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WASHINGTON University in St. Louis

Nov. 15, 2007

By CAROLINE ARRASAN

WUSTL researchers to install
seismographs in Antarctica

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Part of the team heading to Antarctica checks out the seismograph (center) and other equipment they will be taking with them. From left: graduate student Moira Pyle, Douglas Wiens, Ph.D., professor of earth and planetary sciences in Arts & Sciences, and head coach Joe Clarke’s season No. 1 teams in NCAA Div. III.
Markers, called single nucleotide polymorphisms (SNPs). This high-resolution view, coupled together. The regions of genomic cancer, we hope to learn changes involved in lung adenocarcinoma, we hope to learn more about cancer. Wilson said. This research will be helpful to develop better strategies for identifying vulnerable subclasses across all types of cancer."
Children's asthma may be prevented by blocking effects of viral infections

BY GWIN ERICKSON

Babies who get severe respiratory viral infections may be protected from asthma as they get older, a new study from Washington University in St. Louis suggests.

Scientists at the School of Medicine and technology firm Macrogenics Inc., blocked a viral immune response. That mechanism could potentially prevent many cases of childhood asthma.

“A severe respiratory infection in infancy greatly increases the risk of developing asthma,” said the study’s lead author, Mitchell Grayson, M.D., assistant professor of medicine in the Division of Allergy and Immunology. “Less than one in 30 people who have had a severe respiratory infection as a baby will have asthma, but of those who do get these infections, five in 100 go on to have asthma.”

Grayson and colleagues published their research in the Oct. 29, 2007, issue of the Journal of Experimental Medicine. They found that mice that developed asthma-like symptoms after a severe respiratory viral infection had an unusual immune reaction.

During the infection, the mice produced antibodies and immune cells that are normally produced during an allergic reaction to a respiratory viral infection. Those cells were then made into a response in infection.

That started a chain reaction that led to asthma. The researchers propose that a similar chain occurs in some people who suffer severe respiratory viral infections.

“We think genetically predisposed individuals will tend to have this kind of immune reaction to a severe viral infection early in life and those people, an allergic-type reaction to the viral infection,” Grayson said.

The researchers discovered that certain immune cells in the mouse lungs reacted to severe respiratory viral infections by releasing cytokines that instigated an inflammatory response. The cytokines turned many lung airway cells to transform into microorganisms, which can cause the obstruction of lung passages and shortness of breath characteristic of asthma.

The researchers found that interfering with this process by altering the immune cells or removing the inflammatory cytokines prevented progression to the lung disease that is characteristic of asthma.

The findings promise a new approach to asthma prevention, Grayson said.

“This offers a different way of thinking about what happens in the development of asthma,” said Angela Sharkey, M.D., associate professor of pediatrics and a pediatric cardiologist at St. Louis Children’s Hospital.

The study was published in the Journal of Cardiovascular Syndrome.

Children who have obesity in the United States is an epidemic — nationwide, 19 percent of children ages 6-11 and 17 percent of those ages 12-19 are overweight, according to the Centers for Disease Prevention and Control (CDC).

Those who are overweight during childhood also have an increased risk of developing adult diabetes and are at greater risk for complications such as diabetes, high blood pressure and heart disease because obesity increases total blood volume, which leads to extra stress on the heart. Sharkey and Steven M. Leech, M.D., a former fellow at the School of Medicine now at the University of Texas Health Science Center at Houston, analyzed data from 168 children ages 10-18 who had been referred to them for cardiac ultrasound with symptoms including heart murmur, risk for sudden death, pain, acid reflux or high blood cholesterol.

Based on CDC guidelines for body mass index for age (BMI), 33 patients were found to have a BMI as obese, or the 95th percentile or above for their age. 20 had a BMI that classified them as at risk for obesity, or between the 85th and 94th percentile. 15 were considered normal, or below the 85th percentile.

