



Leading Veterinary Medicine, Addressing Societal Needs

School Update January 2016

NEW FACULTY



Dr. Richard Pereira recently joined the Department of Population Health and Reproduction as an Assistant Professor of Clinical Livestock Herd Health. Dr. Pereira received his BVM (2008) from the Federal University of Uberlandia, Minas Gerais, Brazil. He completed an internship (2009) at the University of Florida, Gainesville, followed by residency training (2011) in Production Medicine at Cornell University. Dr. Pereira received his PhD (2015) in Comparative Biomedical Sciences from Cornell University.

Dr. Pereira is a veterinarian with advanced training in livestock herd health and reproduction. He provided reproductive management services to beef and dairy herds along with clinical service to these farms and conducted numerous field surgeries including different approaches for displaced abomasum and cesarean sections. He also provided veterinary services to clients with sheep, goats, swine, and horses. Dr. Pereira brings a wealth of knowledge and experience to the School of Veterinary Medicine. His primary research focus is to have a deeper understanding of the emergence, persistence and transmission ecology of antimicrobial resistant and zoonotic bacteria in livestock with the aim of developing interventions to reduce and/or prevent the spread of disease and drug resistance.

NEW LEADERS



Dr. Melissa Bain has been appointed as Director of Professional Student Clinical Education. Dr. Bain received her DVM from the University of Illinois, Urbana in 1994. She is a Diplomate of the American College of Veterinary Behaviorists and the American College of Animal Welfare, and an Associate Professor of Clinical Behavior in the Department of Medicine and Epidemiology. Dr. Bain was recently honored at the AVMA Veterinary Leadership Conference when she received the 2016 Bustad Companion Animal Veterinarian of the Year award in recognition of her efforts to enhance the human-animal bond.

As Director she will oversee and monitor student academic and professional performance to intervene when needed, and to facilitate a remediation and mentoring plan for students in academic or professional difficulty and provide information on these students to the Student Affairs Committee. Dr. Bain will work with VMTH Directors and the Associate Deans of Academic Programs and Clinical Programs to ensure the school meets accreditation requirements, especially for outcome assessment and clinical competencies, and provide data for required AVMA Council on Education reports. She will also coordinate the selection of students to receive clinical awards, including appoint awards committees, reviewing recommendations, and making a recommendation to the Student Affairs Committee of a candidate for the School Medal.

Dr. Linda Barter has been appointed as Director of House Officer Affairs and Education. Dr. Barter received her BVSc from the University of Sydney in 1995 and her PhD from the UC Davis in 2007. She is a Diplomate of the American College of Veterinary Anesthesia and Analgesia and an Associate Professor of Anesthesia in the Department Surgical and Radiological Sciences.



As Director she will oversee and monitor house officer academic, clinical, and professional performance, to intervene when needed, and to provide a remediation and mentoring plan for house officers in academic, professional behavior, or competency difficulty, and provide information on house officers at risk to the VMTH Director. Dr. Barter will work with VMTH Directors, individual residency program directors, and as appropriate the Graduate Clinical Education Committee (GCEC) to develop policies relating to house officer welfare and workload including defining the role of house officers in the VMTH and to balance house officer training with clinical operational needs. She will also oversee selection of resident awards, including the national American Association of Veterinary Clinicians (AAVC) resident award, and makes recommendations to the VMTH Director.

SCHOOL OF VETERINARY MEDICINE 2016 ALUMNI ACHIEVEMENT AWARD RECIPIENTS

Each year the school honors members of its alumni with an Alumni Achievement Award. This award is the highest honor bestowed by the school. Honorees may be graduates of the school's DVM, MPVM, and graduate academic (M.S., Ph.D.) programs, or individuals who have completed internship and residency programs. The awards will be presented during the school's Commencement ceremony on May 21, 2016. This year the following distinguished alumni have been selected to receive this award.

- **T. Douglas Byars**, in recognition of his outstanding contributions to the evolution of equine veterinary practice, especially equine internal medicine and critical care.
- **Ian Gardner**, in recognition of his outstanding global contributions advancing the discipline of veterinary epidemiology.
- **Linda Logan**, in recognition of her outstanding leadership and contributions to the global community through the promotion of animal health and international understanding.
- **Danny Scott**, in recognition of his pioneering clinical discoveries in veterinary dermatology.

