

## LARGE ANIMAL CLINIC

### Superior Client Experience

From comfortable furnishings in the lobby to new client education materials, the Large Animal Clinic has initiated a new and smoother client experience.

"We've always been good with animals," says Gregory Ferraro, clinic associate director since June 2011. "Now we're making that experience more efficient and comfortable for clients, and more of a partnership with referring veterinarians."

#### Appointments Run Smoothly

"When a case is complex, an appointment can become complicated," Ferraro states. "Our focus is to ensure that the client understands that process, has any questions answered and receives enough information at discharge to care for the patient at home."

On arrival, each client is greeted by new client coordinator Soli Redfield, an experienced technician with wonderful customer service skills. She familiarizes each client with treatment team members assigned to his or her animal, organizing every step so that each patient moves smoothly through exams, diagnostic tests, imaging and procedures. She also provides status updates to the animal's owner.

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Equine surgeon Larry Galuppo has expanded his role as a clinician to see cases on a full-time basis and serve, along with other clinical faculty and staff members, as a consistent presence with clients.

## Major Grants Highlight Power of Mouse Genetics

Two new grants to provide genetically altered mice for sophisticated research studies of human and animal health highlight the scientific value of the school's Mouse Biology Program.

The Mouse Biology Program, with a consortium of US and Canadian partners, received \$34 million in September from the National Institutes of Health to develop new mouse models for the study of human cancers, obesity, diabetes and heart disease.

This new grant funds the second phase of a related program, the Knockout Mouse Project (KOMP), first funded by the NIH in 2006.

#### What is a Knockout Mouse?

Knockout mice are genetically customized to have individual genes turned off or "knocked out," or have a gene ramped up to make mice either more prone or more resistant to specific diseases.

The goal of the first phase of the initiative was for a worldwide group of researchers to create a mutation in embryonic stem cells for each of the approximately 21,000 protein-coding genes in the mouse genome, which would allow scientists to determine the role of each gene in normal physiology and development. The UC Davis team, led by Kent Lloyd, director of the Mouse Biology Program, successfully completed work on the 5,000 genes in its share of the project.

In the latest phase of the project, 2,500 of the completed embryonic stem cells will be used to establish and breed mouse

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# Number of Endangered Species Nearly Doubles in Salish Sea

SeaDoc Society researchers report that the number of threatened or endangered species in the Pacific Northwest region known as the Salish Sea has nearly doubled in the last two years.

When last tallied in 2008 there were 64 species on the list of endangered or threatened species. Today there are 113. This number includes candidates for listing developed by Canadian and US agencies.

The Salish Sea encompasses the areas from Washington's Puget Sound to the Georgia Strait in Canada, including the waters around the San Juan and Gulf Islands.

Nick Brown, the SeaDoc Society scientist who presented the findings at a conference in British Columbia in October 2011,



The Western grebe is on British Columbia's "Red List," designated as an endangered, threatened or at-risk candidate species under the province's wildlife act.

says that the dramatic rise is due to increased understanding of the many species that use the marine waters, as well as a true increase in the number of endangered species listed in the last two years.

Co-author Joe Gaydos, Sea Doc's regional director, comments, "This is the greatest jump seen since we began tracking this in 2002. It's time to bring out our A-game to recover declining populations before it's too late."

To view the paper online, visit [www.seadocsociety.org/species-of-concern-2011](http://www.seadocsociety.org/species-of-concern-2011)

## Client Experience Continued from page 1

Client education remains a strong component of any visit. The clinic has developed a new brochure series to explain general procedures and health issues such as colic, dentistry and orthopedic injury diagnostics.

The Large Animal Clinic team's renewed focus on the client experience is a fundamental change. Recent client feedback confirms that the changes are making a difference in client satisfaction: "Many thanks to you and your staff for my positive experience at UC Davis. A few things really stood out. The first was the amazing customer service I received from Soli. Her wonderful attitude and kindness were so welcomed in a process that can be daunting... I also received several follow up calls regarding the health of my horse, which were appreciated."

