeted nanoparticles with MRI contrast agents and were able to make detailed maps of tumor blood vessel growth using standard MRI equipment. The MRI scans showed that blood vessel formation tended to concentrate in limited areas on the surface at one side of tumors instead of dispersing uniformly, which was a surprise.

"Using the blood vessel-targeted nanoparticles, we get a far more complete view of tumor biology than we would get with any other technique," Winter said. "If you followed a tumor over a period of time with the nanoparticles and MRI scans, you would have a much better understanding of the tumor's reaction to treatment."

The researchers say nanoparticle technology will be useful for monitoring cancer treatment results both short and long term.

"It gives you a way of determining whether you should con-

tinue treatment, change the dose or even try a different treatment altogether," Lanza said.

Prior work has shown that the nanoparticles can be loaded with many kinds of drugs. The researchers used fumagillin nanoparticles in these experiments to demonstrate the feasibility of this approach, but they plan further investigations with other versions of the nanoparticles.

"What this report clearly demonstrates is that our nanoparticles can carry chemotherapeutic drugs specifically to tumors and have an effect at the tumor site," Lanza said. "Sometimes when I give presentations about our nanotechnology, people react as if it was science fiction or, at best, a technology of the distant future. But we've shown that the technology is ready for medical applications now."

The nanoparticles will be tested this year in preliminary human clinical trials to determine the optimal method for using them as imaging agents. These studies will lay essential groundwork for using the nanoparticles as therapeutic agents.

Notables

Three doctoral students named Bouchet Fellows

By CYNTHIA GEORGES

Three doctoral students were inducted into the Edward A. Bouchet Graduate Honor Society at the annual Bouchet Conference on Diversity in Graduate Education March 29 at Yale University.

The three 2008 Bouchet Fellows are Keona Ervin from the Department of History in Arts & Sciences, Henrika McCoy from the George Warren Brown School of Social Work and Tracy Nicholson from the Molecular Microbiology and Microbial Pathogenesis Program in the Division of Biology and Biomedical Sciences.

The Bouchet Society recognizes outstanding scholarly achievement and promotes diversity and excellence in doctoral education and the professoriate.

Its network of preeminent scholars exemplifies academic and personal excellence, character, service and advocacy for students who have been traditionally underrepresented in the academy.

Sheri Notaro, Ph.D., associate dean of the graduate school of Arts & Sciences, coordinates the WUSTL chapter of the Bouchet Society.

"It is a privilege to participate in the recognition of the talented Washington University students who are selected as members of the Bouchet Honor Society," Notaro said. "Their scholarship, activism and dedication to improving the lives of others is truly inspiring."

Ervin's research interests include African-American women's working-class resistance, the Civil Rights movement and the intersections of class, gender and sexuality in African-American social movements. Ervin is a Chancellor's Fellow and the recipient of the Organization of American Historians' Huggins-Quarles Award and the Mellon Mays University Fellows Travel and Research Grant.

McCoy specializes in child and adolescent mental health, juvenile delinquency, African-Americans and social work education. Also a Chancellor's Fellow, she will begin her academic career as an assistant professor at Boston College this fall.

Nicholson studies the role of the Gram-negative chaperone protein *SurA* and its substrates in the pathogenesis of urinary tract infection caused by uropathogenic *Escherichia coli*. She is a member of the Association of Black Biomedical Graduate Students, the Student Advisory Committee and the Biomedical Research Apprenticeship Program.

She promotes science outreach through work with the Young Scientist Program and the Junior Scientist Institute. At the conference, the Bouchet Fellows presented papers, networked with other graduate students and discussed job leads with deans and administrators from other universities.

The Bouchet Society was established in 2005 by Yale and Howard universities to recognize the life and academic contributions of Edward Alexander Bouchet, the first African-American to earn a doctorate from an American university. He earned a doctorate in physics from Yale in 1876.

WUSTL was invited to become a Bouchet chapter member in 2007, joining Georgetown and Cornell universities and the universities of Michigan and Washington.

Wasserman Davis, 100 Projects for Peace funds 100 American college students who create and implement their ideas through projects that will build world peace throughout the 21st century.

Senior Claire A. Wolff, a psychology major in Arts & Sciences with a minor in photography, received the Kaldi's Social Change Grant. The \$5,000 award will help Wolff, a student in the George Warren Brown School of Social Work's 3-2 program, establish a coffee shop — the Urban Arts Cafe — designed to foster community building in the urban neighborhood Old North St. Louis. In addition to serving coffee, the cafe will host art exhibits, musical performers, book clubs, neighborhood potluck dinners and tutoring programs.

The Kaldi's grant was established in 2005 to enable students to develop sustainable community projects in the St. Louis region. Awarded to one undergraduate student each year, the grant supports full-time work to implement a community project over the summer as well as part-time work to sustain the project over the following academic year.