CURRENT FACULTY RECRUITMENTS

- Assistant Professor of Diagnostic Imaging (VSR) (hiring)
- Assistant Professor of Small Animal Soft Tissue Surgery (VSR) (hiring)
- Assistant Professor of Clinical Diagnostic Anatomic Pathology (CAHFS-Tulare Lab/ PMI) (hiring)
- Professor of Infectious Diseases (CCM/PMI) (hiring)
- Professor of Clinical Anesthesiology (VSR) (hiring)
- Professor of Developmental Cancer Therapeutics (VSR/VMB) – Candidate identified
- Professor of Neurology/Neurosurgery (VSR) – Candidate identified
- Professor of Clinical Pathology (PMI) – advertising
- Professor of Dermatology (VME) – interviewing
- Professor of Zoological Medicine (VME) – interviewing
- Professor of Small Animal Internal Medicine (VME) – interviewing
- Professor of Microbiology (PMI) – search committee appointed
- Professor of Clinical Diagnostic Microbiology (CAHFS-San Bernardino Lab) – candidate identified
- Professor of Clinical Neurology/Neurosurgery – (VSR) – Candidate identified
- Professor of Clinical Equine Ophthalmology – (VSR) – interviews being scheduled

- Professor of Clinical Equine Analytical Chemist – (CAHFS) – advertising
- Specialist in Cooperative Extension-Beef Cattle Herd Health and Production – (PHR/Vet Ext) – search committee appointed
- Director, California Animal Health and Food Safety Laboratory – Interviews being scheduled
- VMTH Director – advertising

VETERINARY MEDICINE STUDENT SERVICES AND ADMINISTRATION CENTER

Construction of the new Veterinary Medicine Student Services and Administration Center (VMSSAC) is progressing rapidly and is expected to open in late September. The new facility will house the following units: Academic Programs, Student Programs, Global Programs, Research and Graduate Education, Development, Academic and Staff Personnel,



Communications, Fiscal Services and Administration, Information Technology, Facilities and Safety Services, and the Executive Office. There will also be a café with a walk-up window--for those with a dog in tow--and outdoor event space. This building will complete the move of veterinary medical programs from the central campus to the Health Sciences District, enhance the services provided to students, and provide a focal point for the activities housed there.

VISION FOR THE VETERINARY MEDICAL CENTER

The school's vision for the future includes the planning of a Veterinary Medical Center (VMC) – a place of healing, innovation and discovery.

This state-of-the-art facility will transform the experience of our animal patients and their human companions through innovative building designs, coordinated patient care with experts in over 30 specialties, and unique technical advances in diagnostic services. The facility is a 10-year phased plan that includes a number of new buildings and renovation of existing facilities to achieve an optimum physical plant with a coordinated flow of activities and program adjacencies.

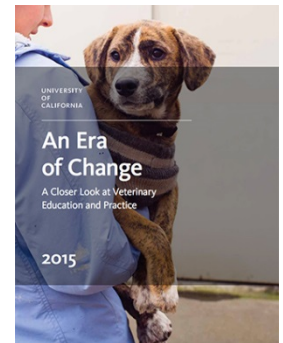


The school and campus planning team was pleased to host Dr. Temple Grandin, renowned consultant on livestock industry animal behavior, on Jan 3-4 2016 to make design recommendations for the new livestock handling system and facilities. Meeting with livestock faculty and campus architects Dr. Grandin reviewed the preliminary livestock site plan and requirements and worked to develop several design options for the future livestock handling system that would meet the service needs into the future, and improve the safety and efficiency of handling

livestock patients benefitting both humans and livestock patients alike. The design team will continue to consult with Dr. Grandin as the project moves forward to refine the preliminary plans and design the best possible environment for livestock patient care and clinical teaching.

AN ERA OF CHANGE: A CLOSER LOOK AT VETERINARY EDUCATION AND PRACTICE

The UC Office of the President recently published a report that reviews state and national veterinary workforce projections and considers educational programs and workforce trends to help guide UC planning efforts. “An Era of Change: A Closer Look at Veterinary Education and Practice” highlights emerging trends, and provides perspective on the veterinary workforce and schools of veterinary medicine across California and the nation. The report can be accessed at: <http://www.ucop.edu/uc-health/files/vet-med-an-era-of-change.pdf>



INTERVENTIONAL RADIOLOGY SURGERY SUITE OPENS

The UC Davis veterinary hospital recently opened the [Interventional Radiology](#) (IR) Surgery Suite in the Small Animal Clinic. The suite, complete with all new equipment, has elevated the type of surgeries the [Soft Tissue Surgery Service](#) is able to perform, as well as those surgeries’ quality and effectiveness. Performing as many as 10 IR procedures a week, UC Davis has the largest IR caseload of any teaching hospital.