### Communication is Key

Referring veterinarian Grant Miller, DVM 2004, an equine practitioner in Sonoma County, says, "Referring veterinarians value communication with clinicians at the Veterinary Medical Teaching Hospital, and clients are reassured knowing that all veterinarians on the case are speaking to each other. A commitment to partnership and communication helps all parties."



"The case doesn't stop when the animal goes home," Ferraro agrees. "We call referring vets when they send us a case and maintain communication after the client leaves the hospital." Besides the patient aftercare, the clinic sends a message of thanks to animal owners and referring veterinarians.

The hospital has further integrated its services, added technical cross-training, remodeled facilities and centralized office functions. This integrated approach has energized the campus team, created a welcoming atmosphere for clients and enhanced the student learning experiences.



## Mouse Genetics

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colonies, which will then be phenotyped. Phenotype refers to an organism's physical characteristics.

### Traits of Disease

The NIH also announced in September that it had awarded \$3.9 million to fund a new research hub devoted to the physiology and genetics of obesity, diabetes and cardiovascular disease, which is the nation's leading cause of death.

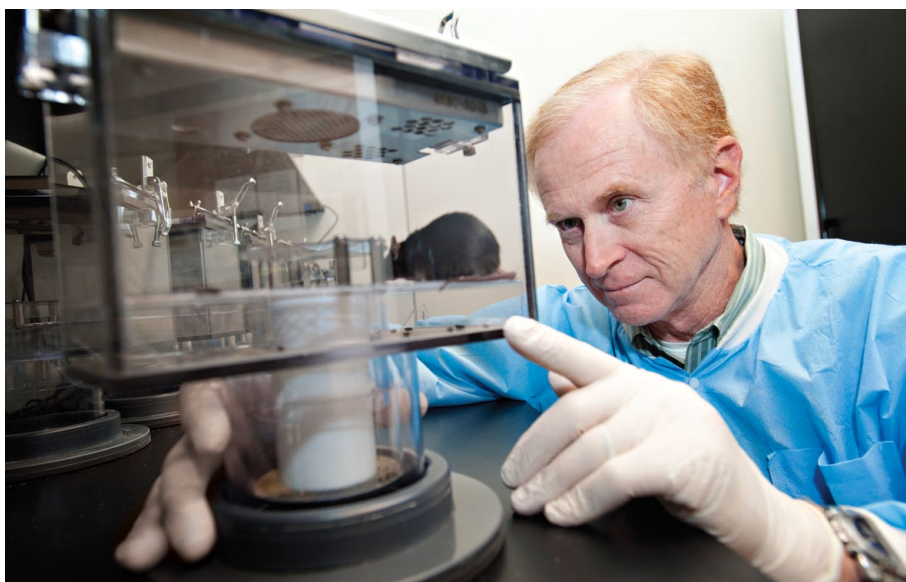
Lloyd, director of the Mouse Metabolic Phenotyping Center (MMPC), also the school's associate dean for Research and Graduate Education, says that the new center will provide scientists worldwide with complete physiologic characterizations of genetically altered mice. It will be one of only six such centers in the US, and the only one that can produce the mice for analysis.

### A Comprehensive Approach

The Knockout Mouse Project has resulted in the most comprehensive repository of its kind. The Mouse Biology Program, begun in the late 1990s, has a staff of 125 scientists and technicians and a network of experts in stem cell biology, genetics, breeding and phenotypic analysis. The Mouse Biology Program's projects have served 6,000 research clients from 500 institutions in 30 countries.

The program has received more than \$80 million over the last decade, mostly from the NIH, to provide publicly available resources to researchers during all phases of their studies from concept to publication.

