Wrighton visits Chile, promotes higher education partnerships

Chairman Mark S. Wrighton was among a delegation of eight college and university presidents who traveled with U.S. Secretary of Education Margaret Spellings to Chile and Brazil Aug. 18-24 to promote higher education partnerships and exchanges between the United States and Latin America.

The delegation met with current Chilean students and young professionals who had studied in the United States. Meetings with Chilean university, government and business leaders were also held to help build educational partnerships and to increase the number of Latin American students studying in the United States.

“This trip to Chile was important in continuing to encourage students from other countries to pursue higher education in the United States,” said Wrighton. “In our increasingly global society, it has become critical that our own graduates are able to understand and navigate the international community in which they live.”

In addition to encouraging our students to study abroad, I am very interested in attracting scholars from Latin America and around the world to pursue their studies at Washington University. It was a privilege to be selected to join Secretary Spellings and the chair of the earth and planetary sciences department, is director of the Geosciences Node. The images come from the Compact Reconnaissance Imaging Spectrometer for Mars (CRISM), flying aboard NASA’s MRO. The Orbital Data Explorer also provides data sets from the imaging systems of current and past missions, the High Resolution Imaging Science Experiment, the Mars Express High Resolution Stereo Camera and the Mars Express Observatoire pour la Minéralogie, l’Eau, les Glaces et l’Activité spectromètre, as well as gravity data.

CRISM has been searching for mineralogical evidence of past water on the Martian surface since November 2006, when MRO settled into a science-gathering orbit around the planet. CRISM, combined with other cameras and sensors on MRO, is providing the most detailed look yet at Martian geology, climate and surface makeup. Through its telescopic scanners, CRISM has taken more than 1,900 images of specific targets, including more than 500 at the instrument’s highest resolution.

Weight-loss strategies may benefit from research on intestinal proteins

BY JIM DRYDEN
School of Medicine researchers have found that a protein absorbs lipids in the upper part of the intestine, and they believe its role in this key role in this process may provide a novel approach for obesity treatment in the future.

Principal investigator Nada A. Abumrad, Ph.D., the Dr. Robert C. Atkins Professor of Medicine and Obesity Research, first identified the protein, CD36, that facilitates the uptake of fatty acids. The protein is located on the surface of cells and distributed in many tissues, including fat cells, the digestive tract, heart tissue and skeletal muscle.

Her studies have shown that the intestine makes large amounts of CD36 and it is important to the absorption of fatty acids. Initially when she compared normal mice that made the protein to genetically altered mice lacking CD36, she couldn’t find any net difference in their fat absorption.

But the new study, reported in the July 6 issue of the Journal of Biological Chemistry, revealed why. Normally, CD36 absorbs fatty acids in the upper, or proximal part of the intestine, but when it is absent, lower, more distal sections of the intestine compensate and absorb the fat.

“We think of the intestine as a single organ, but it’s really made up of distinct areas that are so specialized it’s almost like several organs,” Abumrad said. “That is not absorbed in the proximal areas ends up being dumped into the distal intestine where different systems absorb it.”

Abumrad and her colleagues, including first author Jitha Narayanan, Ph.D., research assistant professor in the Division of Genetics and Nutritional Science, say they believe that targeting the upper part of the intestine and interfering with normal CD36 function might be a useful tool in weight loss. The team found that animals that could not make CD36 absorbed fat less efficiently, and as a result they tended to eat less of it.

“The most exciting part for us is that these things may apply to humans,” Abumrad said. “Humans make this organ, and if it's the gene that makes CD36 don't seem to factor in fat normally either.”

Abumrad learned from the mice that when fatty acids and cholesterol are not absorbed in

First WUSTL underground parking garage opens

BY NEIL SCHONHERR
The new central underground parking garage on the Danforth Campus is now open. During this academic year, the lot provides an additional 525 parking spaces. When it is fully completed after the University Center opens next August, the lot will include 1,020 spaces.

Parking is available only on the second and third levels. When the University Center is under construction, Level 1 has been designated as a construction zone.

Access to the garage is from Olympian Way with vehicles passing in front of Simon Hall to reach the garage ramp. Next August, the entrance will be from Wallace Drive at Forsyth Boulevard.

A vehicle enters the newly opened parking garage below University Center. Despite ongoing construction, parking is available on the second and third levels. When fully completed, the garage will include 525 spaces.
New tuition agreement announced for graduate and professional students

As a way to support interdisciplinary graduate and professional students, Washington University’s seven schools have signed a new graduate/professional tuition agreement that encourages graduate and professional students to take courses outside of their home schools.

