



## Doctors Make Strides in Laminitis Care

**H**oof injuries can be devastating for horses who develop laminitis, an inflammation of the nail bed. Since these hooves support upwards of 1,000 pounds, and horses cannot be on “bed rest,” a nail injury can turn catastrophic. Laminitis claims about 75 percent of its victims, and there is much about the disease that veterinarians still do not understand.

As further studies of the disease and new treatments are crucially needed, two UC Davis faculty are leading that charge. Veterinarian Alonso Guedes, a clinical anesthesiology specialist at the Veterinary Medical Teaching Hospital, and Bruce Hammock, a distinguished professor of entomology, may have discovered a new laminitis treatment for horses not responding to current accepted methods.

In the spring of 2011, a four-year old Thoroughbred named Hulahalla was donated to the Center for Equine Health after suffering a tendon lesion on her left forelimb while on the racetrack. She was treated for that lesion, and

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## Toward a Safer Food Supply

**T**he UC Davis, Agilent Technologies and the US Food and Drug Administration have launched an ambitious effort to sequence the genomes of 100,000 infectious microorganisms and speed diagnosis of foodborne illnesses.

With a research focus on microbial physiology and function, Bart Weimer, a professor in the Department of Population

Health and Reproduction, directs the new “100K Pathogen Genome Project” at UC Davis. He is also co-director of BGI@UC Davis, where the sequencing will be done. (BGI@UCDavis is a partnership with BGI, the world’s largest genome sequencing organization.) Other collaborators include the US Centers for Disease Control and Prevention and the US Department of Agriculture.

The new five-year microbial pathogen project focuses on making the food supply safer.

The group will build a free, public database of the sequenced information for each pathogen’s genome—the complete collection of its hereditary information—that will be hosted at the National Center for Biotechnology Information,

another consortium partner. The database will contain the genomes of significant foodborne pathogens such as *Salmonella*, *Listeria*, *Campylobacter*, and toxin-producing *E. coli*, as well as other common foodborne and waterborne viruses that sicken people and animals.

The consortium will provide a roadmap for developing new tests to identify pathogens and help trace their origins more quickly. The genome database also will enable scientists to make discoveries that can be used to develop novel methods for controlling disease-causing bacteria in the food chain. The group is actively seeking additional partners for sample submission and collaboration.

“The lack of information about food-related bacterial genomes is hindering the

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# Class of 2016

**Michael Lairmore**, dean, and the faculty welcomed 138 new Doctor of Veterinary Medicine degree students to the school August 17, 2012. The Class of 2016 and family members shared the academic and career milestone at a ceremony where students donned white coats to symbolize acceptance into the program and the profession.

In his remarks to the class, Lairmore noted the variety of life experiences that each new student brings to the school. "The class includes some amazingly talented individuals including an Olympian, helicopter pilot, professional tennis player, concert pianist, lawyer, Peace Corps volunteer, and an Irish dancer." He added, "We are proud to have a student from Israel this year. Many of the new students have traveled internationally, an important background to meet our global needs in veterinary medicine."



Lairmore and the faculty thank veterinarian J. Kevin Grayson of the Admissions Committee and the following veterinary practitioners on the Admissions Advisory Committee for their valuable service to the school and veterinary education:

- Steve Aboulafia
- Jamie Anderson
- Michele Beko
- Monica Gabourel
- Gary Hanes
- Tom Hansen
- Andrew Kallet
- Robert Lavan
- Julia Lewis
- Kirsten Murphy
- Lara Zekaria
- Nancy Ramsey
- Jennifer Remensperger
- Liesl Peterson
- John Shaner
- Duane Stephens
- Daniel Sweet
- Mary Whitehill
- James Young

## \$17 Million to Fund Seizure, Neurotoxin Research

To accomplish a multi-layered research effort that could improve medical treatment for people with seizure disorders, the NIH has established a \$17 million center dedicated to identifying medical countermeasures for neurotoxic chemicals that cause seizures in humans. Pamela Lein, a developmental neurobiologist and neurotoxicologist in the Department of Molecular Biosciences, directs the program, the CounterACT Center of Excellence, part of the NIH Countermeasures Against Chemical Threats Research Network.