IR is a specialty in veterinary medicine, developed in just the last 10-12 years, that utilizes imaging modalities (fluoroscopy, ultrasound, computed tomography) to perform minimally invasive procedures for diagnostic and therapeutic purposes. IR techniques can be used to treat a myriad of diseases, and these procedures often allow potential treatments in cases that may have previously been thought to be without options.

IR is currently being utilized as treatment of intrahepatic portosystemic shunts, ureteral obstructions, esophageal obstructions, intravascular foreign bodies and many other conditions. Being minimally invasive procedures, the surgeries allow patients to recover quicker and offer much better expectancy outcomes than traditional surgeries. The ever advancing IR procedures have opened up an entire new area of medicine that did not exist less than one generation before.

EQUINE SPORTS MEDICINE LOOKS TO MAXIMIZE PERFORMANCE

The [Equine Integrative Sports Medicine Service](#) at the veterinary hospital consists of an array of complementary medical and evaluative procedures for clients looking to maximize the performance of their sport horses. Led by Dr. Sarah le Jeune—who is board certified in surgery and sports medicine and rehabilitation, as well as certified in acupuncture and chiropractic—the service offers treatments and evaluations of the entire equine athlete.

With the subtlest issues potentially affecting an athlete, Dr. le Jeune examines every aspect of a horse and its tack. Dressage horses, judged on their gaits and movements, can be affected by even the slightest ailment or improper fitting tack. Dr. le Jeune evaluates for



limb lameness and other significant ailments, and secondary factors like a horse's hoofs, teeth, and diet. Dr. le Jeune's often see horses at their home where horses remain calm and the evaluation will reveal their true state of health. Home visits also give Dr. le Jeune an opportunity to evaluate a training session with a horse's rider and trainer, giving her a better understanding of that horse's condition.

"In my experience, most of behavioral issues are pain related," said Dr. le Jeune. "Rarely are there truly primary behavioral issues. Most horses want to do what we want them to do. The reason they're not doing a particular task is because there's pain."

After discovering the cause of pain, there are several treatment options. If surgery is required she works with clients and trainers to rehabilitate the horse and hopefully return it to competition. Many times, an athlete's back, neck or muscle pain can be treated with chiropractic and acupuncture treatments. These can easily be integrated into conventional diagnostic and treatment modalities to optimize clinical outcome.

EQUINE OPHTHALMOLOGY EMERGENCY

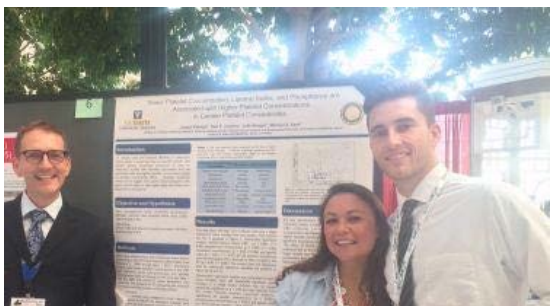
The veterinary teaching hospital recently received an emergency visit from a champion event horse and enabled him to continue competing at a high level.

Chatwin, a three-day eventer horse, scratched his eye when he was stretching after a competition, and rushed the horse to see Mary Lassaline, DVM, PhD, DACVO, at UC Davis. After diagnosing the injury as a corneal laceration, Lassaline and her team sedated Chatwin for a standing examination that determined the horse's vision was still intact. Despite the good news, a significant triangular corneal flap was loose and required surgery, and there was an infection. Lassaline placed a subpalpebral lavage catheter in the horse's right lower eyelid and treated it with ophthalmic solutions. Treatment continued with antibiotics, an antifungal, an anticollagenase and a nonsteroidal anti-inflammatory drug.



Chatwin remained in the hospital for five weeks. However, his owner had planned to enter the horse in an annual event limited to horses on his level, and he couldn't enter it later. Although Chatwin was still in the hospital, employees were able to exercise him so he was ready to compete. After being released, Chatwin won the competition as well as four other events, including the Galway Downs CCI 2-star national championship.