The agreement, now in effect, permits students who are enrolled in full-time master’s graduate and professional degree programs in Arts & Sciences, the Olin School of Engineering, the School of Law, the George Warren Brown School of Social Work and the School of Medicine to take courses outside of their home schools; Larry J. Shapiro, M.D., executive vice chancellor, dean of Arts & Sciences and the Barbara and David Thomas Distinguished Professor in Arts & Sciences, says that the dean’s intention with this agreement is to encourage multidisciplinary learning by graduate and professional students while they are pursuing their major course of study.

“The ability for students and faculty to feel comfortable using all of the resources of this great University and to be able to take courses that are outside of their home school is key to delineating historical relationships among different populations.

Fossil data indicate that the coconut underwent a dispersal event that predates human activity. The geographic signature is expected to have created a genetic signature that can be traced by examining the genetic structure of plants sampled across the species range.”

Both historically and today, the coconut has myriad uses as a source of food, drink and fuel. Every part of the plant is used. Recently, coconut oil has been manufactured into biodiesel fuel in the Pacific, Olsen said.

The coconut played a crucial role in the history of human exploration and dispersal around the world.

The agreement will be reviewed after two years to assess the extent of across-school activity by graduate students and the financial impact on schools.

The new deans’ agreement will be done in collaboration with the Office for Student Affairs and Compliance.

Henne named new Greek life director

By NEIL SCHOENHERR

Henne named new Greek life director

Washington University’s Interfraternity Council is working closely with his colleagues and the administration to take the Greek community and individual chapters to the next level related to their founding values and beliefs.

Henne started at the University last week, according to his biographies on the Office of Greek Life’s website.

Henne will study the phylogeography of Cocos nucifera, and its geographical (and possibly historical) distributions; the impact of human activities on the demography of Cocos nucifera populations is a geographical location of the unoccupied wild populations.

The coconut is popular and unpatented for centuries, yet little is known about the history and dispersal and distribution of the plant.

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**Fat metabolism in diabetic heart disease**

**By Gwen Ericson**

Heart disease hits people with diabetes twice as often as people without diabetes. In those with diabetes, cardiovascular complications occur at an earlier age and often result in premature death, making heart disease the leading killer of people with diabetes. But why is heart disease so preeminent in diabetes?

To answer that question, scientists and medicine researchers have been analyzing the fat (lipid) composition of heart tissue from laboratory mice with diabetes. They have found that heart cells of mice have an important lipid from cellular components that generate energy for the heart, and their latest research shows this helpful and critical aspect of the metabolic stages of diabetes.

"Diabetic hearts run mostly on fats for fuel because the body, at least in the mouse, doesn't have as many insulin receptors available to them," said Richard Gross, M.D., Ph.D., director of the Division of Biochemical and Molecular Pharmacology and professor of Anesthesiology and Critical Care at Washington University School of Medicine. "This means that glucose is not an important source of energy for the heart, and their latest research shows that this helps explain the very earliest stages of diabetes.

"Cardiomyocytes in diabetes have less of their cardiac lipoprotein, which literally means heart fat. The term was coined because cardiomyocytes first were discovered in beef hearts and is one of the most abundant lipids in heart tissue. This lipid has unusual physical properties that are essential for the operation of the heart muscle's energy-producing cell structures called mitochondria."

When mitochondria have less of their cardiac lipoprotein, they malfunction. Their malfunction not only affects the energy supply of heart muscle cells, it also causes the release of damaging oxygen-containing substances to the cells, creating unhealthy conditions that can lead to heart problems. Mitochondria are "powerhouses" of the cell but are also key regulators in the metabolic function of any cell. When mitochondria, in particular cardiomyocytes, are not functioning properly, novel muscle "circuitry" is created and the heart begins to grow in an unhealthy way.

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sion of presenting to the Washington University commu-
nity its most distinctive and vibrant voices of the day.

The main change involves transitioning from the dedicated day and time period — Wednesdays at 11 a.m. — to a variety of days and times when undergradu-
ates and students are more likely to be able to attend. Over the years, the once-sacrament "free" period has endured to the point that most stu-
dents, and faculty as well, cannot attend the lectures.

To address the problem and to find the best times in which to present speakers, the fall 2007 As-
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In addition to this change, the Assembly Series schedule will be posted on the Internet so that timely updates and more in-
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Maya Lin opens Assembly Series; schedule with web

Other September features feature "Who, novel, or noval — a behavioral scientist

By Barbara Rea

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By Barbara Rea
Chamber Orchestra, ‘Piano Extravaganza’ highlight Department of Music’s fall series

The Department of Music in Arts & Sciences will launch its fall 2007 concert series with “4 x 4,” a performance by the Washington University Chamber Orchestra.

