Mars database enhanced by new WUSTL software program

CRISM opens Mars to the world

A software program developed by Washington University researchers is allowing viewers access to a data set and some early images from the most powerful spectral camera ever sent to Mars. The information is available on NASA's online planetary data archive.

Members of NASA's Planetary Data System (PDS) Geosciences Node, located in the Department of Earth and Planetary Sciences in Arts & Sciences, produced the program, the Orbital Data Explorer. Keith J. Bennett, deputy project manager in earth and planetary sciences and deputy manager of the PDS Geosciences Node, and software engineer Dan Schols, put the program together. It is a collection of tools that allows users to search, display and download PDS-archived data from the Mars Reconnaissance Orbiter (MRO) and other selected Mars missions. The program is available at:

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Weight-loss strategies may benefit from research on intestinal proteins

School of Medicine researchers have found that a protein absorbs lipids in the upper part of the intestine, and they believe its 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 fat from 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 absorbed into the distal intestine where different systems absorb it."

Abumrad and her colleagues, including first author Itahla Nasir, 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 the gene that makes CD36 don't seem to process fat normally either."

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

First WUSTL underground parking garage opens

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 525 spaces.

Parking is available only on the second and third levels. When the University Center opens next August, the lot will include 525 spaces.

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 Wullf Library at Forsyth Boulevard.

See Garages, Page 6
New tuition agreement announced for graduate and professional students

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

The agreement, now in effect, permits students to enroll in all schools and enroll in full-time master’s or doctoral degree programs in Arts & Sciences, the Olin School of Business, the Sam Fox School of Design & Visual Arts, the School of Engineering, the School of Law, the Warner School, Brown School of Social Work and the School of Medicine.

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 the agreement is to encourage multidisciplinary learning by graduate and professional students while they are pursuing their major course of study.

“Many our students and faculty to feel comfortable using all the resources of this great University,“ said Olsen.

“By creating this ‘free-trade’ agreement between the schools, we are encouraging interdisciplinary interaction. We want graduate students to be able to easily bridge disciplines and work for a richer, more in-depth learning experience.”

The other dean who signed the agreement are Cannon College, dean of the Sam Fox School; Mahendra R. Gupta, Ph.D., dean of the business school; Edward F. Lawlor, Ph.D., dean of the social work school; John J. Santelme, Ph.D., dean of the engineering school; Larry J. Shapiro, M.D., executive vice chancellor and dean of the medical school; and Kent D. Syverud, J.D., dean of the law school.

The agreement does not affect how students pay their fees, but rather how schools reimburse one another. The schools no longer charge one another when students take courses that are outside of their home school.

If students decide to pursue multiple degrees or certificates, they will be appropriately charged. Students will not be allowed to earn credit toward two programs while only paying tuition for one.

Courses and students primarily in evening and part-time continuing education divisions, such as University College in Arts & Sciences and Executive Education programs, are not included in this agreement.

Included in the terms of the agreement are the following:

• The students must receive course approval and a credit for the courses taken in the non-home school.

• Courses taken at the non-home school will ordinarily be on a space-available basis.

• The instructor for each course or the program must give permission.

• Because other terms also may apply, graduate and professional students should contact appropriate advisors for more information.

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

“Our intention is to make the free-trade agreement work without significantly increasing the teaching burden for any school and with minimal financial impact,” said Macias on behalf of the other deans.

Coconut genetics traced by WUSTL biologist Olsen

By Tony Fitzpatrick

The coconut has been popular in Asian and South Pacific countries, yet little is known about the history of its domestication and dispersal around the world.

Now, a WUSTL biologist is examining the history of the coconut through fossil and modern genetic data.

Fossil data indicate that the coconut underwent a widespread dispersal event that probably occurred 2,000 years ago. The dispersal is expected to have created a genetic signature that can be traced by examining the genetic structure of plants sampled across the species range, Olsen said.

Superimposed on this ancient "phylogeographic" structure is the more recent history of human dispersal, cultivation and domestication, Olsen continued.

"Existing genetic data, while limited, suggest that the most highly domesticated 'dwaf' form grows worldwide to most closely related to Pacific populations," he said.