Research will emphasize a group of chemicals known as organophosphates as well as tetramethylenedisulfotetramine (TETS). TETS is a powerful neurotoxin once used as a rat poison; it is now banned in most parts of the world.

Organophosphates, many used in pesticides like parathion, can cause seizures by inhibiting the enzyme that normally regulates muscle contractions and critical pathways of communication in the brain. Inhibition of this enzyme causes overstimulation or over-excitation of the downstream cell in the circuit, and this increased excitability triggers seizures.

Lein says that the chemicals studied in the center's research projects will be used in very small amounts in experimental models. The studies will be conducted in existing campus laboratories.

The research program is expected to produce additional benefits, including improved understanding of the biological mechanisms that cause seizures, new neuroimaging techniques and biomarkers for monitoring neurological damage following chemically induced seizures, and novel approaches for controlling seizures in people with epilepsy.

The five-year funding supports the development of three research projects:

- Drugs and treatment procedures to minimize brain damage in patients who survive seizures (led by Lein)
- Improved treatments for preventing seizures (led by Michael Rogawski, School of Medicine)
- Rapid-throughput tests and high-resolution imaging techniques to screen compounds for potential anticonvulsant and anti-inflammatory activity (led by Isaac Pessah, Department of Molecular Biosciences)

Other center researchers from UC Davis include Bruce Hammock, a toxicologist and distinguished professor of entomology; Heike Wulff, a medicinal chemist and associate professor of pharmacology in the School of Medicine; Danh Nguyen, a statistics expert in the UC Davis Clinical and Translational Science Center; and Bora Inceoglu, a biochemist and pharmacologist in the Department of Entomology.

## A “Pivotal” Role in Detecting BSE

**A**pril 24, 2012, the USDA announced that a case of atypical Bovine spongiform encephalopathy had occurred in a California dairy cow.

What most people did not know was that the personnel of the California Animal Health and Food Safety Laboratory System (CAHFS) based at the school had found the suspect case during routine surveillance testing. They reported the case to the USDA National Veterinary Services Laboratory and then forwarded samples necessary to confirm the result.

The USDA fielded media inquiries and responded to questions about the testing and the food supply. Together, CAHFS personnel, School of Veterinary Medicine veterinarians and federal veterinarians responded to numerous calls to calm consumer fears and provide facts about the disease.

The laboratory is one of six National Animal Health Laboratory Network (NAHLN) laboratories providing testing for BSE nationally. Director Richard Breitmeyer explains the laboratory's role in the discovery. “The six NAHLN labs test about 40,000 samples each year in cooperation with USDA. This is a targeted surveillance program, testing high-risk animals such as those that have symptoms of neurologic disease or die of unknown causes. If a sample is a reactor on our screening assay, it is classified as ‘inconclusive’ and immediately sent to

the USDA National Veterinary Services Laboratory in Ames, Iowa, for confirmatory testing and characterization.”

Breitmeyer states, “The good news is that this form of BSE is very rare and not known to be associated with contaminated feed or with the earlier outbreaks of Classical BSE in the UK, Canada and other countries. The fact that this animal was more than 10 years old is consistent with other cases of Atypical BSE, which have been found in older animals worldwide.”

Dean Michael Lairmore comments, “The recent detection of BSE in a single cow illustrates the importance of the School of Veterinary Medicine, through its exceptional network of diagnostic laboratories in partnerships with the State of California and the California food industry in protecting the public. While not usually in the public eye, these highly trained scientists and staff provide a safety network for all of us. The veterinary profession, through active animal disease surveillance programs, is another example of ‘One Health’ at work in preventing human disease.”

Breitmeyer recognizes and thanks his staff for their pivotal role in detecting the case.



## Pathogen Genome Project

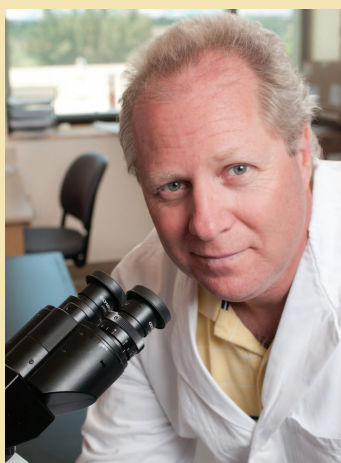
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research community's ability to improve the safety and security of the world's food supply,” Weimer said. “The data provided by the 100K Genome Project will make diagnostic tests quicker, more reliable, more accurate and more cost-effective.”