The program — which begins at 8 p.m. Tuesday, Sept. 4, in Holmes Lounge, Ridgley Hall — will feature concertos written for four instruments, including Concerto in B minor for four violins by Antonio Vivaldi (1678-1741). Concerto for four flutes by Johann David Heinichen (1663-1729), and Le Poème pour quatre col¬los by Michel Corrette (1707-95).

The concert is free and open to the public. The Chamber Orches¬tra is led by Elizabeth Mac¬dougal, director of strings in the Department of Music.

Dolores Pesce, Ph.D., profes¬ sor and chair of the music de¬partment, notes that the depart¬ment presents approximately 70 events each year, ranging from intimate student and faculty recitals to major concerts by the University's Community Music organizations.

“Our students and ensembles represent a wide range of musical styles — everything from small jazz bands to the Baroque, Classical, Romantic and Modern repertoires,” Pesce said. “Perform¬ ers are drawn from across the entire University community and include both undergraduate and graduate students, regardless of academic concentration, as well as alumni, faculty, staff, spouses and community members.”

Pesce points out that the cen¬ terpiece of the fall schedule is the "Piano Extravaganza" on Oct. 28. The concert will feature more than 10 student, faculty and alum¬ ni pianists — including Seth Car¬lin, professor of music — guest-conducted by Leonard Stein, music director of the National Symphony Orchestra and former music director for the Saint Louis Symphony Orchestra. The pro¬ gram will feature works by Wagn¬er, Sonata, Bach, Walton, Greg¬ gar, Coppé, Poulenc and Rach¬ maninoff, as well as a new com¬ position by the department’s Martin Kennedy, assistant profes¬ sor of music.

"The "Piano Extravaganza" marks the formal opening of the University’s newly renovated 560 Music Center," Pesce said. "It’s also a fund-raiser for the depart¬ ment, with proceeds going to purchase new pianos for the cen¬ ter’s teaching, performance and rehearsal spaces. It should be a terrific event.

The 560 Music Center, located at 560 Trinity Ave. in Univer¬sity City, was acquired by Wash¬ington University in 2005 and previously housed Webster Uni¬versity’s Community Music School.

Dedicated in 1929, the two¬story, 45,000-square-foot struc¬ture (originally built as a syna¬ gogue) houses three performance ven¬ ues — including the 1,115-seat E. Desmond Lee Concert Hall, now the University’s largest performance space — as well as teaching studios, rehearsal areas and administrative offices for the music department.

"The 560 is a welcome addi¬ tion to Washington University’s arts facilities," Pesce added. "It eases pressures on our existing performance spaces while also giving us a major new presence in the heart of the Delmar Loop. It’s going to be a wonderful facility for the public and for stu¬dents and faculty, many of whom live nearby."
**Paint before precedents**

First-year law students help spruce up a home in north St. Louis County as part of Washington University's Volunteer Service Project. This group worked with a local community organization called Beyond Housing, while 200 other first-year students took time out of their day to help nearly 200 organizations in the St. Louis area.

**Software**

More Mars data than ever before — from Page 1

that pinpoints areas down to 15 meters — or 48 feet — in 542 "colors" of reflected sunlight. The camera also has mapped about half of the planet at lower resolution — showing areas at some 200 meters (660 feet) in 72 colors — and monitored abundances of atmospheric gases and particulates in the atmosphere, returning more than 950 separate measurements that track seasonal variations.

"The Mars Reconnaissance Orbiter is collecting more data, and carrying out more complex observation plans, than any other mission to Mars," Arvidson said. "Orbital Data Explorer augments existing tools on the PDS site by providing advanced search, retrieval and order capabilities, as well as integrated analysis and visualization tools that will make it easier to examine and compare data from MO and other missions."

**Garage**

More parking spaces on campus — from Page 1

Yellow and red parking paint will now not work in the garage but can still be used in other yellow zones on the Danforth Campus.

Visitors will need to pull a ticket from a dispenser upon entering the garage. The charge is $1 per hour with a maximum of $5 per day. Exit payment can be submitted to the booth attendant or the exit pay station. There is a 10-minute grace period for vehicles needing to pull past the gate to turn around. Those vehicles will not be charged. Temporary stalls are located at the northeast and northwest corners of the garage. The permanent elevator cores are currently closed and will not be available for use until the University Center opens. There will be no paid disabled parking until the elevators are open. For more information, call 935-5061.

