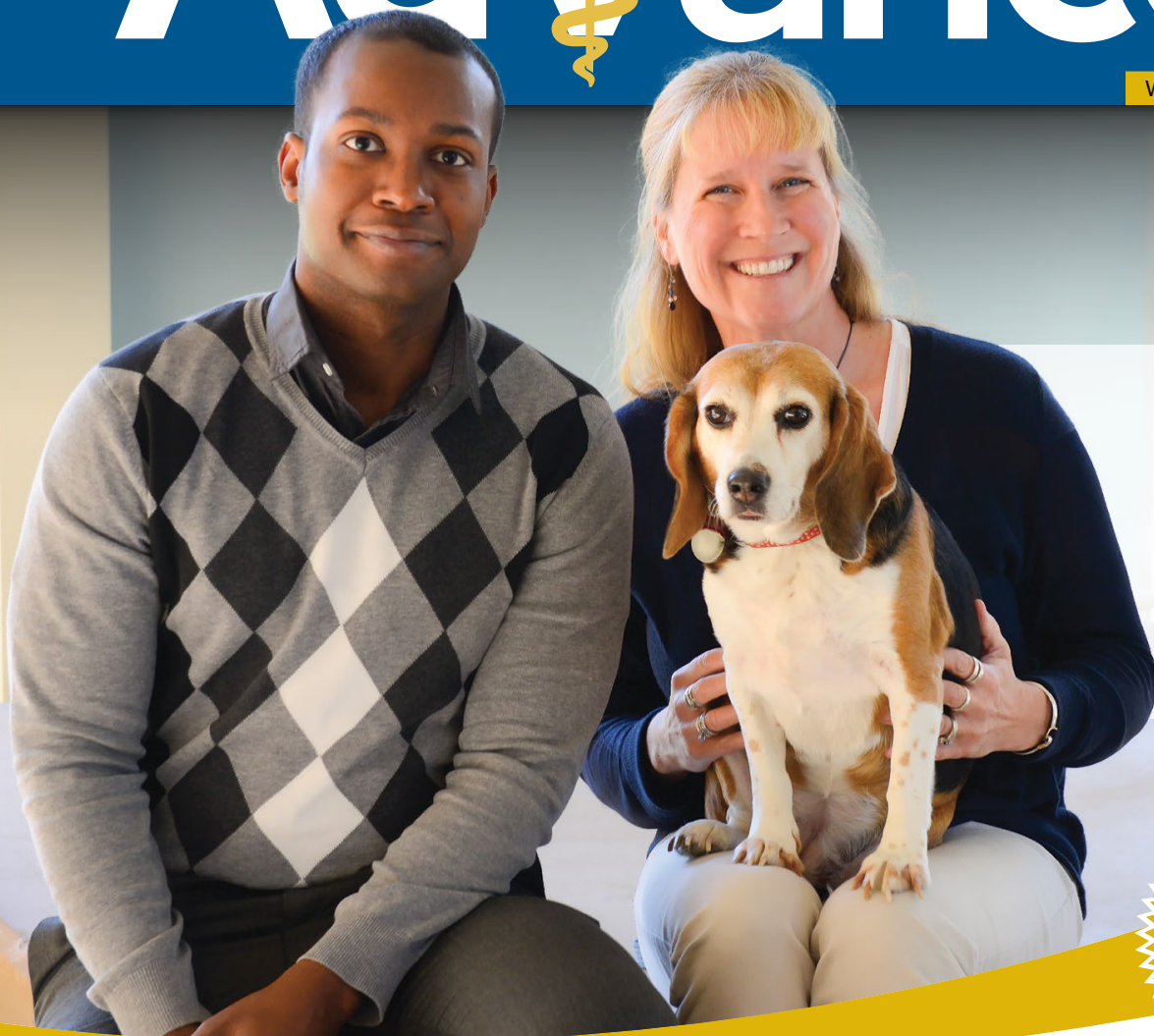


# Advance

UC DAVIS SCHOOL OF VETERINARY MEDICINE

Winter 2016



Dr. Dori Borjesson serves as director for the new Veterinary Institute for Regenerative Cures with Dr. David Simpson as assistant director. Daisy was one of the first dogs to receive high doses of labeled stem cells to assure stem cell safety.