HOSPITAL REPRESENTED AT INTERNATIONAL EMERGENCY/CRITICAL CARE CONFERENCE



Over the past year, third-year veterinary student Joe Raleigh had the unique opportunity to take a major role alongside faculty clinicians in a research project that could revolutionize veterinary blood donations. Recently, Raleigh shared his research discovery with a poster presentation at the 2015 International Veterinary Emergency and Critical Care Symposium (IVECCS) in Washington, D.C., attended by nearly 2,900 veterinarians, technicians, students and practice managers. With his faculty mentors, Drs. Karl Jandrey and Michael Kent, as well as Clinical Laboratory Manager Julie Burges, Raleigh shared the team's discovery that found canine blood donations with gross lipemia (higher fat content) yield higher platelet concentrations than those from blood that is not lipemic.

As donations with high blood platelet concentrates are ideal, this research could indicate that something as simple as feeding dogs high-fat foods before a donation could yield better platelet results than from dogs fed non-fatty

foods. The team plans to continue this research to assess function of the platelets from lipemic blood donations.

Many faculty clinicians were also present at IVECCS to lecture on various topics in emergency and critical care, including Drs. Linda Barter, Julie Dechant, Guillaume Hoareau, Kate Hopper, Jandrey, Peter Pascoe and Josh Stern. Additionally, Dr. Jandrey, as the director of the [Center for Continuing Professional Education](#), hosted a booth in the conference's exhibition hall promoting UC Davis continuing education and hospital activities.

PIONEERING NASOLACRIMAL ENDOSCOPY & STENTING PROCEDURE SUCCESSFUL IN FIRST CAT

Kinako, an 8-year-old female domestic shorthair cat, was continually troubled with build-up of tears in her left eye, sometimes resulting in infections. Her owner took her to see their veterinarian, who attempted to flush the tear duct of that eye several times, but to no avail. Kinako's veterinarian referred her to the Ophthalmology Service at the UC Davis. Drs. David Maggs and Ann Strom suggested that if a CT scan revealed an obstruction in Kinako's tear duct, then she undergo a new procedure pioneered at UC Davis to permanently reopen the duct. This new, minimally invasive approach to nasolacrimal obstructions had already shown great promise in one horse and a number of dogs, but had not yet been performed in a cat. The lacrimal system is responsible for the generation and drainage of tears. The drainage portion of the system consists of several important structures collectively known as the nasolacrimal apparatus (NLA). This frequently becomes blocked and sometimes infected, leading to discomfort, tear staining and discharge from the eye, resulting in skin inflammation. Thanks to advances in equipment and technique, a multidisciplinary team of clinicians from [Ophthalmology](#), [Internal Medicine](#), [Soft Tissue Surgery](#), [Anesthesia](#), and [Diagnostic Imaging Services](#) are now having unprecedented success treating NLA blockages.



With cameras now small enough to fit into the tiny drainage ducts, clinicians utilize endoscopy (as well as CT and fluoroscopy) to identify and bypass or remove NLA obstructions. Whether the obstructions are caused by a scarred duct or a foreign body, temporary stents can usually be placed so as to reopen the duct from eye to nose.

As they had done before for the equine and canine patients, the UC Davis team came together to successfully unobstruct and temporarily stent Kinako's left nasolacrimal passage. Following the surgery, the stent was left in place for two months to allow adequate time for the duct to heal in an open position. Although Kinako initially had some persistent ocular discharge caused by an infection in the tissue around the eye, this cleared with antibiotics.

To date, UC Davis has treated 15 dogs, two cats, and one horse with this pioneering procedure that now offers a minimally invasive alternative for referring veterinarians.

OATH IN ACTION - STUDENTS TIE FOR 1st PLACE WITH AVMF

Congratulations to the students who coordinated this year's second annual Adopt-a-thon as their "Oath in Action" project with the American Veterinary Medical Foundation. The event tied for first place with Connecticut Veterinary Medical Association's project! The UC Davis led multi-species event featured free veterinary exams and microchips for pets, free vaccinations and primary care for adopted animals, and fun-filled family activities such as an animal photo booth, police K9 unit, agility course, service dog presentation, behavior training consultation, pet CPR class, and disaster rescue.



“We hope to keep making a difference and improving the event every year!” said Tereza Chylkova, Class of 2017 and director for this year’s Adopt-a-thon.

The event drew approximately 1,000 people and featured 37 booths, including 12 animal shelters and rescues, and seven veterinary school clubs. More than 30 veterinary students and 12 DVMs volunteered their time and expertise. There were 15 animals adopted on site including dogs, cats, chickens, rabbits, snakes, tortoises and guinea pigs. The Davis community donated nearly 1500 lbs of dog, cat and rabbit food to local shelters.