In the United States alone, foodborne diseases annually sicken 48 million people and kill 3,000, according to the CDC.

A consumer-oriented article about the project is available on the FDA web site: [www.fda.gov/ForConsumers/ConsumerUpdates/ucm311086.htm](http://www.fda.gov/ForConsumers/ConsumerUpdates/ucm311086.htm).

The 100K Pathogen Genome Project website is located at <http://100kgenome.vetmed.ucdavis.edu/index.cfm>



Bart Weimer's research encompasses genomics and functional genomics to examine microbial metabolism and how gene interactions produce specific characteristics of microorganisms.

## Wanted: Senior Cats for Pain Relief Study

Assistant Clinical Professor Alonso Guedes is conducting a study on whether the pain-killer tramadol can relieve pain in senior cats with osteoarthritis, a painful condition of up to 90 percent of older felines. If you have a cat or know a cat owner who might wish to participate in this free clinical trial, please contact Guedes at [aguedes@ucdavis.edu](mailto:aguedes@ucdavis.edu). Please include “cat pain study” in the subject line of your message. Study details and participation criteria are available at [www.vetmed.ucdavis.edu/whatsnew/article.cfm?id=2588](http://www.vetmed.ucdavis.edu/whatsnew/article.cfm?id=2588).



## Laminitis Care

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recovery continued into the fall of 2011. Hulahalla then took a turn for the worse, developing laminitis. She became severely painful and was unresponsive to the current standard of care. For humane reasons, euthanasia was being considered.

Before that was to happen, Guedes decided to administer an experimental new drug. In his work with pain management, Hammock had discovered that epoxide hydrolase inhibitors (EHi) demonstrated anti-inflammatory properties and could be used for neuropathic and inflammatory pain—exactly what Hulahalla was suffering. Guedes was hopeful that the drug—an EHi commonly referred to as t-TUCB—would be successful on horses. “This is one of the advantages of being part of a research university,” says Guedes. “We get the opportunity to employ drugs not otherwise available.”

### Up And Active

After Hulahalla had been down for the majority of two days (extremely rare for a horse, not to mention potentially fatal), Guedes administered t-TUCB. Within a day, she was up and active. “Hulahalla was standing in her stall, interested in her surroundings,” says Guedes. “She began to walk spontaneously. While nowhere near full health, the signs were encouraging, confirming my belief in the treatment.”

The treatment continued for another four days. The horse’s demeanor, posture, mobility and expressions all improved. Also,



Hulahalla’s hypertension gradually came down to normal values, further indicating success of the new therapy.

### Positive Results Could Revolutionize Care

While this is the first test case of t-TUCB on a horse, the results are promising. Three other horses tested since Hulahalla showed signs of improvement, as well. “These results give us hope that a full clinical trial can be launched in the near future,” says Guedes. Positive outcomes from that effort could lead to t-TUCB becoming an accepted form of treatment, possibly revolutionizing laminitis care throughout the horse world.

This collaborative effort between Guedes and Hammock is a clear example of the excellent patient care UC Davis achieves with a multi-disciplinary approach.

## Leading the Way

### Patricia Blanchard,

professor of clinical diagnostic pathology, was appointed associate director of the California Animal Health and Food Safety Laboratory

System effective January 1, 2012. Blanchard, who has been with the laboratory system since 1987, is the chief of the Tulare branch laboratory. She works with the director’s office and the Laboratory Advisory Board to review and implement improvements in laboratory operations, including client services, outreach and policy development.



### Terry Lehenbauer,

director of the Veterinary Medicine Teaching and Research Center in Tulare, has been appointed the director of the Center for Food Animal Health. Lehenbauer will develop a strategic vision and plan for the center, and assist in securing resources for research on animal diseases important to livestock industries. Lehenbauer is also charged to enhance collaborative research efforts between Agricultural Experiment Station and Cooperative Extension faculty and related university programs.