## The Future of Medicine

**B**y the time Bob the cat came to the UC Davis veterinary hospital in March of 2013, his owner had run out of options for treating a painful inflammatory disease in his mouth. Bob suffered from feline chronic gingivostomatitis (FCGS) and had already undergone a full-mouth dental extraction and several courses of corticosteroids and antibiotics; however, nothing seemed to work or even improve his quality of life.

Bob's owner elected to enroll him in a clinical trial investigating a novel stem cell therapy to treat FCGS. The cat's own fat-derived stem cells were processed and given back to Bob intravenously to downregulate the inflammation and promote tissue regeneration. Within three months, Bob was living a normal life, free from pain and disease. While it was only available as a clinical trial, this FCGS treatment shows tremendous promise and may someday become the standard-of-care for this frustrating disease complex.

**"Our vision in creating this institute is to develop and integrate regenerative medicine discoveries into clinical practice to improve the lives of animals and their people."**

— Dr. Dori Borjesson

Continued on page 3



*Leading veterinary medicine, addressing societal needs*

## Pastured Poultry Farm to Foster Innovation for Small Chicken Farms

**UC Davis** has launched a new Pastured Poultry Farm, home to 150 young chickens and a living laboratory where students and faculty researchers hope to develop innovative solutions benefiting pasture-based farms, integrative crop-and-poultry farms and backyard flocks. At the center of the project is a bright red student-built Eggmobile 'coop on wheels' that allows the hens on pasture during the day and housed at night, and can be strategically moved around the land for consistent fertilization.

As the poultry industry undergoes significant changes in how its products are produced, non-traditional agriculture methods such as raising 'free range' chickens on pasture are becoming more popular, but can present challenges in food safety, animal health and environmental impacts. The experimental farm will address issues like disease, predation by wildlife, and occupational health for workers.

"This is a unique innovative, research and outreach resource for the Western United States," said Maurice



Pitesky, a cooperative extension poultry specialist with the school and co-leader of the project.

The farm – located about a mile west of campus – employs a team of faculty members, staff and students from the School of Veterinary Medicine, College of Engineering, and College of Agricultural and Environmental Sciences. Plans include a partnership with the Center for

Land-Based Learning to offer pastured poultry husbandry and management courses within their Farm Academy. The potential for egg sales to the community is also being explored. And, eventually, the research team hopes to construct multiple Eggmobiles with different designs.

Initial start-up funding was provided by UC Agriculture and Natural Resources. Donors include Mary's Free Range Chicken, The Happy Egg Company, Burroughs Family Farms, Sacramento Natural Foods Co-Op, ChickenGuard, Purina, Certified Humane and American Humane.



Student creators of the Eggmobile from left, Mitch McCarthy, Naomi Dailey and Peter Daily

## The Risk of Avian Influenza

The avian influenza virus – found in wild waterfowl – can spread to chickens and cause significant mortality and economic loss. Commonly called the bird flu, the U.S. experienced its worst outbreak in history in 2015. Due to early disease detection and prevention efforts, California has been fortunate with only three cases – two of which carried the more dangerous, highly pathogenic strain. The school plays a key role in limiting the spread of avian influenza through involvement in a USDA Wildlife Services surveillance program that submits samples to the **California Animal Health and Food Safety Laboratory System** for testing, free necropsies for backyard flock owners of less than 1,000 birds, and stakeholder outreach on good biosecurity practices. School researchers are studying new, highly pathogenic viruses affecting the U.S. poultry industry to better understand why they can be difficult to eradicate and help prevent introduction to commercial farms.

Stay up-to-date at [www.cdffa.ca.gov/ahfss/Animal\\_Health/Avian\\_Influenza.html](http://www.cdffa.ca.gov/ahfss/Animal_Health/Avian_Influenza.html)



# Equine Specialists **Treat Colicky Miniature Therapy Horse**

**C**herokee, a 2-year-old miniature therapy horse, was recently brought to the veterinary hospital's Large Animal Clinic with a persistent case of colic that her local veterinarian was unable to treat. On presentation, Cherokee had a distended abdomen, was uncomfortable, and required sedation. Radiographs indicated an intestinal impaction and gas distension. An intravenous catheter was placed in hopes of treating the case non-surgically.