**Mandemaker receives ABA Lifetime Achievement Award**

Danial R. Mandemaker, J.D., the Howard A. Stamper Professor of Law, received the American Bar Association’s (ABA) prestigious Daniel J. Curtin Lifetime Achievement Award. The award recognizes outstanding service in the field of state and local government law.

The award is given annually and co-sponsored by the ABA’s Section of State and Local Government Law and the Jefferson Fordham Society. Mandemaker received the award at the ABA’s annual meeting in San Francisco, Aug. 8.

Mandemaker is one of the country’s leading scholars and teachers in state and local government and land use law. Also a pioneer in the teaching of environmental law, he has published numerous books and articles. These include his co-authored casebooks, "Planning and Control of Land Development" and "State and Local Government in a Federal System," both in two editions.

**Partnerships**

New initiative sponsors graduate students — from Page 1

rest of the delegation on this trip."

During the visit to Santiago, Chile, Wrighton and the other members of the delegation participated in a bilateral and discussion with Chilean President Michelle Bachelet at a formal luncheon.

"We already enjoy relationships in Chile with our undergraduate study abroad programs, and we have a substantial number of alumni — both from under- graduate and graduate programs — in Chile and Latin America," said Wrighton. "The University is excited to further expand these relationships."
**Fulbrights awarded to twelve WUSTL students**

By NEIL SCHONHERR

Twelve WUSTL students have been awarded Fulbright Scholarships for the 2007-08 academic year, announced Priscilla Store, Ph.D., executive director of international programs in Arts & Sciences.

Eight are recently graduated seniors, and four are current graduate students. They will spend a full academic year in a host country.

The graduate students, along with their fields and locations of study, are: Lee Friedrick, comparative literature, Japan; Thomas Jackson, film studies, Germany; Claire Masson, social work, Chile; and Sharyn Roen, social work, Guinea.

The recently graduated seniors are: Liza Baron, Islamic studies, Morocco; Kevin Croese, teaching English as a foreign language, Germany; Amin Mosu, teaching English as a foreign language, Germany; Amr Makkoush, teaching English as a foreign language, Venezuela; Ronald Matlosz, music instrument training, Belgium; and Aine Steinor, teaching English as a foreign language, Germany.

**Notables**

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**Protein**

**Level variations common in people**

From Page 1

...the proximal part of the intes-
tine, as normally occurs, the
absorption rates of these mole-
cules are different. The proximal
intestine absorbs molecules that
are not as easily absorbed by
other areas of the intestine.

...The proximal intestine makes molecular packages
from these molecules and sends
them to other parts of the body.

...When Anita Minor discov-
ered her son had Down Syndrome,
she went searching for other
people who had children with
Down Syndrome. She said she
hoped her presence also
would encourage more
people to get involved with
Down Syndrome.

...It was through her involve-
ment with the Down Syndrome
Association that she became
involved with other support groups,
and eventually contacted the Down
Syndrome Foundation about
starting support groups in
other parts of the United States.

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Living longer, living healthier

Armamento-Villareal seeks better ways to treat osteoporosis

Armamento-Villareal has a special interest in the role of estrogen in bone health and women's health in general. She also sees patients with Paget's disease of bone, hyperparathyroidism and vitamin D deficiency. In addition, she sees a significant number of transplant patients, whose bones are affected by the steroids they take to prevent rejection. She says she enjoys the challenge posed by her bone cases.

"For challenges seems to have served Armamento-Villareal well — she allowed her to gracefully manage the transition from life in a tropical village in the Philippines, where she was born and raised, to a successful medical career in a Midwestern city.

Armamento-Villareal grew up in Tabunan, the Philippines, population near 5,000, on the eastern coast of Cebu, an island near the center of the Philippine archipelago. She graduated high school at 15. With no experience of city life and little exposure to the outside world, she headed to college in the Philippines' second largest city, Cebu. She earned her undergraduate degree at Cebu Viter College.

"I never saw television until I was in college," says Armamento-Villareal with a tone of amazement. "We didn't even have a telephone at home. It was a huge change for me."

Armamento-Villareal earned a medical degree from Cebu Institute of Medicine and completed training in endocrinology and diabetes at the University of the Philippines in 1990.

Arriving in February from tropical Cebu, where daily high temperatures were in the 80s to 90s, Armamento-Villareal found St. Louis a blast of cold air. "The temperature was negative something," she says. "It was the first time I had ever been in cold weather."