### Jane Sykes,

professor of small animal internal medicine, is the new director of Small Animal Clinical Services at the William R. Pritchard Veterinary Medical Teaching Hospital. Sykes, who joined the faculty in 2002, has served as chief of the Small Animal Medicine Service and as the biosecurity officer for the Small Animal Clinic. Sykes now leads the educational, patient care and client/referring veterinarian service programs, including the operational, fiscal and facilities issues for the Small Animal Clinic.



## Rodrigo A. Gallardo

Assistant Professor, Population Health and Reproduction

### Education

- Diplomate, American College of Poultry Veterinarians, 2012
- PhD, Auburn University, 2011
- DVM, University of Chile, Santiago, Chile, 2004



### Experience

- Avian Diseases Veterinarian, Auburn University, 2011-2012
- Veterinarian, Avicola El Monte Inc., El Monte, Chile, 2004-2007
- Veterinary Consultant, Yaen Chile Ostrich Farm, Inc., Santiago, Chile, 2003-2006
- Assistant Veterinarian, Horizonte Laboratories, Inc., Santiago, Chile, 2003-2006
- Assistant Veterinarian, Centrovet Laboratories, Santiago, Chile, 2002
- Fluent in Spanish

### Special Interests

- Poultry production
- Poultry diseases, molecular virology, and viral evolution
- Viral diseases affecting poultry, including respiratory diseases
- Immunosuppressive illnesses

## Christopher M. Reilly

Assistant Professor of Clinical Ophthalmologic Pathology; Pathology, Microbiology and Immunology

### Education

- MAS, UC Davis, 2011
- Diplomate, American College of Veterinary Pathologists, 2007
- DVM, Tufts University, 2002



### Experience

- Clinical Professor/Associate Veterinarian, UC Davis, 2008-present
- Anatomic Pathologist, IDEXX Laboratories, No. Grafton, Mass., 2007-2008
- Resident, Anatomic Pathology, UC Davis, 2004-2007
- Fellow, Ocular Pathology, University of Wisconsin, Madison, 2003-2004
- Intern, Animal Medical Center, New York City, 2002-2003

### Special Interests

- Ocular pathology, including eye tumors, infectious agents and glaucoma in dogs and cats

## Tamara Pierce

Assistant Clinical Professor of Community Medicine, Veterinary Medicine and Epidemiology

### Education

- Fellowship, UC Davis, Behavior, 2006-2007
- DVM, Tufts University, 1997



### Experience

- Locum Veterinarian, UC Davis, 2010-2011
- Adjunct Professor, Cosumnes River College, Sacramento, 2008-2011
- Veterinarian, Four Corners Veterinary Hospital, Concord, 1997-2008
- Veterinarian, Feline Medical Center, Pleasanton, 2006
- Veterinarian, Worcester Cat Hospital and Bird Clinic, Mass., 1997

### Special Interests

- Behavior
- Dentistry
- Clinical training of veterinary students

## Noelia Silva del Rio

Assistant Specialist in Cooperative Extension, Population Health and Reproduction

### Education

- PhD, Dairy Science, University of Wisconsin, Madison, 2007
- DVM, Universidad de Santiago de Compostela, Spain, 1998



### Experience

- Dairy practitioner, Dairy Cattle Cooperative, Spain
- Dairy Advisor, UC Cooperative Extension, Tulare County
- Fluent in Spanish

### Special Interests

- Dairy cattle nutrition
- Milk quality
- Reproductive health and welfare
- Corn silage management
- Heat stress in cattle



## Helping Others from the Top of the World

**H**oward “Howdy” Miller, DVM 1972, and his wife, Debbie travel to Ladakh, India, each spring under the auspices of the Christian Veterinary Mission. They go to this remote Himalayan region, located at an elevation of 11,000-15,000 feet, to help village farmers and provide much-needed veterinary care for their animals.

Although a multitude of villages—each consisting of 10 to 60 houses—is scattered up the steep canyons of this area, the Millers return to the same eight villages each time to provide some continuity of care. Houses may have six rooms to accommodate three generations, but have no running water and only intermittent electricity.