The veterinary hospital has been able to non-surgically treat 70 percent of patients with colic, an abdominal pain that can indicate a blockage or twisting of the intestines. When horses do not respond to fluid and other medical treatments, surgery is generally required. UC Davis currently performs nearly 100 colic surgeries per year, with more than a 90 percent success rate. Historically, success rates with colic surgeries at the veterinary hospital are 3 percent higher than worldwide published data.

Surgeries can involve a manual untwisting of the intestine or possible resection if the twisting has irreparably



**Cherokee, a mini therapy horse, was treated for colic at the veterinary hospital.**

damaged the intestine. In cases of intestinal blockage, the objects are surgically removed if the horse is unable to pass the object on its own. Common causes of impaction include feed, enteroliths, worms, sand, and the occasional foreign body.

As colic is one of the most common causes of death in horses, Cherokee's case was taken extremely seriously, and she was immediately admitted to the ICU and started on intravenous fluids and laxatives. She was uncomfortable overnight and received analgesics to manage her pain. The next morning, Cherokee was given more aggressive medical treatment, because she had not responded to initial attempts. Thankfully, this treatment worked, and she started passing manure.

After four days of hospitalization, Cherokee was taken home where she resumed her job as a certified therapy horse for autistic and other special needs children. Her owner, Denise Parsons, a retired dog groomer, uses many of her 17 pets as therapy animals and educational tools for children. After an animal helped her successfully cope with a disability years ago, Parsons wants to show others how animals can make a big difference and have a positive influence in people's lives.

## **The Future of Medicine** Continued from page 1

Stem cell therapy is just one example of regenerative medicine being pioneered at the school's newly launched Veterinary Institute for Regenerative Cures (VIRC). This treatment 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.

"Our work started in 2007 with the significant research support provided by Dick and Carolyn Randall," said VIRC Director Dori Borjesson. "Their generosity was instrumental in creating a research environment that fostered collaboration and sustainability. Our vision in creating this institute is to develop and integrate regenerative medicine discoveries into clinical practice to improve the lives of animals and their people."

VIRC members include researchers in the School of Veterinary Medicine and their partners in the School of Medicine, Department of Biomedical Engineering, and the

Department of Animal Sciences. Their research encompasses repair of damaged joints and bones, therapies for spinal cord injuries and other neurologic diseases, repair of eye diseases, imaging technologies to track stem cells and much more.

Dr. David Simpson who serves as assistant director of VIRC said he's excited to see the promise of regenerative medicine to treat debilitating diseases such as cardiomyopathy and neurodegenerative disorders – for both animals and people.

"Through world-class education and training opportunities, and high impact research endeavors, we are poised to change the face of regenerative medicine at UC Davis and beyond," Simpson said.

*Additional support for VIRC comes from donors to the Center for Equine Health and Innovation Funds directed by Dean Michael Lairmore.*

# Above & Beyond

*The school honored the following individuals for their dedication and excellence to research, teaching, and clinical expertise in 2015 at the Fall Faculty Reception.*

**Dr. Julie Dechant**, associate professor of clinical equine surgical emergency and critical care, received the school's **Distinguished Faculty Teaching Award** for sustained contributions in large animal curriculum development, and highly effective outreach and continuing education, especially to camelid owners and veterinarians. Peers commented that Dr. Dechant is a powerhouse when it comes to teaching, but does it in 'a humble yet effective way to which the students can relate.'



**Dr. Gary Magdesian**, professor of equine medicine, received the school's **Faculty Clinical Excellence Award**, which acknowledges his passion, dedication, and exceptional knowledge in equine internal medicine, pharmacology, and emergency and critical care. His colleagues note that he has redefined patient care for equine medicine patients and his compassion for patients and clients alike make him a role model for all.



**Dr. Pamela Lein**, professor of molecular biosciences, received the **Zoetis Award for Veterinary Research Excellence** as an internationally recognized scientist whose research has been acknowledged as having significant and broad impacts in the field of developmental neurotoxicology. Dr. Lein directs the UC Davis CounterACT Center of Excellence, which is dedicated to identifying improved medical countermeasures for chemical agents that cause seizures in humans.