The KOMP phenotyping center consortium includes UC Davis, the Toronto Centre for Phenogenomics, the Children's Hospital Oakland Research Institute in Oakland, California, and Charles River Laboratories International Inc., based in Wilmington, Massachusetts. The UC Davis School of Medicine and College of Engineering and the USDA-Agricultural Research Service Western Human Nutrition Research Center will collaborate with the school on the MMPC.



Kent Lloyd, director of the Mouse Biology Program

## Institute of Medicine Welcomes Conrad

Patricia Conrad, professor of veterinary parasitology, has been elected to the Institute of Medicine, one of the nation's highest honors in health and medicine.



Patricia Conrad

The institute, an independent, nonprofit branch of the National Academy of Sciences, announced its elections in October 2011. Conrad is one of only about 20 veterinarians among the institute's 1,870 members. Members volunteer to participate on national advisory committees that offer authoritative advice on health and health-care issues.

Conrad co-directs the One Health Center at the UC Global Health Institute. She is known worldwide for her work on babesiosis, a tick-transmitted parasitic disease that afflicts humans, rodents and dogs. In addition, she and her collaborators in the school have worked to improve the diagnosis and control of neosporosis, a major cause of fetal death in cattle, which takes a significant economic toll on the California dairy industry.

Conrad also collaborates on investigations of disease-causing parasites and bacteria in freshwater, marine and coastal ecosystems in California, particularly those that are undermining the health of sea otters.

Conrad mentors graduate and professional students and has developed innovative, computerized educational programs to encourage active, problem-based learning in parasitology and global One Health issues.

## New Promise for Rift Valley Fever Vaccines

**T**ilahun Yilma, director of the International Laboratory of Molecular Biology for Tropical Diseases, working with an international research team, reported in August 2011 the development of two genetically engineered vaccines to combat Rift Valley fever, devastating to livestock in Africa and the Middle East.

The scientists hope the new vaccines can be further developed for use in people, who can be infected by mosquitoes or by direct contact with infected animals or their meat.

“There currently are no approved vaccines available for preventing Rift Valley fever in humans, and those available for livestock are either inefficient or have serious side effects,” Yilma says.

In livestock, the disease causes major losses, with the rate of abortion among pregnant sheep approaching 100 percent. In people, infection results in fever, hepatitis, vision loss and occasionally hemorrhagic fever.

Researchers found that both vaccines proved safe and produced significant immune responses when tested in mice and baboons. The scientists plan more studies to determine vaccine safety and effectiveness in sheep and cattle.

Yilma noted that both vaccines would be easy to produce in large scale and would not need refrigeration.



Once approved for general use in livestock, new-generation vaccines would be easy to store and distribute in the field.

The Department of Homeland Security and the National Institutes of Health provided funding. Details are available from the *Proceedings of the National Academy of Sciences*, [www.pnas.org/content/108/36/14926.abstract](http://www.pnas.org/content/108/36/14926.abstract).

## A Novel Treatment for Type 2 Diabetes

**T**he hormone leptin, naturally produced by fat cells and long known to play an important role in regulating appetite and fat metabolism, may prove useful in treating type 2 diabetes.

“Recent animal studies have shown that the hormone also lowers blood sugar in type 1 diabetes,” says lead author Peter Havel, a professor specializing in research on endocrinology and metabolism in the Department of Molecular Biosciences. “Our study is the first to demonstrate that twice-daily injections of leptin lower blood sugar levels and circulating triglycerides in an animal model with the more common form of diabetes – type 2,” Havel says. (Triglycerides are a form of fat that circulate in the bloodstream and, at high levels, can increase the risk of heart disease.)

The findings from the study, involving rats predisposed to the disease – formerly known as adult-onset diabetes – appeared in the *Proceedings of the National Academy of Sciences*.

Diabetes affects more than 21 million people in the United States.

### Better Control of Blood Sugar

“The data from this study indicate that leptin improves blood sugar control, in part, by increasing the animals’ sensitivity to insulin, the hormone responsible for maintaining normal blood sugar levels,” states co-author Bethany Cummings, a veterinary molecular physiologist in Havel’s laboratory.