To plow their fields, farmers rely on dzohs, a cross-bred bovine combining the strength of a yak with the demeanor of a cow. Also central to their daily needs and livelihood are cows, donkeys, goats and sheep. It is common for animals to have injuries, develop infections from parasites and suffer from respiratory illnesses, malnutrition and keratitis. Because of the region’s isolation, few animals receive veterinary care.

While walking along a trail earlier this spring, Miller came across a family who explained that they owned a cow with an injured knee. Since the cow was unable to come out of the muddy



Howard “Howdy” Miller, DVM 1972, provides much-needed veterinary care for a village goat in the remote area of Ladakh in the Himalayan region of India.

stable under the house, Miller waded through the mud to treat the animal. He washed, medicated and wrapped the wound. Grateful for the care, the family gave him a small bag of apricots and almonds, both considered precious delicacies.

When treating animals in some villages, Miller must also account for local superstition and spiritualism. For example, animal owners believe that firing, or burning flesh, above the perceived injury will promote healing. “The result is damaged tissue that I debride and medicate, all the while feeling sorry for the poor animal. These situations give me a good opportunity to provide education to the community,” said Miller.

Between visits, villagers eagerly await Miller’s return. They often ask his liaison in Ladakh when the “English doctor” is coming back. Over the years,

the Millers have developed respect for the hard life these farmers lead and an admiration of the yet indomitable spirit they possess.

Now retired from his successful practice in Oregon, Miller plans to continue his annual trips. “My education from the school has provided me with a rewarding life. I am very thankful for this and want to give back. By helping animals in Ladakh, I know that my work also benefits the people who care for them.”

## For the Love of Sundance

### Generous gift advances equine health

**C**arol Green had a lifelong love of horses and a great passion for horseback riding. She owned a number of horses throughout her life, but she especially adored palomino horses.

Her favorite horse was Sundance—a palomino and namesake for her equestrian center, the Sundance Ranch. Green’s prized horse suffered from bouts of laminitis for several years, prompting her to learn more about this condition.

“Ms. Green knew that laminitis was a complicated syndrome with potentially devastating outcomes,” says Gregory Ferraro, director of the Center for Equine Health. “She was excited by the prospect of biological medicine and the thought that future treatment might move away from pharmacology towards

enhancing natural healing and repair.”

Most important to Green was the welfare of her horses. So after becoming very ill, she grew increasingly concerned about their health in the future.

When she learned of the center and its excellent reputation for the advancement of equine research and welfare, Green decided to make the center a beneficiary of her estate. Sadly, she passed away in September 2010, but



Carol Green had a lifelong passion for palomino horses and is pictured here with her favorite horse, Sundance.

## Classmates Reconnect at Alumni Weekend

The school welcomed back the classes of 1952, 1962, 1972, 1982, 1987, 1992 and 2002 for Alumni Weekend, October 5-6. Classmates enjoyed returning to campus to reconnect with one another and reminisce about good times.

The weekend was a time for alumni to celebrate milestone reunions. Members of the class of 1962 were the honored guests as they commemorated their 50th reunion. Participating in the Rose Ceremony, alumni and family celebrated each class member and the accomplishments they have achieved since leaving UC Davis. This touching ceremony was a highlight of the weekend for this distinguished class.

The class of 1952, the school's inaugural class, celebrated its 60th reunion. As the first graduating class, members led the veterinary profession and inspired many others to follow in their footsteps. Establishing a Class of 1952 Endowed Scholarship Fund, which today exceeds \$52,000, they have made a commitment to help today's students achieve the same heights.

her commitment to the well-being of horses will live on as part of her legacy. The estate gift to date is \$2.7 million, with an additional amount expected over the next year. The generous gift establishes the Sundance Ranch Endowment, which will significantly advance biological and regenerative medically based research to help find a cure for systemic diseases of the horse such as laminitis.

"It gives me a great deal of satisfaction to know that Ms. Green's wishes are honored," says Claudia Sonder, DVM 1995, assistant director of the Center for Equine Health. "The last word I heard her speak in the hospital was 'palomino.' She said this word and closed her eyes with a smile on her face."