ENSURING SUCCESS IN A DIVERSE WORLD

Veterinary medicine is one of the least diverse health professions (according to *The Atlantic* in 2013), but UC Davis School of Veterinary Medicine is on the forefront of changing that to better reflect our society and to ensure the school’s continued role as a leader and ambassador for animal health.



To meet the needs of our increasingly diverse society, Dean Lairmore committed funding for ten faculty members and ten students to participate in an on-line Diversity and Inclusion in Veterinary Medicine Certificate program offered by the [Center for Excellence for Diversity and Inclusion in Veterinary Medicine](#)—a partnership between the American Veterinary Medical Association (AVMA), Purdue University College of Veterinary Medicine and the Association of American Veterinary Medical Colleges (AAVMC).

Jennifer Norman, Class of 2016, (pictured in the center of the photo) was the first veterinary student from UC Davis to complete the new certificate program and found the experience extremely insightful and relevant as she started her clinical year. She shared a few insights:

"After completing the online modules I feel anyone working in any capacity related to veterinary would benefit from lessons on diversity and importance of understanding and including all groups of our society. The program highlighted the background and overarching need for diversity within the profession, as well as introducing ways to incorporate this knowledge into any veterinary clinic.

One module worked through the history of diversity in veterinary medicine, and then showed how increased diversity would help the public find us more relatable and trustworthy. The other was the importance of having different perspectives, experiences, and backgrounds to help continually influence and change our profession for the better.

Another aspect I found very useful was the separate learning modules for the variety of topics that must be covered when addressing diversity issues – the LGBT community, race relations, persons with disabilities, and generational diversity just to name a few. Each of these groups, and many more, were discussed in detail, and then scenarios were presented as examples of how to be mindful of every group within our society. After completing these modules, I feel much more confident that going into my clinical year, and into future jobs, that I will be able to better connect with the clients."

Certificates and nine hours of continuing education credit are awarded upon program completion. Participants have up to one year to complete the program. Further information on the Center and certificate programs can be found at: www.vet.purdue.edu/humancenteredvetmed

VETERINARY INSTITUTE FOR REGENERATIVE CURES HELPING TO ADVANCE RESEARCH AND THERAPIES



It's been nearly 10 years since a team of UC Davis veterinary clinicians and researchers first attempted regenerative medicine procedures on horses with injuries that were not healing by traditional medical means, or had no other treatment options for their conditions. Since then, regenerative medicine is making great strides in the veterinary field. Focusing on utilizing healthy regenerative cells to repair tissue or organs, these techniques are helping to relieve animal suffering.

Regenerative medicine, which includes stem cell therapy, is a pioneering field of both veterinary and human medicine. It focuses on the delivery of specific cells and cell products to restore tissue and organs damaged by disease or injury. In recent years, UC Davis has become a national leader for veterinary regenerative medicine research and clinical trials. Research developments, many resulting from partnerships between the School of Veterinary Medicine, College of Engineering and School of Medicine, include repair of damaged joints and bones, therapies for spinal cord injuries, and imaging technologies to monitor stem cells. Information about the Veterinary Institute for Regenerative Cures is available at: <http://www.vetmed.ucdavis.edu/virc>.

PASTURE POULTRY FARMING

Veterinary medical students in partnership with students from the College of Engineering and the College of Agricultural and Environmental Sciences are working to influence how small chicken farms operate.

The Pastured Poultry Farm, which is home to 150 young laying chickens, is located on 4.5-acres on the west side of the campus. The goal is to improve pasture-based poultry farms, integrative crop-and-poultry farms and backyard flocks. The students built the farm's Eggmobile (a miniature 32-nest chicken barn on wheels) to shelter the chickens and fertilize the grass as it travels. Caring for the animals, installing an irrigation system and seeding the pasture are other responsibilities.



The engineering team created automated watering, a tarp-pulley system, erected movable shade and buildings for protection from predators, and made roll-out nest boxes. A portable electronic fence protects the farm from predators, and there's a 50-foot strip of uncultivated land that serves as a buffer from wildlife. Diseases, chicken health, predators and workers' occupational health hazards are among the group's research topics.

Dr. Maurice Pitesky, a poultry specialist and co-leader of the poultry project, says change is quickly transforming the poultry industry and the pasture model gives farmers more options. The chickens' eggs will be donated to food shelters. The farm is intended to be a local and regional demonstration project and members of the public can visit the farm and take part in educational events.