To analyze the hearts of the patients, Sharkey and Leech used a new tissue imaging technique called vector velocity imaging, which tracks the movement of the heart’s muscular wall. Any changes in the rate of motion of heart muscle were averaged with in each group and compared with the normal rate of motion,

“In the patients who are obese, the rate of motion of heart muscle changed,” Sharkey said. “As a child’s BMI increases, we see alterations in both the relaxation and contraction phase of the heart.” Many of these changes that have been seen in adults were assumed to be from long-standing obesity but may be that these changes start much earlier in life than we thought.”

As vector velocity imaging becomes more broadly available, Sharkey said, it could potentially help pediatric cardiologists follow these children more closely over time to see if changes in the heart progress.

“We may be able to determine whether we could intervene in the process, such as focusing on the Mediterranean diet, which is regulated in accordance with the National Academy of Sciences,” Sharkey said. "We also have been looking at other nutritional interventions and the heart’s response."
WUSTL exhibitions open Modern Graphic History Library

BY LAM OTTEN

The Sam Fox School of Design & Visual Arts and the Women’s Museum has announced the opening of two exhibitions that will be on view until Dec. 31, 1998.

The Modern Graphic History Library is dedicated to acquiring and preserving distinguished works of modern illustration and printmaking. The graphic artists creating the work included in the exhibitions were also promoting sustained academic collections of these materials. The collection includes artists’ working materials, sketchbooks, and finished artworks — from machines and Washington University alumnae such as Lavinia Carmon Colangelo, a professor and director of genetics, U. of Colo.

Exhibits

"Beauty and the Blonde: An Exploration of American Art and Popular Culture," curated by Christina Whittaker, is on view in the Hours in graphic media, past and present, and the role of supporting, promoting and preserving them.

"Ephemeral Beauty: Al Parker and the American Woman’s Magazine, 1940-1960." Parker was a Washington University alumnus, and was the most celebrated illustrator of his day. The painting was published in the November 1946 issue of the Ladies’ Home Journal, accompanying a piece by Marie Froid, a (from the collection of Kit and Donna Parker, the artist’s son and daughter-in-law).

The catalog for establishing the Modern Graphic History Library was a substantial commitment in 1999, of artwork and studio materials from the family of Washington University alumnus Al Parker and Washington University alumnae. The Parker library opened Friday, Nov. 16.

The Modern Graphic History Library also documents the weight of existing holdings, including strong collections of children’s literature and periodical illustration, 19th- and 20th-century political materials. The collection includes artists’ working materials, sketchbooks, and finished artworks — from machines and Washington University alumnae such as Lavinia Carmon Colangelo, a professor and director of genetics, U. of Colo.

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Seth Carlin rehearses in the newly renovated 560 Music Center.

The Center for the Humanities and Program in Film & Media Studies, both in Arts & Sciences, host the Fourth Annual Children’s Film Symposium Thursday and Saturday, Nov. 15 and 17. Presented in conjunction with Cinema St. Louis, the event will feature a keynote address by Neal Gabler, author of “Walt Disney: The Triumph of the American Imagination” (2006) and a Q&A with Marlon Burrell, writer and director of the film “48 Angels” (2004). Screenings will include a series of Disney shorts and three feature films, including “48 Angels,” as well as “Of Love and Eggs” (2005) as “Macbeth” (1955).

The festival will open at 7 p.m. Thursday, Nov. 15, in the auditorium of the Saint Louis Art Museum with the screening by Gabler, cultural historian and film critic as well as a senior fellow at the University of California, Davis, among others.

The Department of Music in Arts & Sciences will present two concerts in its series of 560 Music Center events. Noted pianist Seth Carlin, professor of music, will present a solo piano recital at 8 p.m. Saturday, Nov. 17. The program will feature “Preludes, Book I” (complete) by Debussy, and “Sonata, Op. 17” by Alban Berg and “Sonata for Piano and Violin” by Ludwig van Beethoven.

Carlin will perform with orchestras around the world and with conductors such as Nicholas McGegan, Leonard Slatkin and Christian Zacharias. He has appeared in recital at major international festivals and with Pinchas Zuckerman, Alexander Bilinov and Malcolm Bilson, among others.