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

He added that more than 11 million hectares (one hectare is equal to 100 acres) are now planted in coconut in 86 tropical countries.

Olsen will study the phyllogeography of C. macrantha and its ancient domesticated forms (the geographi- cal origins) of domestication; the impact of human activities in the tropics; and the biogeographic structure of other species, particularly the key species of the most used geographical region of the most domesticated wild progeni- tor populations.

Henne named new Greek life director

By Neil Schoenherr

Ryan Henne has been named director of Greek life, announced Bill Cartaghi, Ph.D., director of campus life and assistant vice chancellor for students. "I am very excited to have Ryan as the director of Greek Life and part of the Campus Life staff," said Cartaghi. "Ryan is a dynamic person who has much experience and expertise working with students and student leaders, as well as Greek national headquarters. He is poised 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 summer after spending one year as assistant director for fraternity, sorority, and independent living groups at Massachusetts Institute of Technology.

Prior to that, he worked for more than five years as an area coordinator in residence life and Greek advisor at Occidental College in Los Angeles.

He earned a master's degree in college student affairs and leadership from Grand Valley State University and a doctoral degree in educational administration from the University of Southern California.

As director, Henne will oversee the University's 11 fraternities and six sororities. The Greek Life Office is charged with the responsibility of establishing and maintaining a positive and supportive environment for Greek life's members and their non-affiliated peers, assisting in the development, risk reduction and management and more.

The fraternity and sorority men and women to further educate their non-affiliated peers, as well as Greek national headquarters. They are passionate, con- cerned and engaged. They are a lot of fun, too. These men and women are very knowledgeable on every facet of the institution, and I've learned quickly how in tune they are with their commu- nity's goals and needs. Henne is looking forward to working closely with his colle-agues in student affairs. "We all have a shared vision of what our system is and how we can chal- lenge students to continue to grow and create community. This year, we are focusing on working with our fraternity and sorority men and women to further educate their non-affiliated contemporaries that these are val- ues-based experiences that are time-honored sense of tradition and purpose. "With their initiation, there is a greater expectation of responsi- bility, service and integrity. We are all optimistic and excited for the coming year."

Henne named new Greek life director

Henne is a native of Wisconsin, and he received a bachelor's degree in business with a double major in accounting and marketing from the University of Wisconsin-Madison. He also has a master's degree in higher education administration from the University of Southern California.

Henne has worked extensively in leadership development, event planning, development, risk reduction and management and more.

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Fat metabolism behind diabetic heart disease

By Gwenn 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 major killer of people with diabetes. But why is heart disease so prevalent among diabetics?

To answer that question, School of Medicine researchers have been analyzing the fat (lipid) composition of heart tissue from laboratory mice with diabetes. They have found that heart cells of diabetic mice lose an important lipid called cardiolipin, which is a vital component of cell membranes that generate energy for the heart, and the latest research shows this happens as early as five days after diabetes is induced in mice.

"Diabetic hearts run mostly on fat for fuel because they are starving for oxygen to allow them to be available to them," said Richard Gross, M.D., Ph.D., associate professor of Medicine, of Chemistry and Molecular Biology, and of Genetics and Developmental Biology. "Unfortunately, this change in metabolism disrupts the lipid composition of cell membranes that are essential for the operation of the energy-producing cell structures called mitochondria."

When mitochondria lose a key lipid called cardiolipin, the mitochondria become dysfunctional, or "shotgun lipidomics." This information can be used to identify novel therapeutic approaches and therapeutic targets that can help improve heart disease outcomes in diabetics. The set of techniques has been termed "shotgun lipidomics" because they can rapidly detect thousands of different lipids in the body.
Monday, Sept. 10


Tuesday, Sept. 11

10 a.m. - 6:30 p.m. Cardiac MRI Experience - Hands-on Educational Experience & Case Presentations. Contact 362-6891. Noon. Program in Physical Research - 'Einstein and the Laws of War in 1914.' Isabell V. Hull, prof, of history, Cornell U. (Reception following.)