The Community Service Office provides mentorship and support to prospective grant applicants in the development of their project proposals and to grant recipients in the implementation and wrap-up of their projects.

For more information about the grants, go to community service.wustl.edu/grants.



Public service professor Chancellor Mark S. Wrighton presents Karen Tokarz, J.D., with a medal signifying her installation as the Charles Nagel Professor of Public Interest Law and Public Service April 1 in the Bryan Cave Moot Courtroom of Anheuser-Busch Hall. Tokarz is the inaugural holder of this new public service professorship. At the end of this academic year, Tokarz will step down as executive director of the School of Law's Clinical Education Program and will redirect her energies to further developing the school's Alternative Dispute Resolution Program. She also will play a key leadership role in fostering the school's Africa Public Service Initiative. Tokarz, who also is a professor in the African & African American Studies Program in Arts & Sciences, has worked in Africa for several years.

For the Record

Of note

Ramesh K. Agarwal, Ph.D., the William Palm Professor of Mechanical, Aerospace and Structural Engineering, has been selected to receive the American Institute of Aeronautics and Astronautics' 2008 Aerodynamics Award. The award is presented for meritorious achievement in the field of applied aerodynamics concepts and methods. ...

Roger D. Chamberlain, Ph.D., associate professor of computer science and engineering, **Mark A. Franklin**, Ph.D., the Hugo F. and Ina Champ Urbauer Professor of Engineering, and **Ron K. Cytron**, Ph.D., professor of computer science and engineering, have received a four-year, \$305,000 grant from the National Science Foundation for research titled "CRI: CRD — Enabling Research on Architecturally Diverse Computers." ...

Jonathan M. Chase, Ph.D., associate professor of biology in Arts & Sciences and director of the Tyson Research Center, and **Peter H. Raven**, Ph.D., the George Englemann Professor of Botany in Arts & Sciences, have received a five-year, \$1,596,017 grant from the National Science Foundation for research titled "Making Natural Connections: An Authentic Field Research Collaboration." ...

Da-Ren Chen, Ph.D., associate professor of energy, environmental and chemical engineering, received a four-year grant from the Centers for Disease Control and Prevention/National Institute for Occupational Safety and Health for research titled "NORA Project: Design, Construction and Testing of Miniature Mobility Classifier Component of Personal Aerosol Sampler." The monetary award of the grant will be at least \$100,000. ...

Tom Ellenberger, Ph.D., the Raymond H. Wittcoff Professor and head of the Department of Biochemistry and Molecular Biophysics, has received a four-year, \$1,173,056 grant from the National Institutes of Health for research titled "Structural Studies of Site-Specific Recombination." ...

Haluk Ergin, Ph.D., associate professor of economics in Arts &

Sciences, has been named an Alfred P. Sloan Research Fellow by the Alfred P. Sloan Foundation. ...

Jeff Gidday, Ph.D., associate professor of neurosurgery, of ophthalmology and visual sciences and of cell biology and physiology, has received a four-year, \$1,000,000 grant from the National Institutes of Health for research titled "Endogenous Neuroprotection in Glaucoma." ...

Jason Kamilar, Ph.D., post-doctoral research associate in anthropology in Arts & Sciences, has received a two-year, \$18,500 grant from the Leakey Foundation for research titled "Evolutionary Ecology of Primate Pelage Color Variation." ...

Marc S. Levin, M.D., associate professor of medicine in the Divisions of Veteran Affairs Medicine and Gastroenterology, was inducted as a fellow in the American Gastroenterological Association (AGA) in February. The fellowship is an honor bestowed by the AGA for superior professional achievement in practice and/or research in the field of gastroenterology. ...

Richard Mabbs, Ph.D., assistant professor of chemistry in Arts & Sciences, has received a renewable five-year grant from the National Science Foundation for research titled "CAREER: Femtosecond Time Resolution in Electron Collision Initiated Reactions." The cumulative total of the award is \$607,120. ...

Kathleen B. McDermott, Ph.D., associate professor of psychology in Arts & Sciences, has received a two-year, \$1,000,000 grant from NARSAD for research titled "Neural Substrates of Episodic Future Thought and Remembering in Schizophrenia." ...

Marc R. Moon, M.D., professor of surgery (cardiothoracic surgery), has received a four-year, \$1,520,000 grant from the National Institutes of Health for research titled "Right Heart Function in Pulmonary Hypertension with Beta-Agonist and Atrial Shunt." ...

Louis J. Muglia, M.D., Ph.D., the Alumni Endowed Professor of Pediatrics and professor of obstetrics and gynecology and of developmental biology, received a

\$621,642 grant from the March of Dimes Foundation under the Prematurity Research Initiatives grant program to identify genetic variations that play key roles in the timing of spontaneous term and preterm delivery. His work was also funded by the March of Dimes Foundation in 2005. ...