EVOLVING ATTITUDES POLICIES AND RELATIONSHIPS OF ANIMALS USED IN VETERINARY EDUCATION AND RESEARCH

Since the inception of the Association of American Veterinary Medical Colleges (AAVMC), the use of animals in research and education has been a central element of the programs of member institutions. As veterinary education and research programs have evolved over the past 50 years, so too have societal views and regulatory policies. AAVMC member institutions have continually responded to these events by exchanging best practices in

training their students in the framework of comparative medicine and the needs of society. Animals provide students and faculty with the tools to learn the fundamental knowledge and skills of veterinary medicine and scientific discovery. The study of animal models has contributed extensively to medicine, veterinary medicine, and basic sciences as these disciplines seek to understand life processes. Changing societal views over the past 50 years have provided active examination and continued refinement of the use of animals in veterinary medical education and research. The future use of animals to educate and train veterinarians will likely continue to evolve as technological advances are applied to experimental design and educational systems. Natural animal models of both human and animal health will undoubtedly continue to serve a significant role in the education of veterinarians and in the development of new treatments of animal and human disease. The AAVMC will need to continue to support and promote best practices in the humane care and appropriate use of animals in both education and research. Read more at: www.jvme.utpjournals.press/doi/full/10.3138/jvme.0615-087R



INTERNATIONAL ANTIBIOTIC RESISTANCE



Concerns over the development of antibiotic resistant bacteria have led to heightened interest in issues related to antibiotic use in animal agriculture. Assuring a safe animal-based protein supply for domestic and international markets in China was a chief topic of discussion at the UC Davis [Western Institute for Food Safety and Security \(WIFSS\)-Nanjing Agricultural University \(NAU\) Annual Symposium on One Health and Food Safety](#).

The symposium, held November 3-4, in Nanjing included discussions on use and misuse of antibiotics, methods used to prevent residues in human food, animal and plant pathogens involved in food safety, and preparing students for careers in clinical veterinary medicine.

California is taking a lead in the U.S. in management and prudent use of antibiotics and may serve as a model for regulating use of antibiotics in agriculture. The school has long played a role in helping prevent unwanted drugs from entering the food supply. The [California Animal Health and Food Safety Laboratory System \(CAHFS\)](#) serves the people of California by ensuring the safety of foods of animal origin.

Dr. Robert Poppenga, a professor of clinical diagnostic toxicology, at CAHFS, addressed test procedures that are used to identify different classes of antibiotics and other chemicals in milk. CAHFS plays a leading role in assuring that animal products intended for human consumption are safe to eat. Likewise, making sure that animal feeds are free of contamination is critical since any animal feed contamination has the potential to adulterate products intended for human consumption.

Concerns related to promotion of antibiotic resistance have led to changes in federal and state law regarding access and use of antibiotics in food animals. Dr. Michael Payne, a dairy outreach coordinator with WIFSS, addressed challenges with antibiotic residues in milk and tissue and regulatory initiatives implemented to solve them. He also gave an overview of veterinary drug approval in the United States, substances banned for food animals, sampling and testing programs for adulterants and prevention of environmental contamination with livestock medications. Payne will be a participant at the January 20-21 National Summit on Antimicrobial Stewardship in Washington, D.C. The summit will focus on policy, education and economic issues surrounding the stewardship of antimicrobial drug use in food-producing animals.

WIFSS team members, through the One Health Center for Food Safety at NAU, are helping facilitate the growth of partnerships between university researchers, veterinarians, industry leaders and government agencies to address prudent use of antibiotics in animals, particularly dairy and poultry, as it relates to food safety.

ONE HEALTH CLINICAL TRIAL COLLABORATION

The UC Davis Schools of Medicine and Veterinary Medicine are collaborating on a clinical trial to evaluate a novel formulation of doxorubicin that may help the drug better penetrate a tumor, decrease tumor resistance to the medication, and lower the frequency and severity of side effects.



Doxorubicin is a highly effective chemotherapy drug for treating lymphoma both in people and dogs. It also works against sarcomas and carcinomas. But there's a drawback. "It's a great drug, but it's associated with some significant side effects. Toxicity to the heart is often the limiting side effect," says Dr. Jenna Burton, an assistant professor of clinical oncology in the Department of Surgical and Radiological Sciences. Burton is based at the school's [Center for Companion Animal Health](#).

In addition to heart toxicity, doxorubicin can temporarily upset a patient's stomach. These problems limit the dose of doxorubicin that can be administered to patients undergoing cancer treatment, and demonstrate the need for less-toxic formulations.