St. Louis also was where Armamento-Villareal drove a car for the first time. She laughingly describes her driving lesson: Her teacher was an Indian woman who gave her just enough information to pass the driving test and then told her, "You're not young anymore. I know you're not going to do stupid things. Just use common sense and you'll be fine." And she was — although she probably stuck to the side streets on the way to her rotation at Shriners Hospitals for Children in St. Louis.

After her rotation ended and she had completed an internship and residency, Armamento-Villareal went into private practice at Collingsworth General Hospital and Collingsworth Family Clinic in Wellington, Texas, and then later at Overland Medical Center in Overland, Mo.

In 1999, she returned to the School of Medicine where Robert Civitelli, M.D., the Sydney M. and Stella H. Schoenbe Professor of Medicine, introduced her to research that focused on how estrogen production and breakdown, or estrogen metabolism, affects bone health.

"When I came back, Dr. Civitelli asked me to revive a paper he was working on," Armamento-Villareal says. "That started my interest in estrogen metabolism and I started to see how I could explore this topic further."

She has contributed significantly to the development of the Division of Bone and Mineral Diseases, according to Civitelli. "She's a hard worker and has been very successful in developing her own research program," says Civitelli, also professor of orthopedic surgery and of cell biology and physiology. "She represents just what we are striving for — younger investigators who can achieve independence and originality."

Armamento-Villareal studies how variations in estrogen metabolism affect bone health in both men and women. Most people think of estrogen as a single hormone, but almost everyone has it, but actually several estrogenic compounds exist in both males and females. Each has a different "strength" or estrogenic activity. The particular cocktail of estrogens found in different individuals depends on their genetic makeup, diet and environment.

Armamento-Villareal's work has helped show that not just women's but also men's estrogen metabolism affects their bone density. She also has demonstrated that we come from a history of osteoporosis tend to maintain estrogenic forms. This highlights the influence of a person's genetics, and Armamento-Villareal also has shown that differences in bone density may be related to genetic variations of a liver enzyme that breaks down estrogens.

One of her most recent projects delved into the relationship between estrogen metabolism, calcium intake and bone health. The study suggested that calcium from dietary sources was associated with an increase in the metabolism of estrogen to active byproducts. In addition, this study showed that calcium from dietary sources is better able to protect bone health than calcium from supplements. Armamento-Villareal is continuing her research in this area.

Other current projects look at the relationship between estrogen metabolism and cognitive function and study the genetic and dietary factors affecting bone densitometry in those taking aromatase inhibitors, commonly prescribed to stop estrogen production in breast cancer patients.

Cynthia Ma, M.D., Ph.D., assistant professor of medicine in the Division of Oncology, collaborates with Armamento-Villareal on two research projects. Ma treats patients with breast cancer and her research refers them to Armamento-Villareal because of her expertise in the effect of aromatase inhibitors on bone density.

"She cares so much about the welfare of the patient and follows their bone health closely," Ma says. "I think of her as one of my mentors, and I admire that she has dedicated herself to her research not just because it's interesting, but also because she wants to make a difference in patients' lives."

Armamento-Villareal's husband, Dennis T. Villareal, M.D., is also on the faculty at the School of Medicine. Associated professor of medicine in the Division of Gastroenterology and Nutritional Science, is doing research on frailty and obesity in older patients. Both conditions are related to bone health, so the couple's specialties and research interests complement each other well.

"We're thankful because we have a tough case and need more input, I can ask him," Armamento-Villareal says. "And if he needs more input about things like genetics, I can ask her."

The two graduated from the same college and met during medical training in the Philippines. They have a son, Kenneth, who is starting his junior year of high school and says he's interested in pursuing medicine — on some days. "In his sleep," Armamento-Villareal says. "That's OK, we aren't pushing him into medicine. Something like I think about America is you can do whatever interests you and still be a success. In the Philippines, there isn't so much opportunity, every day we are thankful our parents were able to send us to college."

Reina Armamento-Villareal

Family: husband, Dennis Villareal, M.D., and son, Kenneth, 16

Awards/Grants: Sandra Postdoctoral Fellowship in Bone, National Institutes of Health; Building Interdisciplinary Research Careers in Women's Health Award, National Institutes of Health, Longer Life Foundation grant and other NIH grants

Outside Interests: reading; "For me, my work is my outside. When I'm writing, I live in 'work and 'play'; but I don't like to watch medical shows," music: "I love music, I listen to the music my son plays. Can you imagine that?"