Wednesday, Sept. 12

8 a.m. - 4 p.m. Center for the Application of Information Technology Workshops. Contact 362-6891. Noon. Program in Physical Research - 'Einstein and the Laws of War in 1914.' Isabell V. Hull, prof, of history, Cornell U. (Reception following.)

Thursday, Sept. 13

10 a.m. - 5 p.m. Compulsive Behaviors and Their Treatment Seminars. Contact 362-6891. Noon. Program in Physical Research - 'Einstein and the Laws of War in 1914.' Isabell V. Hull, prof, of history, Cornell U. (Reception following.)

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Saturday, Sept. 15

9 a.m. - 3 p.m. Medical Informatics Roundtable. Contact 362-6891. Noon. Program in Physical Research - 'Einstein and the Laws of War in 1914.' Isabell V. Hull, prof, of history, Cornell U. (Reception following.)

Fall Reading Series • Social Networking • Laws of War

How to submit 'University Events'

Submit 'University Events' items to Angela Hall of the Record Group: (1) e-mail - record@wustl.edu; (2) campus mail - Box 1070; (3) phone - 314-935-4259. Deadline for submission is noon two weeks prior to the publication date.

Sports

8 a.m. 5K Early Bird Run. Meet at the Centennial Center. 935-4705.

5 p.m. Faulkner vs. Lake Forest College. 935-4705.

Saturday, Sept. 11

9 a.m. Volleyball vs. Ohio Northern U. Women's Invitational. 935-4700.

9 a.m. Men's soccer vs. Principia College. 935-4700.

Sunday, Sept. 12

9 a.m. Men's and Women's soccer vs. Principia College. 935-4700.

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Chamber Orchestra, 'Piano Extravaganza' highlight Department of Music's fall series

BY LIAM OTTEN

The Department of Music in Arts & Sciences will launch its fall 2007 concert series with "A welcome addition," 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 Heinrich David (1683-1759), and Le Phénix for four cellos by Michel Corrette (1707-95).

The concert is free and open to the public. The Chamber Orchestra is led by Elizabeth Macdowell, director of singing in the Department of Music.

Dolores Pesce, Ph.D., professor and chair of the music department, notes that the department presents approximately 70 events each year, ranging from intimate student and faculty recitals to major concerts by the university community and visitors than any other similar event. "It's going to be a wonderful event," Pesce said. "Performers are drawn from across the entire university community and include both undergraduates and graduate students, regardless of academic concentration, as well as alumni, faculty, staff, spouses and community members." Pesce points out that the concert is the department's "Piano Extravaganza" on Oct. 28. The concert will feature more than 10 students, faculty and alumni pianists -- including Seth Carlin, professor of music -- guest-conducted by Leonard Stokol, music director of the National Symphony Orchestra and former music director for the Saint Louis Symphony Orchestra. The program will feature works by Wagner, Sonny, Bach, Walton, Grieg, von Suppe, Poulenc and Rachmaninoff, as well as a new composition by the department's own Martin Kennedy, assistant professor 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 department, with proceeds going to purchase new pianos for the center's teaching, performance and rehearsal spaces. It should be a terrific event!"

The 560 Music Center, located at 560 Trinity Ave. in University City, was acquired by Washington University in 2005 and previously housed Webster University's Community Music School.

Dedicated in 1939, the two-story, 45,000-square-foot structure (originally built as a synagogue) houses three performance venues -- including the 1,115-seat E. Desmond Lee Concert Hall, now the University's largest performance space -- as well as teaching studios, rehearsal spaces and administrative offices for the music department.

"The 560 is a welcome addition to Washington University's arts facilities," Pesce added. "It exercises pressure 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 students and faculty, many of whom live nearby."
Recent years have seen an explosion of interest in Japanese manga, or comic books, in the United States, yet Korean comics remain relatively unknown. This fall, the Mildred Lane Kemper Art Museum will present "Korean Comics: A Society Through Small Frames," a rare U.S. exhibition of work from both North and South Korea.

Organized and curated by the Korea Social Life Comics features more than 80 works with 21 cartoniers, drawn from the 1950s to the 1990s. The exhibition provides a decade-by-decade glimpse of the changing social realities in contemporary Korea, as depicted in comics ranging from popular children's entertainment to aggressive forms of political commentary.