"We are truly grateful to Ms. Green for her generous donation, which will advance equine health," says Michael Lairmore, dean. "Her support will allow our faculty to explore biologically based medical treatment options, including the use of intra-laminar stem cell therapy, which could save lives of many horses suffering from laminitis."

For more information about estate planning, planned gifts, and how they can help improve the health of animals, please contact the Development Office at (530) 752-7024.



The class of 1962 celebrated their 50th reunion and enjoyed reconnecting with one another at Alumni Weekend.

Most other classes have carried on the tradition of philanthropy. To mark the 20th reunion this year, the class of 1992 began fundraising for a new veterinary medical teaching hospital building.

"When we learned that a new teaching hospital is in the planning stages, our class was excited to find a way to help make it a reality. We'll make contributions over the next five years and look forward to presenting our gift to the school at our 25th reunion!" said Jon Klingborg, DVM 1992.

The gathering of alumni brought to light the many changes in veterinary medicine over the last 60 years. In the beginning, the school, as was the

profession, focused almost exclusively on the health issues facing livestock. Today, 70 percent of the profession focuses on companion animals. With more than 30 specialty services, the care of our animals has improved exponentially. Also since many have graduated, the Health Sciences District has changed considerably. Alumni enjoyed the opportunity to see new buildings and interact with students on tours.

Among other highlights of the weekend was the prestigious annual Oscar W. Schalm Lectureship. The distinguished lecturer was Jonna Mazet, DVM and MPVM 1992, PhD 1996, professor and director of the One Health Institute and Wildlife Health Center. The title of her lecture was "Predicting the Unpredictable: Identifying Emerging Infectious Diseases at the Human-Domestic Animal-Wildlife Interface." Earlier this year, UC Davis recognized Mazet with the Outstanding Alumna Award. The reunion was capped by a gala dinner attended by over 200 alumni.

## Attention Alumni

Will you be celebrating your reunion in 2013? Be sure to update your contact information on the Alumni website [www.vetmed.ucdavis.edu/alumni/index.cfm](http://www.vetmed.ucdavis.edu/alumni/index.cfm) so that you won't miss the time to gather with your classmates!



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## One Health in Nicaragua

UC Davis veterinary students traveled in June 2012 to Sabana Grande, Nicaragua, for a two-week visit designed to gather information about veterinary services and related issues in a poor rural area with few health care services for people or animals.

The team, led by veterinarian Cheryl Scott, director of the Calvin Schwabe One Health Project, included Fiona Whitton, Rennie Putnam, Jeanette Hendricks, James Lui and Brooke Warner. They were joined by Haley McDermott from the UC Davis Master of Public Health program. The overall project, One Health: Nicaragua, is a partnership between the School of Veterinary Medicine and the School of Medicine's MEDICOS and Master of Public Health programs.

The group established contact with the faculty and students of Nicaragua's two veterinary schools, but the main task was to administer more than 40 questionnaires. Aided by facilitator-translators, students surveyed residents about health and veterinary issues concerning the link between the people and their environment. Questions concerned how animals are considered in the community; resident priorities for animal health care; and how animal health is seen in relation to human health. The students observed families, living conditions, animal husbandry practices and "office hours" in an open-air veterinary clinic during a visit by a veterinarian from another city. The students learned firsthand that priorities in health and veterinary care are based on limited incomes and on the community's reliance on livestock as food and livelihood.

Another project that took place as part of the journey is an initiative called "Improving Health Information Access and Sharing Among Field Workers and Providers Via Mobile Communications: A Needs Assessment." The objectives begin with the premise that healthcare delivery can be augmented through social networks that connect residents and local health care providers with external health resources. From the School of Medicine, Michael Wilkes, principal investigator, and McDermott are working with George Barnett and Robert Bell. From the School of Veterinary Medicine, Patricia Conrad, professor of parasitology, and Woutrina Miller, assistant professor, round out the team.



Community leader and translator Susan Kinne, left, helps Haley McDermott and Fiona Whitton ask questions about a man's animals, the environment and access to medical and veterinary care in Sabana Grande, Nicaragua.

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