**Dr. Brian Murphy**, associate professor of anatomic pathology, received the **Zoetis Distinguished Veterinary Teacher Award** in recognition for his passion, enthusiasm, willingness and overall commitment to teaching and mentoring. He is viewed by both DVM students and residents as demanding but fair, hands-on and always available and willing to find time for teaching. Nominating colleagues noted that Dr. Murphy inspires critical thinking and respects other opinions.



## Hospital Helps Dog in Kidney Failure Maintain Quality Life

**A**ri, an 11-year-old Rhodesian ridgeback, has been a patient of the UC Davis veterinary hospital for most of her life. Like many patients of the Hemodialysis and Blood Purification Unit of the hospital's Internal Medicine Service, Ari is a "lifer" – one of those patients that everyone at the hospital knows, having been to nearly 75 appointments over the past seven years.

At age 4, Ari was treated for kidney failure due to a suspected grape ingestion. Grapes, like many seemingly harmless foods, can be deadly to dogs. Once eaten, their kidneys may never be the same, causing chronic kidney disease (CKD) and requiring some dogs to be on permanent dialysis.

Ari was lucky, in that initial dialysis cleaned her kidneys enough to not require permanent treatment. However, her kidneys did not return to normal, as most do not after a poisoning. Her team of veterinarians – made up of

members of the hospital's Internal Medicine, Community Practice and Nutrition Services – has been able to manage the stage 3 CKD (stage 4 is highest) with diet and regular checks of blood and urine to maintain her health.

With the hospital's expertise, as well as her owners' dedication, Ari has been able to live a long life with her sibling companion Guy – also a ridgeback – who helps her stay active.

Hospital specialists have helped Ari live many years after being diagnosed with chronic kidney disease.





## New Faculty

### Dr. Po-Yen Chou

Assistant Professor of Clinical Small Animal Orthopedic Surgery  
Special Interests: elbow disease; minimally invasive orthopedic surgery; joint resurfacing and replacement



### Dr. Jeroen Saeij

Associate Professor of Microbial Pathogenesis  
Special Interest: pathogenesis of *Toxoplasma gondii* infection



### Dr. Bret McNabb

Assistant Professor of Clinical Livestock Reproduction  
Special Interests: livestock fertility; male and female reproductive and venereal diseases; obstetrics and advanced reproductive technologies



### Dr. David Sanchez-Migallon Guzman

Associate Professor of Clinical Zoological Companion Animal Medicine and Surgery  
Special Interests: therapeutics; infectious diseases; diagnostic imaging; surgery and oncology in birds, reptiles and small mammals



### Dr. Richard Pereira

Assistant Professor of Clinical Livestock Herd Health  
Special Interests: dairy cattle; epidemiology of antimicrobial resistance in domestic animals and humans



### Dr. Jennifer Willcox

Assistant Professor of Clinical Medical Oncology  
Special Interests: novel therapeutics and hematopoietic tumors



## New Leadership

### Dr. Melissa Bain,

Associate Professor of Clinical Behavior, was appointed as the Director of Professional Student Clinical Education where she will oversee and monitor student academic and professional performance, and work with the administration to monitor the school's accreditation requirements, particularly outcomes assessment and clinical competencies. Dr. Bain will also coordinate the selection of students to receive clinical awards and recommend a candidate to receive the School Medal.



### Dr. Linda Barter,

Associate Professor of Anesthesia, was appointed as the Director of House Officer Affairs and Education. This new position was created to oversee house officer academic, clinical and professional performance, and monitor resident welfare. Dr. Barter will also participate in the process to select resident awards, including the national American Association of Veterinary Clinicians (AAVC) resident award.



## Don Low Fellowships Offer Unique Training Opportunities

The veterinary hospital annually offers advanced training opportunities for veterinarians through the Don Low/CVMA Practitioner Fellowship. The program provides 20 days of intense continuing education (CE) in a specialty service of the fellow's choice. The fellowship can be completed on a flexible basis, and earns the participant 72 hours of CE credits.

"The chance to spend 20 days with the Small Animal Emergency and Critical Care Service was truly a once-in-a-lifetime opportunity," said Dr. Irene Fujishima Nakaoka. "The program is not just 20 days of observation – it's an opportunity to be at the forefront of veterinary medicine. It was the most intense and informative continuing education opportunity I have ever experienced as a veterinarian."