In 1991-92, Carlin performed the complete Schubert piano sonatas in New York — concerts that were broad-cast on National Public Radio. More recently he appeared as soloist with the Saint Louis Symphony Orchestra in Beethoven’s “Triple Concerto” as well as with San Francisco’s Philharmonia Baroque, the period-instrument orchestra.

The second concert takes place at 3 p.m. Sunday, Nov. 18, with the WUSTL Symphony Orchestra. The program, which includes the “Rosamunde Overture” by Franz Schubert, “Variations Symphoniques for Piano and Orchestra” by César Franck and “Sinfonia da Requiem, Op. 20” by Benjamin Britten. The Symphony Orchestra comprises more than 70 members, including about 50 string players. Members include both undergraduate and graduate students.

Buzek, an assistant professor of art history at the Kansas City Art Institute, is the author of “Pin-Up Grrrl: Feminism, Sexuality, Popular Culture” (2006). Beginning with the genre’s origins in mid-19th century carte de visite postcards to burlesque performers, “Pin-Up Grrrls” explores the development and evolution of the pin-up over the last 150 years, as well as its intimate connections with the history of femininity, beauty, collectivism and resistance, all of which are deeply into her subject, but she tempts her treatise with healthy doses of direct, frank, and wry commentary, noted Publisher’s Weekly.

For more information, call 935-4523 or visit kuchler@wustl.edu.
Bioenergy conversion pathway subject of Kranz's NIH grants

By Tony Fitzpatrick

Robert G. Kranz, Ph.D., professor of Biology at Washington University, has been awarded two grants from the National Institute of Health (NIH) to study pathways in bioenergy conversion. The first, for $1,203,250, is a long-term NIH Research Renewal that began Aug. 15. The project is titled "Cytochrome C Bioenergetics." The renewal award (NIH R01) is a new award that NIH has funded Kranz continuously for 22 years.

The U.S. Department of Agriculture, U.S. Department of Energy, National Science Foundation and Monsanto Co. also have supported the Kranz group during the past 20 years. "This funding is a large commitment, with the home cofactor covalently attached to it. Cytochrome C is crucial for energy production in many bacteria and higher organisms, including humans, and it is one of the key molecules involved in the cellular components that convert light into electricity," Kranz said.

The model that is being explored is called the biogenesis pathway. "There are different pathways in the cell that organisms use to assemble a c-type cytochrome," Kranz said. "In a previous review Kranz and colleagues termed these systems I or II and III."

Kranz discovered the most complex one, called system I, and also began publishing the results in 1999. These results detailed many of the processes required for the system I pathway. Remaining members of the Kranz group include Cindy Richmond-Fogal, Ph.D., research scientist in biology in Arts & Sciences, and graduate research assistant Elaine Frasew, who have engineered two of the three biogenesis pathways in E.coli.

Now they will engineer the third, which is naturally present in humans. Additionally the function and mechanisms behind each protein in the pathway will be studied.

The second NIH grant, an R01 award of $190,000, is to further develop a screen to find inhibitors of the pathways. Because bacteria have either system I or II but humans do not, inhibitors could be potential antimicrobial agents against certain infectious diseases.

Once the screens are developed, the Kranz group will collaborate with Lucile White, Ph.D., and Kirsten Weinberg, Ph.D., at the Southern Research Institute in Birmingham, Ala., which is a center for bioenergy conversion and photovoltaics research.

Importantly, the grant awarded investigates the NTH Molecular Libraries Screening Center (NMLSC) and its expertise in photovoltaics and biotechnology. The NIH "library" of chemicals is composed of 100,000 different small molecules.

Kranz always has taught undergraduates at Washington University. He taught microbiology this semester for 14 years and freshmen biology for four years. Kranz currently is teaching a four-credit laboratory course in bioenergetics every four years for eight hours on Friday and Saturday and one hour on Wednesday.

Two of the projects for the junior-level class are related to bioenergy conversion, one exploring the metabolic cycling and knocking out genes for many cytochromes. These cytochromes are potentially involved in bioenergy conversion.