The leptin treatments also resulted in decreased levels of circulating glucagon, a hormone produced in the pancreas that stimulates an increase in blood-sugar levels and works in opposition to insulin.

Co-authors are postdoctoral fellow Ahmed Bettaieb, Associate Professor Fawaz Haj, and undergraduate assistant Riva Dill, UC Davis Department of Nutrition; research scientists James Graham and Kimber Stanhope, both of the School of Veterinary Medicine and the Department of Nutrition; and Assistant Professor Gregory Morton of the University of Washington School of Medicine.

The National Institutes of Health and UC Davis’ Center for Nutrition and Health Research provided study funding.

## Low Fellows Exchange Insights

The UC Davis School of Veterinary Medicine and the California Veterinary Medical Association have welcomed six Donald G. Low-CVMA Practitioner Fellows for 2011-2012.

The fellowship provides a unique opportunity for veterinarians to learn in the clinical setting of the William R. Pritchard Veterinary Medical Teaching Hospital or other school programs. Each fellow spends 20 days to improve general knowledge in an area of interest. In turn, the practitioner also shares experiences and practical insights from private practice with faculty members and veterinary students.

Fellows receive their training at no charge and gain 72 Continuing Education credits.

This year's fellows and their service assignments are:

- Kimberly Casey, DVM 2003, VCA Madera Pet Hospital, Corte Madera – Small Animal Soft Tissue Surgery
- Karina Flinn, DVM 2003, Sacramento SPCA – Shelter Medicine
- Shawn Johnson, DVM Iowa 1996, National Marine Mammal Foundation, San Diego – Anesthesia
- Karen Mulvihill, DVM 1988, Sacramento Animal Hospital – Small Animal Soft Tissue Surgery



Kimberly Casey



Karina Flinn

- Dani Rabwin, DVM 2004, Pet Medical Center, West Hills – Clinical Pathology
- Heidi Sheahan, DVM Colorado 1990, Rosedale Veterinary Hospital, Bakersfield – Small Animal Medicine

The fellowship honors the late Donald G. Low, a former director of the William R. Pritchard Veterinary Medical Teaching Hospital and a pioneer in the field of continuing veterinary education.

The California Veterinary Medical Association is the largest state veterinary medical association in the United States, with more than 6,000 members. The association led the campaign to fund this one-of-a-kind program and partners with the school to recruit and select fellows.

The application deadline for 2012-2013 fellowships is May 11, 2012. Interested veterinarians may contact Jan Harlan, School of Veterinary Medicine, (530) 752-9963, [jdharlan@ucdavis.edu](mailto:jdharlan@ucdavis.edu), or find details online: [www.vetmed.ucdavis.edu/ce/don\\_low/index.cfm](http://www.vetmed.ucdavis.edu/ce/don_low/index.cfm)



Shawn Johnson



Dani Rabwin



Heidi Sheahan

## FDA Funds National Food-Safety Training Program

The US Food and Drug Administration has awarded \$1.3 million to the school to develop a new food-safety training program for government and industry.

"Foodborne illnesses annually cost the US economy \$152 billion in health care expenses, lost wages and production inefficiencies," states Bennie Osburn, principal investigator. "With proper standardized training, government inspectors, regulatory officials and food-production employees can perform with greater precision and dramatically reduce the annual rate of food-related illnesses."

The grant funds the first year of a five-year agreement, renewable for a total of \$6.5 million, that is part of an FDA drive

to build an integrated national food safety system as mandated by the US Food Safety Modernization Act of 2011.

The scientists' goal is to develop a national food-safety curriculum to train food-industry and agency personnel at all levels: inspectors, managers and leaders. Investigators will work with the school's Western Institute for Food Safety and Security to develop and improve course content to meet or exceed a national accreditation standard related to specialty produce crops, dairy products and laboratory operations.

The FDA is drafting new regulations as mandated by the new law; they will be incorporated into the training program as they are developed.