The fellowship – a joint activity between the school and the CVMA – is designed to meet practitioner needs not available within residencies or other advanced training programs. It is named after Dr. Donald G. Low (1925-2004), who served on the faculty from 1974-1991.

Don Low fellows experience hands-on training in the latest advanced veterinary techniques and procedures.





## Inspiring Hopeful DVM Students at Pre-Health Conference

**D**r. Michael Blackwell (right), chief veterinary officer of the Humane Society of the United States, visited the school in the fall as part of the 13th Annual UC Davis Pre-Medical and Pre-Health Professions National Conference. He presented a keynote speech to students attending the sessions on veterinary medicine, delivering words of advice and insight into the future of the field. More than 10,000 college and high school students from diverse backgrounds gathered for the weekend to learn more about various medical and health professions. The conference brought veterinary specialists from around the country who offered more than 500 workshops and other activities on the breadth of career opportunities, preparing for admission exams, paying for medical school and more. Dr. Blackwell emphasized the need for future DVM students to approach the field from a wide One Health approach. “The veterinary medicine of today is not the veterinary medicine that my dad practiced,” he said. “We cannot treat animals and exclude humans from the equation.”

## Veterinary Clinical Trials in Action

**T**he center coordinates all aspects of a clinical trial and promotes partnerships between school and campus faculty from a broad range of units.

Currently the VCCT is managing 100 different clinical trials including 25 for Genetics, 14 for Ophthalmology, 16 for Soft Tissue or Orthopedic Surgery, 17 for Oncology and more in Cardiology, Dentistry, Internal Medicine, Dermatology, and other disciplines. Trials for cancer studies include:

### Minimally Invasive Technologies –

Evaluating the outcome of treating veterinary patients with minimally invasive tumor ablation technologies, including cryoablation and microwave ablation. These methods are used in the treatment of cancers in people, but information in animal patients is very limited.

### A Novel Formulation of Chemotherapy

– Doxorubicin is a highly effective drug for treating lymphoma, both in people and dogs. However, doxorubicin is associated with side effects, including transient gastrointestinal upset and chronic toxicity to the heart. These toxicities limit the dose of doxorubicin that can be administered to patients and less-toxic formulations are being evaluated for improved health of dogs undergoing cancer treatment.

**Oxygen-carrying Protein for Tumor Treatment** – Glioma is a common brain tumor in people and dogs. Current treatment options include radiation or chemotherapy and more recently a vaccine; but few dogs are cured and most relapse. Radiotherapy relies on oxygen to kill tumors, but most cancers lack sufficient oxygen. Evaluation of an oxygen-carrying protein (ZOX-75.1) that has been engineered to increase the effectiveness of radiotherapy in tumors without affecting normal tissues is currently underway.

### School's Strategic Goals

- Educate world leaders in academic veterinary medicine
- Perform high-impact transdisciplinary research
- Develop cutting-edge clinical programs
- Promote animal and human well-being
- Maintain school infrastructure and sustainable resources
- Retain excellent faculty and staff
- Promote academic, government, industry collaboration



## Ensuring Future Veterinary Leaders in Avian Health

The school's avian residency program is one of the few, but immensely critical, training grounds for veterinary leaders dedicated to safeguarding the poultry industry and public health. Americans buy more chicken and poultry products than any other food at the center of the plate. Chicken consumption has increased nearly every year since the mid 1960s, and per capita egg consumption is projected to reach 260 eggs this year.

Dr. Arthur (Art) Bickford, recognized as one of the most renowned avian pathologists in the country, was instrumental in creating the avian residency program. This unique two-year training program at the California Animal Health and Food Safety Laboratory System (CAHFS) has produced some of the most impactful and influential avian specialists in the world.

To honor his many accomplishments and ensure the future of this important program, the Arthur A. Bickford Avian Residency Program Endowment Fund was established. Dr. Bickford made tremendous contributions to the poultry industry during his career and played an important role in protecting public health. Notably, he served as associate director of CAHFS, chief of the Turlock laboratory location and was at the forefront of identifying and diagnosing disease problems in poultry.