Thermal energy also is linked to the biogenesis pathway. They will explore the collaboration between the Kranz group and the NMLSC for four years. The NMLSC is composed of 100,000 different small molecules.

Kranz has five undergraduates working in his research laboratories, including one advanced student who is designing, implement- ing and analyzing experiments called Polen. "Their data complements ours in understanding the loss of energy upon up- and-over the sun," Wiens said.

Weiss said that by the time they graduate, the undergradu- ate students are as good as or better advanced graduate stu- dents at designing, implement- ing and analyzing experiments.
Introducing new faculty members

The following are among the new faculty members at the University. Others will be introduced periodically in this section.

Ian G. Dobson, Ph.D., joins the Department of Psychology in Arts & Sciences as associate professor. He earned a doctorate at the University of California, Irvine. His most recent work from Sawyer, Ph.D., one of the country's leading scientific experts on creativity, argues that collaboration is essential in helping us harness the power of our own creative genius.

"Group Genius: The Creative Power of Collaboration" is the most recent work from Sawyer, an associate professor of education and of psychology, both in Arts & Sciences. "I wrote 'Group Genius' because there's a lot of talk these days about innovation coming out of the laboratory, but this is just a general public word," Sawyer said. "This research is about being more creative in your personal life and also on how to make organizations more innovative, something businesses today are very interested in."

Sawyer, who routinely speaks to business leaders throughout the country on creativity and innovation, said the book is aimed not only at business managers but also at "just about everyone who is interested in being more creative in all facets of their life." He explained that "Group Genius" features two main messages: "First is that the psychology of creativity shows creativity to be based in everyday brain processes that all of us use all the time," Sawyer said. "Everybody has the potential for exceptional creativity. It's not the case that creative people are unique geniuses who are different from everyone else.

The second message is that the power of collaboration in becoming more creative. That's why they've titled it as 'Group Genius,'" Sawyer said. "And the author of 'Explaining Creativity: The Science of Human Innovation.' In my research, I've found that people are always more creative in a collaborative group of a certain kind." Sawyer said. "They are more creative when they work in organizations that bring every-
Barbara Feiner keeps WUSTL's fiscal matters in order

Feiner's list of responsibilities is long, and her departments comprise approximately 250 people.

"Our employees are incredibly hard-working," Feiner says, "and we have an outstanding management. They are all experts in their individual areas and clearly know what they do. It is so enjoyable to work with all of them." One area in which Feiner is involved is perhaps highest on the list of issues most important to undergraduate students: tuition. Each year, Feiner meets with representatives from the University Council, the University Finance Committee and the Executive Committee of the Board of Trustees to set the tuition for the following year.

"There are a few different things to determine what tuition will be," Feiner says. "We look at what our estimated expenses, including financial aid, will be and what other revenue sources, such as gifts and endowment spending, we will have to support tuition in the budgets of the schools with undergraduate programs."

"One of the best things about working at this University is how collaborative the planning process is," Feiner says. "There are too many groups that get together to work things out, and it has nothing to do with report lines."

'Programmed to go into education' Feiner grew up in Belleville, Ill., and spent her high school summers volunteering at camps for mentally handicapped children and in her father's office. Her falls, winters and springs were occupied churning out homework in the Academy of Notre Dame, an all-girls school in Belleville.

When it came to college, Feiner's parents had a strong opinion as to what kind of school their eldest daughter should attend. "When I was a senior, my parents took me to all the Catholic women's colleges in the states, and I didn't like any of them," she says. "I broke my mother's heart when I went to St. Mary's in South Bend. But when I was in high school, women couldn't go to schools like Harvard, Yale or Notre Dame!"

She ultimately decided to attend Saint Louis University, the only co-ed school to which she applied. At SLU, Feiner majored in psychology and became certified in elementary and special education.

"It's funny, back then, women were either teachers, nurses or social workers," she says. "Most of my friends at SLU were either in nursing or physical therapy. Almost all my friends from high school ended up being teachers. I was kind of blessed to go into education."