Nancy Tye Murray, Ph.D., research professor of otolaryngology, has received a three-year, \$872,000 grant from the National Institutes of Health's National Institute of Deafness and Communication Disorders for research titled "Auditory Training and Talker Variability." ...

Lina Nayak, a second-year medical student, was selected as the national student representative for the American Association of Medical Colleges' Women in Medicine Coordinating Committee. ...

Alan R. Templeton, Ph.D., the Charles Rebstock Professor of Biology in Arts & Sciences, has received a one-year, \$50,000 grant from BCHB Inc. for research titled "Convergence of Population Genetics and Computational Technologies in the Identification of Genomic Susceptibility Loci and in Predictive Genomics in Populations with Well Defined Genetic Architecture."

Speaking of

David A. Peters, Ph.D., the McDonnell Douglas Professor of Engineering in the Department of Mechanical, Aerospace and Structural Engineering, has been awarded the Alexander A. Nikolsky Honorary Lectureship by the American Helicopter Society (AHS) International, the world's premier professional vertical flight society. The lecture is scheduled for 4 p.m. April 29 during the AHS 64th Annual Forum, which will be held at the Palais des congrès in Montreal. The lectureship is awarded to "an individual who reflects the highest ideals, goals and achievements in the field of helicopter and V/STOL (vertical, short takeoff and landing) aircraft engineering and development."

Washington People

In his youth, Richard K. Wilson, Ph.D., had two heroes: He lived with one, and the other had a Nobel Prize. Wilson's father was a high-school biology teacher who inspired in his son a passion for science. And James Watson, Ph.D., co-discoverer of the double-helical structure of DNA, inspired in Wilson a decades-long fascination with the genetic code that would shape his career.

Today, as director of the Genome Sequencing Center (GSC), Wilson stands at the forefront of the genetics revolution — one that promises to transform the way medicine is practiced and patients are treated.

The GSC played a leading role in the Human Genome Project, an international effort to assemble in precise order the 3 billion letters that make up the genetic code — an alphabet soup of As, Cs, Gs and Ts. Now Wilson and his colleagues are beginning to see the payoff. They're getting an intimate view of the complex genetics that underlie diseases such as cancer. And they're delving deep into the genome to determine how common variations can predispose individuals to diseases.

By CAROLINE ARBANAS



Richard K. Wilson, Ph.D. (left), and George Weinstock, Ph.D., professor of genetics, in the Genome Sequencing Center (GSC). "Rick has two special gifts: patience and diplomacy," says GSC Co-Director Elaine Mardis, Ph.D. "He has a unique ability to bring people together and navigate rocky pathways and clashes of opinion and egos. He also has a great grasp of the big picture and a gift for getting others to recognize what it is and focus on it."

Standing at the forefront

Wilson leads quest to reveal the genome's secrets

"Ultimately, we want to know how a person's genes contribute to the diseases they get," Wilson says. "The answers will inevitably lead to more accurate, early diagnosis of disease and personalized treatments based on a patient's genetic makeup."

Wilson came to Washington University in 1990 after a post-doctoral fellowship at the California Institute of Technology and was named the GSC's director in 2002. He is highly regarded by his colleagues both for his depth of knowledge and for his vision.

"Rick is a consummate expert in genome mapping, sequencing and technology, and he has shown increasing leadership in the application of these approaches to medical problems," says Francis Collins, M.D., Ph.D., director of the National Human Genome Research Institute (NHGRI). "Rick is the ultimate team player — he is unflappable, unselfish, disciplined and hard-working. More than any other sequencing center director,

Rick is willing to take on important but unromantic tasks for the good of the scientific community."

With Wilson at the helm, the GSC has been awarded more than one-third of a billion dollars in federal research grants. With that funding, he has led the GSC into a new era in which genome sequencing occurs at a dizzying pace. The \$3 billion Human Genome Project took 13 years to complete. Today, GSC scientists can sequence a human genome in as little as four days at a fraction of the cost, vastly increasing the prospect for using genomic information as a basis for making treatment decisions.

Carving out a niche

Wilson's foray into science began as a young boy. Once a year, he helped his father make batches of homemade agar on the kitchen stove and sterilize glass petri dishes in his mother's pressure cooker, all so Mr. Wilson's high-school students could have a hands-on microbiology lesson.

"He showed me how to pour the plates and streak bacteria onto the agar, and we would watch it grow," Wilson says.

That experience paid off in fifth grade. Wilson used his newly honed microbiology skills to win first place in the school science fair. His project: determining whether two algae-laden lakes in his hometown of Kent, Ohio, were polluted, as many residents believed. He found the lakes, while teeming with microscopic plant life, had normal bacteria levels.