South Korean artists such as Park for Dong, who quickly gained re- cept for times specific to their wards have been given card ac- cess for times specific to their

Yellow red parking papers will not work in the garage and have been given card ac- cess for times specific to their

rest of the delegation on this trip." During the visit to Santiago, Chile, Wrighton and the other members of the delegation met with Chilean President Michelle Bachelet at the National Palace.

"We already enjoy relationships in Chile with our under- graduate study abroad programs, and we have a substantial number of alumni — both from under- graduate and graduate programs — in Chile and Latin America, benefitting from our experience in the United States.

While in Chile, Wrighton, Sec- retary Spellings and President Gregory L. Geoffroy of Iowa State University addressed members of the Friends of the National UserId: 1951739

Fulbrights awarded to twelve WUSTL students

BY NEIL SCHONHEIM

The twelve WUSTL students have been awarded Fulbright Scholarships for the 2007-08 academic year, announced Priscilla Stone, 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, Iran; Theodore Jackson, Arabic literature, Germany; Clare Masson, social work, Chile; and Sharay Reth, social work, Guinea.

The recently graduated seniors are: Lisa Baron, Islamic studies, Morocco; Kevin Crouche, teaching English as a foreign language, Malaysia; Sarah Dombrowski, theatre, Italy; Danielle Matilsky, public health, Malawi.

Mary Meyer, teaching English as a foreign language, Germany; Amitte Mosu, teaching English as a foreign language, Vietnam; Ronaldie Munusa, musical instrument training, Belgium; and Aine Steiner, teaching English as a foreign language, Germany.

"We are very pleased and honored that so many WUSTL students have been chosen for this very competitive award," said Ami Sulez, Ph.D., the University's Fulbright Program advisor.

The number of awards reflects the tremendous talent and accomplishment of our graduate and undergraduate students. We wish our Fulbright recipients much success in their Fulbright years and beyond," said Sulez.

The Fulbright Program is designed to increase mutual understanding between the people of the United States and the people of other countries. Under the program, 1,121 American students have been offered grants to study and conduct research in 35 countries throughout the world, beginning this fall. The program, established in 1946, is sponsored by the U.S. Department of State.

More than 105,000 Americans have held Fulbright grants since the program's inception. This year's awardees come from all 50 states as well as the District of Columbia and Puerto Rico.

This year's awardees include 37 students who will study abroad as part of the annual United Way 'Days of Caring' event. The citywide service program gives employees an opportunity to participate in volunteer activities during work hours. The University also sent employees to University City Children's Center and Hope Lodge.

Obituary

Hodges, former head of neuroradiology, 84

BY BETH MILLER

David "Ted" Hodges III, professor emeritus of radiology and one of the founders of the neuroradiology section at the Mallinckrodt Institute of Radiology, died Thursday, Aug. 9, 2007. He was 84.

Hodges came to the School of Medicine's Mallinckrodt Institute of Radiology in 1957 as an assistant professor of radiology. That same year, he helped found the institute's program in neuroradiology, which was a novel field in the United States at the time. He was named head of the section in 1961.

While at Mallinckrodt Institute of Radiology, Hodges received a National Institutes of Health Fellowship in Neuroradiology and spent one year in Sweden. He left the School of Medicine in 1966 to become chief of neuroradiology at Johns Hopkins Hospital in Balti-
more, but returned to the School of Medicine in 1980 as professor of neuroradiology. He retired in 1995.

In 1973, Hodges served on the panel of consultants to the Com-
mmission on Mental Activities within the United States, reviewing the circumstances of the assassination of President John F. Kennedy.

Ted Hodges was a role model for all of us, faculty and students alike," said R. Gilbert Josi, M.D., the Elizabeth E. Mallinckrodt Pro-
fessor and head of the Depart-
ment of Radiology and director of the Mallinckrodt Institute of Ra-
diology. "His quiet, gentle man-
er, his dedication, his diligence and his characterizations as an out-
standing physician and human are qualities that were ad-
mired by all who knew him."

Hodges is survived by his wife, Genny; sons Fred J. IV and
Thomas of Minneapolis; and a brother, John, of Rainier, Wash.