To address these side effects, Davis investigators Burton and Joyce Lee, an assistant adjunct professor in the Department of Internal Medicine, Division of Hematology and Oncology at the medical school, have loaded the drug into nanoparticles, called micelles. These are very, very small drug carriers. The thought behind these formulations is that they can better penetrate into the tumor because of their small size. So, hopefully, the efficacy of this chemotherapy drug can be increased.

Because doxorubicin is contained within these little packages, less of the drug gets released into the blood system, which means normal cells and tissues won't experience as much toxicity. UC Davis investigators are specifically evaluating the doxorubicin dose that can be administered and the safety of the micelle formulation when given to dogs with lymphoma.

The next steps of the trial involve the process of labeling the packages with specific molecules that can help the drug home to the tumor, instead of passively diffusing into it. The results of this trial on dogs could have potential impacts for cats and people undergoing cancer treatment.

This study is just one facilitated by the school's [Veterinary Center for Clinical Trials](#) . This center works closely with other campus partners to assist clinical investigators who have active trials aimed at advancing medical care for their veterinary patients in a variety of disciplines, including (but not limited to) oncology, neurology/neurosurgery, ophthalmology, and cardiology.

ADVOCATING FOR ACADEMIC EXCELLENCE

After growing up in Puerto Rico with limited access to scientific training during her high school years, Dr. Lillian Cruz-Orengo (2nd from the left) knows the importance of scholarship support and access to advanced professional training in following her career path as a neuroscientist. Now she shares her experiences to enhance resources for other women in science, especially Latinas. As one of 13 faculty scholars with the Center for the Advancement of Multicultural Perspectives on Science (CAMPOS) Initiative, Cruz-Orengo traveled with a small group of other CAMPOS representatives to Washington D.C. last fall to meet with the Congressional Hispanic Caucus Institute, a non-partisan initiative dedicated to voicing and advancing issues affecting Hispanics and Latinos in the U.S. President Barack Obama served as the keynote speaker during the final gala where Hillary Clinton was in attendance.



On Capitol Hill the CAMPOS committee met with Congressman John Garamendi and Representatives Doris Matsui and Grace Napolitano among others. By sharing their success stories with members of Congress, Cruz-Orengo said the group highlighted the importance of funding for academic progress.

The CAMPOS program is one initiative of UC Davis ADVANCE, supported by the National Science Foundation's ADVANCE Program, which aims to increase the participation and advancement of women in academic science and engineering careers. The continued financial support of NSF and NIH is critical not only for the overall advancement of science but also to ensure the academic and career success of underrepresented women in the STEM disciplines (science, technology, engineering, and math).

"I was lucky to have access to a scholarship (supported by NIH) that enabled me to travel to the U.S. to learn new techniques and implement them in our lab at the University of Puerto Rico where I was working on my Ph.D. in physiology and neuroscience," Cruz-Orengo said. "As an undergrad, I had serious doubts about being successful in science. But it was precisely that training (and scholarship support) that made me competitive in applying for a post doc at Washington University in Missouri where I trained in neuroimmunology. That put me on a path to where I am today."

Since joining the faculty at the veterinary school in September of 2014, Cruz-Orengo has continued her research in multiple sclerosis (MS). She points out that until the 1990s, in biomedical research there were no requirements to focus on female physiology in biomedical research. Animal models of disease were all male, creating a vacuum in the knowledge of sex differences in health and disease. Cruz-Orengo wants to contribute in changing that mindset. She is now looking for sexual dimorphism that explains the predisposition of women to MS, a disease that impacts 3.5 females to every male. She's also thrilled to be teaching.

Cruz-Orengo mentors pre-veterinary and DVM students while working on a variety of diversity initiatives as a CAMPOS faculty scholar. She's a part of branding UC Davis as the university of choice for Hispanics in California, where many Hispanic students are the first in their families to attend college.

STUDENTS TRAINING IN ADVANCED RESEARCH PROGRAM



The school's Students Training in Advanced Research (STAR) Program coordinates and offers funding opportunities on a competitive basis to veterinary students to experience veterinary and biomedical research during the summer months. Funding comes from both intramural and extramural sources and research experiences are available at UC Davis and in San Diego.

The objective of the STAR Program is to identify, nurture, and support veterinary students who will be guided through their work with faculty mentors to all aspects of biomedical research, including:

- Scientific dialogue and communication
- Library and literature search and research
- Laboratory conduct and professionalism
- Research ethics and bioethics
- Mentorship
- Grantsmanship
- Self-education and motivation
- Critical review and assessment

By providing a supportive environment to explore and experience research in an established laboratory along with seminars and discussion groups on careers in science, students will gain an informed insight into a career in research, stimulating them to pursue a scholarly career in research subsequent to completing their veterinary degrees. This year 44 students participated in the STAR program!