## Private Sponsors Support Nutrition Residency Program

Nutrition is playing an increasingly key role in the dietary management of certain health conditions in pets. The Nutrition Support Service at the William R. Pritchard Veterinary Medical Teaching Hospital is providing valued services for today's patients through its consulting services and is meeting future needs by training tomorrow's veterinary specialists in this area.

Private sponsors share in the service's commitment to education of tomorrow's specialists in nutrition. Hill's Pet Nutrition, Nestlé Purina PetCare Company, and Royal Canin are valued partners in nutritional education and have supported 7 of the 14 trained residents since the program's inception in 2001. Their contributions total more than \$800,000. Additional funding has been provided by the Nestlé Purina PetCare Company for the service's nutrition technician and to support the construction of its diet kitchen and other facility enhancements. The positive impact of support from these



Private sponsors share in the Nutrition Support Service's commitment to meeting the growing need for veterinary nutrition specialists. Through the service's residency program, Dr. Amy Farcas receives valuable advanced training in this important area.

sponsors comes at a critical time when state support has been reduced.

"Veterinary nutrition is a small but growing specialty. The residents we train in our program have gone on to fill vital roles in academia, industry, consulting and private practice," says Professor Andrea Fascetti, chief of the Nutrition Support Service. "We are very grateful for the external support that allows us to train individuals to meet the continual demand for more specialists in this important area of veterinary care."

With the help of private sponsors, the Nutrition Support Service is able to provide advanced post-doctoral clinical training with a primary emphasis on small animal veterinary clinical nutrition. This training prepares

residents for board certification in veterinary nutrition by the American College of Veterinary Nutrition. The program also provides experience in research and teaching veterinary clinical nutrition to veterinary students and other residents.

## Osburn Graduate Fellowship: Tomorrow's Top-notch Scientists

Honoring Dr. Bennie Osburn and his extraordinary scholarly career, a graduate student fellowship bearing his name has been established. For more than 40 years, as a teacher, researcher, and administrator, Dr. Osburn has made significant contributions to advancing academic veterinary medicine and the veterinary profession worldwide.

The Bennie I. Osburn Graduate Fellowship provides financial support for students who are pursuing a PhD and already have a DVM degree or those students pursuing both degrees at the same time. It is a fitting tribute that future PhDs in veterinary medicine will receive financial support in his honor. During his career, Dr. Osburn mentored 50 graduate students.

"Mentoring bright students has been among the most rewarding aspects of my

career," says Dr. Osburn. "I am proud of the achievements that these graduate students have gone on to accomplish as distinguished veterinary and biomedical scientists."

### Best and Brightest

Many veterinary scientists at the school are internationally recognized in their fields, adding to the strength of the school as a leader in veterinary medicine. But like other veterinary schools across the country, UC Davis is facing the "baby boomer" effect. Within the next 10 years, nearly 30% of the current faculty will retire.

Their departure will create the need to attract and retain the same level of exceptional academic veterinary scientists as those leaving the faculty ranks. One



Dr. Bennie Osburn's commitment to mentoring and training top-notch veterinary scientists has been unparalleled.

## Distinguished Teacher

**V**eterinary anesthesiologist Linda Barter, BSc, MVSc, PhD, DACVA, has received the 2011 Pfizer Distinguished Veterinary Teacher Award.

The award recognizes continued, distinguished teaching performance and honors teachers who, through their ability, dedication, character and leadership, contribute significantly to professional DVM, MPVM, graduate academic, and graduate clinical instruction.

Barter, an assistant professor in the Department of Veterinary Surgical and Radiological Sciences since 2007 and a diplomate of the American College of



Linda Barter

Veterinary Anesthesiologists, is a talented classroom and clinical instructor. She teaches the techniques and management of anesthesia and analgesia to DVM students and trains veterinarians in the anesthesiology residency. She also helped develop and now leads a core academic course in respiratory physiology to meet the needs of the new DVM curriculum.