Feiner graduated from SLU in 1971 and taught elementary-school for 10 years. She enjoyed teaching, but after seeing her eighth class of students through another school year, Feiner was ready for a change. She took accounting classes at a community college and thought back to her time at SLU. She wanted to get back into the business world, but not with her father's company. She decided to go back to school.

In June 1981, she left her teaching job. She took the GMAT in July and started master's in business administration classes at Olin Business School in August.

"Though Feiner's current duties are far different from those of her teaching job, she doesn't regret her first career choice," she says. "She developed skills while managing a classroom that she still uses while managing the University's finances."

"There are a lot of principles — in terms of time management, multi-tasking, dealing with people — that apply as a teacher, in business administration," she says. "For example, so much patience is required when you are a teacher. It is required when you are a banker who already has worked in the corporate world, too, when people are either teachers, nurses or social workers — that apply as a teacher, in university's finances."

Throughout her career, Feiner's keen mind and friendly attitude have earned her the admiration and respect of her co-workers, including Tim Thornton, WUSTL's director of financial planning and analysis.

Thornton has known Feiner since 1985, when they both were at Edison Brothers, and he is col- laborating with Feiner to create a strategic plan for the administrative areas within the University's Central Fiscal Unit. Among other things...

Barbara Feiner was only a few weeks into her MBA program when she knew she had made the right decision.

"Business school was a whole new world to me, with a whole different language," she says, "and it all kind of clicked. I especially liked finance, because it involves real markets and investments as well as how to look at a project from a financial viewpoint."

Feiner graduated in 1983 and was quickly snapped up by Edison Brothers Stores Inc., a retailer specializing in shoes, apparel and entertainment. During her 13 years with the company, she served in different roles, including president of 5-7-9, a women's clothing division.

While in the business world, Feiner didn't leave the University behind her. Shortly after graduating, she became president of the business school's Alumni association and later executive vice chair and then chair of the Alumni Board of Governors and alumni representative to the Board of Trustees from 1995-96.

In 1996, Feiner was hired by the University to manage the external investment managers. She quickly rose to chief financial officer in 1997 and was named to her current position, vice chancellor for finance and CFO, in 1999.

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Barb is a great person to work with, she always gets things quickly, understands what the issues are, makes decisions and moves forward. One of her greatest strengths, he says, is relating to people.

"Barb knows everyone's name in the accounting area, even well over 100 people — and she doesn't get caught up in the chain of command," Thornton says.

"She doesn't mind just calling something up to get the information she needs."

'Dedicated service' During her free time, Feiner likes to go on day hikes with her husband, Tom, in state parks in Southern Missouri and Southern Illinois — with an emphasis on "day." "I love being outside, but camping's not really my thing," she says. "I like the restaurants. And showers."

When she's not hiking or managing finances, Feiner serves as treasurer of the board of trustees for the University Corporation for Atmospheric Research (UCAR), a group in Boulder, Colo., that is sponsored by the National Science Foundation and provides research, observing and computing facilities and other services for the science community.

She joined UCAR's board in 2000, when a WUSTL investment banker who already had worked with UCAR suggested Feiner fill the organization's vacant treasurer slot.

"I've learned a lot about re- search and investing and expanded my knowledge about atmospheric science — through so much of the member's conversations go beyond me," Feiner laughs.

If it wasn't for Feiner's ability to easily explain the nuances of finance, many UCAR board members might say the same thing of Feiner and his expertise.

"Barb is so savvy on everything involved with investments, bonding and anything else financ- ial," says Katy Schmidt, UCAR's vice president for finance and administra- tion. "She is able to translate complex financial issues for our fellow board members, most of whom have scientific, not financial, backgrounds."

"Washington University is lucky to have her," Schmidt says. "Chancellor Mark S. Wrighton echos Schmidt's sentiment.

"Barb has a specialized and effective team of financial professionals who are responsible for managing the University's re- sources," Wrighton says. "I am grateful for her dedicated service and for the care and attention she brings to her work. She is an ex- traordinary leader who has been a key contributor to the success we've enjoyed at Washington University, one of the world's premier universities."