A memorial service will be held Aug. 17 at Webster Groves Presby-
terian Church. Memorial con-
ditions may be made to the Web-
ster Groves Presbyterian Church, 45 W. Lockwood, Webster Groves, Mo., 63119.

Protein

Level variations common in people

"Protein level variations common in people" — from Page 1

The proximal part of the intestine, as normally occurs, the distal intestine packages those fats very differently.

"The proximal intestine makes a fatty package called chylomicrons," she said.

Amounts of protein in different tissues, and some individuals don't have any of it." Although scientists in Abumrad's laboratory say it may be possible eventually to help people lose weight by in-
terfering with the CD36 protein, they first want to learn more from the mouse. Currently, they work with mice that cannot make CD36 anywhere in their bodies.

But because the protein also operates in heart tissue and skeletal muscle, disabling CD36 everywhere can have detrimental effects. So the team is working to develop a new kind of mutant mouse that can make CD36 everywhere except in the intestine.

"If we find that such a baby still has delayed absorp-
tion of fatty acid and chol-
esterol and ends up eating less fat, we'll have more evidence that this might be a good approach to use in humans," she said.

Beth Miller
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.

"I love for challenges seems to have served Armamento-Villareal well-if it allowed her to gradually 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 Taburan, the Philippines, population near 2,500, 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 Voces 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 School of Medicine in 1990. Arriving in February from tropical Cebu, where daily high temperatures were in the 80s or 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 it as "driving lessons." Her teacher was an Indian woman who gave her just enough information to pass the driving test and then told her, "You're not going to do stupid things. Just use common sense and you'll be fine." And she was-almost, but not completely stuck to the side streets on her 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. Schoenberg Professor of Medicine, introduced her to researchers that focused on how estrogen production and breakdown, or estrogen metabolism, affects bone health.

"When I came back, Dr. Civitelli asked me to revise a paper he was working on," Armamento-Villareal says. "That started my interest in estrogen metabolism. I wanted 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," says Civitelli, also professor of orthopedic surgery and osteobiology 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 and often assume that only women have 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, but also men's estrogen metabolism affects their bone density. She also has demonstrated that we are what we eat from history of osteoporosis tend to metabolize estrogen into weaker forms. This highlights the influence of different genes, 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 is better able to protect bone health than calcium from supplements, Armamento-Villareal is continuing her work in this area. Other current projects look at the relationship between estrogen metabolism, calcium intake and bone health. The study suggested that calcium intake and bone health. The study suggested that calcium from dietary sources is better able to protect bone health than calcium from supplements, Armamento-Villareal is continuing her work in this area.

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Other current projects look at the relationship between estrogen metabolism and cognitive function and study the genetic and dietary factors affecting bone density 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 she 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 patients and follows their bone health closely," says Cynthia Ma, M.D., Ph.D., assistant professor of medicine in the Division of Oncology. "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."

"People used to just accept the weakness of the bones as a normal part of aging, and in the past it didn't affect so many people because we didn't live as long," she says. "But with our longer life spans now, unless we find better ways to treat and prevent osteoporosis many more people will face significant disability in old age. I'm really interested in what I can do to help."

Armamento-Villareal is assistant professor of medicine in the Division of Bone and Mineral Diseases and a bone specialist at Barnes-Jewish Hospital. She treats patients with a variety of disorders that affect the bones.

Not surprisingly, many of her patients are women past menopause. Postmenopausal women face an increased risk of osteoporosis because their estrogen levels have dropped. Armamento-Villareal's work delved into the relationship between estrogen metabolism, calcium intake and bone health. The study suggested that calcium from dietary sources is better able to protect bone health than calcium from supplements, Armamento-Villareal is continuing her work in this area.

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Armamento-Villareal's husband, Dennis T. Villareal, D.D.S., is also on the faculty at the School of Medicine. Villareal, associate 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.

"I think because I have a tough case and need more input, I can ask him," Armamoto-Villareal adds. "And if he needs more input about things like genetics, he can ask me."

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. "He flip-flops," Armamento-Villareal says. "That's OK. We aren't pushing him into medicine. Sometimes I like 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."