"Creating this residency is one of our finest accomplishments," Dr. Bickford said. "During my career I have tried to do my part in the areas of diagnostics, research, and innovation in this important industry."



Dr. Arthur (Art) Bickford

CAHFS, one of the largest animal health laboratory systems in the nation, is the backbone of California's warning system to protect the health of the state's livestock and poultry. It operates in partnership with the California Department of Food and Agriculture, veterinarians, and livestock and poultry producers.

"We have found that the industry itself is very much dependent on having expert diagnosticians available in support of our global efforts," said Ron Foster, president and CEO of Foster Farms, Inc. "The avian residency program at UC Davis is essential to the poultry industry. We supported this

endowment fund since it was a great opportunity to join together in ensuring that the need for trained diagnosticians in the industry is met for years to come."

For more information about contributing to the Arthur A. Bickford Endowed Avian Residency Program, contact the Office of Development at 530-752-7024.

## Did You Know?

You can get a head start on your annual charitable giving by establishing a recurring monthly donation. Consider a gift of \$25, \$50, \$100 a month (or more) to support a student scholarship, veterinary research or global outreach. Choose the program that means the most to you, and we can make it happen. For more information, please call the Office of Development at 530-752-7024.

## Alumni Reunion Weekend

The Class of 1965 (pictured here) celebrated their milestone 50th anniversary reunion during Alumni Reunion Weekend in October. A memorable highlight was the Rose Ceremony, when each class member recalled fond times as a student and placed a rose in a collective vase, symbolizing their shared journey. "We do cherish our alma mater that gave us our *passion* for life, work and each other," Dr. Richard Marshall said. The school also welcomed the classes of 1955, 1975, 1985, 1990, 1995 and 2005.



[www.vetmed.ucdavis.edu](http://www.vetmed.ucdavis.edu)

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## Veterinary Continuing Education

### Calendar

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

The school is committed to life-long learning through its Veterinary Continuing Education – this program thrives with a variety of nearly 20 annual offerings. A few of the programs are highlighted below but this list is not complete. **For a comprehensive listing of events, visit [www.vetmed.ucdavis.edu/CE/](http://www.vetmed.ucdavis.edu/CE/).**

#### February 20-21

Winter Conference, UC Davis

#### March 16-19

IRIS Renal Week, UC Davis

#### April 9-10

Wildlife and Exotic Animal Symposium, UC Davis

#### May 21-22

Beginning Practical Ultrasound, UC Davis

#### June 4-5

Biomedicine Symposium, UC Davis

## Reducing Antibiotic Resistance

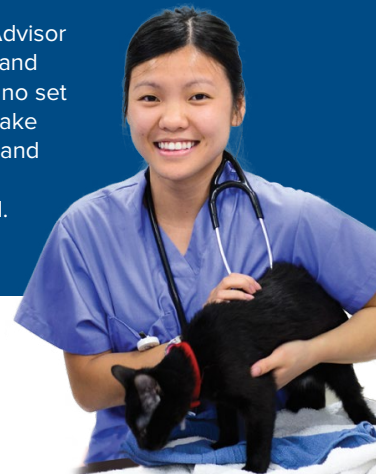


(left to right) Dean Michael Lairmore, Chuck Ahlem with Hilmar Farms and Veterinary Medicine Teaching and Research Center Director Terry Lehenbauer

The school and the Farm Foundation gathered the state's livestock and poultry producers, their feed suppliers and veterinarians for a workshop in October to discuss new FDA guidelines on antibiotic use in livestock as part of a national effort to reduce antibiotic resistance. With the passage of Senate Bill 27, California is now the first state in the country to link veterinary oversight to all use of medically important antibiotics in livestock and poultry.

## SVM Professional Networking **VetMedJobs**

As part of the school's VetMedJobs, a new Volunteer Career Advisor program has been launched, bringing together DVM students and professionals working in all areas of veterinary medicine. With no set timeframe or commitment, this is a wonderful opportunity to make early connections with veterinary students, serve as a mentor, and give back to the profession. For more information visit: [ucdavis-svm-csm.symplicity.com/mentors](http://ucdavis-svm-csm.symplicity.com/mentors), or call 530-752-3801.



<http://www.vetmed.ucdavis.edu>