Barter received her award October 27 and was entered into consideration for the national Pfizer Distinguished Veterinary Teacher Award, the highest teaching honor in veterinary education.

solution is to bring the best and brightest young scholars to UC Davis so that they can learn from the experts and then go on to make their own contributions to veterinary science.

### Investment in Today's Students

One of the greatest hurdles graduate students face is the high cost of education. Over the past twenty years, the cost of graduate training for a California resident has increased over 300%, from \$4,300 to more than \$14,000 per year. These escalating costs pose a major impediment for individuals interested in pursuing advanced degrees and academic careers in veterinary medicine.

To address this issue, the school has made graduate fellowships a priority, with a special focus on establishing graduate

fellowship endowments. Endowed funds build a secure source of funding for attracting the highest caliber of young scientists to UC Davis to earn their PhDs.

In general, based on historical endowment management practices, every \$25,000 in the endowment fund will generate approximately \$1,000 in fellowship awards. Given the steady rise in the cost of a graduate education, the school's goal is to build the endowment fund as high as possible.

For information about making a gift to the Bennie I. Osburn Graduate Fellowship Endowment Fund, please contact the Development Office at (530) 752-7024.

## Steven E. Epstein

Assistant Professor of Clinical Small Animal Emergency and Critical Care, Surgical and Radiological Sciences



### Education

- Diplomate, American College of Veterinary Emergency and Critical Care, 2010
- DVM, UC Davis, 2004

### Experience

- Resident, Small Animal Emergency and Critical Care, UC Davis, 2007-2010
- Associate Veterinarian, UC Davis, 2005-2007
- Intern, Anesthesiology, Kansas State University, 2004-2005

### Special interests

- Antimicrobial use and resistance in critically ill dogs and cats

## Carrie Palm

Assistant Professor of Clinical Small Animal Internal Medicine, Veterinary Medicine and Epidemiology



### Education

- Diplomate, American College of Veterinary Internal Medicine, 2008
- DVM, UC Davis, 2004

### Experience

- Hemodialysis/Nephrology/Urology Fellow, UC Davis, 2009-2011
- Small Animal Internist, Veterinary Medical and Surgical Group, Ventura, 2008-2009
- Intern and Resident, Small Animal Medicine, University of Pennsylvania, 2004-2008

### Special interests

- Feline kidney disease
- Nephrology, urology, extracorporeal therapies

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(VMDN)  
School of Veterinary Medicine  
University of California  
One Shields Avenue  
Davis CA 95616-8736

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# CE Calendar 2012

## Veterinary Continuing Education

(530) 752-3905, Fax: (530) 752-6728  
[center4cpe@ucdavis.edu](mailto:center4cpe@ucdavis.edu)

### March 23, 2012

34th Annual VMTH House Officer Seminar Day, Davis  
Contact: Jan Harlan, (530) 752-9963 or  
[jdharlan@ucdavis.edu](mailto:jdharlan@ucdavis.edu)

### April 22, 2012

8th Annual Veterinary Neurology Symposium, Davis

### Summer, 2012 (Date TBA)

5th Annual Back to School  
Veterinary Technician and Assistant CE Seminar, Davis

### October 7, 2012

4th Annual Veterinary Practitioners Seminar, Davis

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For information on these and other 2012 events, including annual student-hosted symposia, please visit [www.vetmed.ucdavis.edu/ce](http://www.vetmed.ucdavis.edu/ce).



Dean Michael Lairmore, left, presents the 2011 School of Veterinary Medicine Distinguished Service Award to Kathleen Dickinson McDowell in memory of her late husband, Ron McDowell of Washington state. The award recognizes the vision, funding commitment and steadfast involvement of McDowell and his wife. McDowell and the school established the SeaDoc Society in 2000 to address marine ecosystem health in the Salish Sea. He also established the Pacific Northwest Fund, an endowment that supports the program.