Later, as a college student majoring in microbiology, Wilson took a course in microbial genetics, with the required text being Watson's "Molecular Biology of the Gene."

"I was fascinated by this relatively simple molecule that stores and transmits information that is fundamental to life. I knew that's what I wanted to work on," Wilson says.

Throughout his career, leaders in the field have sought out Wilson for his expertise. In the early 1980s, his proficiency in microbiology caught the eye of Bruce Roe, Ph.D., one of the first U.S. scientists to sequence DNA. Roe had just learned the technique from Nobelist Fred Sanger, who developed the method at the University of Cambridge. Roe offered Wilson a spot in the doctoral program at the University of Oklahoma and the opportunity to work with DNA firsthand.

"It was really amazing because there were a few other labs that were just picking up the technique, but we were one of the only labs in the country that could do it well," Wilson says.

Several years later, CalTech molecular immunologist Leroy Hood, Ph.D., met with Wilson and offered him a postdoctoral fellowship if he would lend his expertise in DNA sequencing to help develop a way to automate the process. The current process was laborious and exceedingly

slow. Wilson jumped at the chance, and Hood's team pioneered the DNA sequencer, the machine that later made large-scale sequencing possible.

While Wilson was at CalTech, a group of prominent scientists, including Watson, were making plans to sequence the human genome, a project considered highly controversial for its high cost and questionable merits. Watson, then head of the newly created NHGRI, came to CalTech to discuss the project with Wilson, Hood and others.

"I had the opportunity to sit in a room with Jim and two other guys and talk about what it was going to take to develop the technology and the infrastructure for sequencing the human genome," Wilson says of his first of many meetings with Watson over the years. "That experience was absolutely amazing."

Looking to the future

Wilson was lured to Washington University to help sequence the genome of the *C. elegans* roundworm, a pilot project for the human genome. He also made major contributions to the human genome sequencing effort and readily recalls the jubilation of finishing that project. "You can't imagine the euphoria," Wilson says. "It was a huge accomplishment by many, many scientists."

Since then, the GSC has continued to refine the human sequence and has spearheaded projects to sequence the genomes of the mouse, platypus, chimpanzee, chicken and other organisms. These efforts have allowed scientists to get a clearer picture of the evolutionary tree and begin to find genes that distinguish humans from other animals.

The GSC recently began work on a project to find the myriad genetic alterations in cancer. The research initially focuses on ovarian and lung cancer and glioblastoma, an aggressive brain tumor. The GSC plays a leading role in an international collaboration to sequence the genomes of 1,000 individuals. The project aims to create the most detailed picture to date of human genetic variation and likely will identify many genetic factors underlying common diseases.

Wilson has maintained the GSC's reputation as a DNA powerhouse by focusing on sequence quality and new technology and by assembling a top-notch staff. The GSC, the Broad Institute in Massachusetts and Baylor Univer-

sity in Texas are the nation's main academic sequencing centers. While the centers routinely collaborate on projects, the competition among them for funding and recognition is fierce.

"Rick has two special gifts: patience and diplomacy," says GSC Co-Director Elaine Mardis, Ph.D. "He has a unique ability to bring people together and navigate rocky pathways and clashes of opinion and egos. He also has a great grasp of the big picture and a gift for getting others to recognize what it is and focus on it."

As the GSC adds next-generation DNA sequencers to its array of technology, the center increases the amount of data it generates by several thousand times each day. A new 16,000-foot data center is being constructed to store all that information and help the GSC meet its massive computing needs.

Faster, more efficient DNA sequencing also is making it possible for the GSC to provide its expertise to University faculty for their own sequencing projects. The GSC recently became the first to sequence the genome of a patient with acute myelogenous leukemia, a project with Tim Ley, M.D., the Alan A. and Edith L. Wolff Professor of Medicine, who studies this type of cancer.

"I think of Rick as a bold adventurer," Ley says. "To do 'discovery genomics,' you cannot be daunted by the scope of the projects or the degree of difficulty or the technology requirements. You just have to decide that something is important and worth doing and then figure out how to do it the right way. Rick has an amazing ability to do this."



Richard K. Wilson (left) with Grandmaster Y.S. Rho, Wilson's Tae Kwan Do instructor. Wilson recently tested for and received his fifth-degree black belt.

Richard K. Wilson

Position: Director of the Genome Sequencing Center and professor of genetics and of molecular microbiology

Education: Bachelor of arts, microbiology, Miami University; doctorate, chemistry, University of Oklahoma

Family: Wife, Allison, a high-school tennis coach; twin sons, Taylor and Evan, 18

Sport: Tae Kwan Do. Wilson holds a fifth-degree black belt.

Hobby: Sports cars. He can be seen driving his convertible 1973 Fiat Spider on warm, sunny days.