TULARE DIAGNOSTIC LABORATORY DEDICATION – JUNE 8, 2016



Construction of the Tulare Branch of the California Animal Health and Food Safety Laboratory System (CAHFS) is moving ahead well and the dedication event is being planned for June 8th. The event is to begin at 11:00 a.m. with the dedication ceremony to be followed by lunch and building tours. This new lab, located adjacent to the

Veterinary Medicine Teaching and Research Center, will be an integral part of the CAHFS system. The laboratory will accept avian and mammalian sample submissions for complex diagnostic procedures to support ongoing food production industries, flock and herd health monitoring, food safety programs and surveillance for foreign and emerging diseases. Laboratory services will include Necropsy, Bacteriology, Histology, Antigen Detection, Immunology, Biotechnology, and Metabolomics testing. This project continues the long-term partnership between the university and the California Department of Food and Agriculture in protecting human and animal health.

UPCOMING CONTINUING PROFESSIONAL EDUCATION

February 20 [Livestock Symposium](#)
February 20-21 [Winter Conference](#)

March 16-19 [IRIS Renal Week](#)
April 9-10 [Wildlife and Exotic Animal Symposium](#)

Registration information and the full CE calendar is available at: <http://www.vetmed.ucdavis.edu/CE/>

SCHOOL OF VETERINARY MEDICINE FEATURED IN TOP 10 UC DAVIS STORIES OF 2015

What do foals, drought, hummingbirds and plastic all have in common? All are subjects of [UC Davis' top stories](#) from 2015. Of the 10 stories, the School of Veterinary Medicine is featured in seven - promoting translational research, advancing the well-being of animals, building collaborations, addressing societal issues and elevating the school's public relations:

1. *Newborn foals may offer clues to autism*



Veterinary researchers at UC Davis are teaming up with their colleagues in human medicine to investigate a troubling disorder in newborn horses and are exploring possible connections to childhood autism. The common link, the researchers suggest, may be abnormal levels of naturally occurring neurosteroids. The horse disorder, known as neonatal maladjustment syndrome, has puzzled horse owners. [Read about the connection between horse and human health.](#)

3. *Lyme disease subverts immune system, prevents future protection*



The bacteria that cause Lyme disease are able to trick an animal's immune system into not launching a full-blown immune response or developing lasting immunity to the disease, report researchers at UC Davis. The discovery may explain why some human patients remain vulnerable to repeat infections by the same strain of bacteria, especially in regions where Lyme disease is prevalent. [Read about Lyme disease.](#)

4. *Rat poison at marijuana farms is killing increased numbers of rare forest mammals*



The situation is growing worse for fishers being poisoned by rodenticides on illegal marijuana grow sites in California, according to a study by a team of researchers led by UC Davis and the Integral Ecology Research Center, based in Blue Lake. Fishers are midsized weasels. [Read about the wildlife poisoning.](#)

5. Plastic for dinner: A quarter of fish sold at markets contain human-made debris



Roughly a quarter of the fish sampled from fish markets in California and Indonesia contained human-made debris — plastic or fibrous material — in their guts, according to a study from UC Davis and Hasanuddin University in Indonesia. The study, published in the journal *Scientific Reports*, is one of the first to directly link plastic and human-made debris to the fish on consumers' dinner plates. [Read about fish and plastic.](#)

6. Hummingbird health: Appreciating the little things



For the past six years, Manfred Kusch, a UC Davis senior lecturer emeritus of French and comparative literature, has been opening his garden to the [UC Davis Hummingbird Health and Conservation Program](#). The group, including the University of Wyoming, is the only collaborative program in the nation focused on hummingbird health and genetics. [Read about our hummingbird research.](#)

7. Wildlife experience high price of oil



Members of the UC Davis Oiled Wildlife Care Network were in Alaska, attending a conference about the effects of oil on wildlife, when the real thing came pouring out of a ruptured pipeline in Santa Barbara County on May 19. [Read about the oiled wildlife rescue.](#)

8. Molly the Cow rescued from mine shaft by UC Davis



UC Davis veterinarians rescued a 9-year-old cow from a 30-foot mine shaft. Using a specially designed lift, UC Davis professor and researcher John Madigan was able to coordinate the rescue of Molly, who had tumbled into the shaft a few days prior. [Watch a video about the rescue.](#)