



## Updates and Impacts — March 2021



### UC DAVIS RANKED NUMBER ONE NATIONALLY IN VETERINARY RESEARCH FUNDING AND OVERALL STATURE

The School of Veterinary Medicine was ranked number one nationally both by Quacquarelli Symonds, considered one of the most influential international university rankings providers, and the Blue Ridge Institute for Medical Research, which publishes ranking tables of NIH funding for U.S. Schools of Medicine and Veterinary Medicine annually.

The school took the number one slot nationally and the number two slot globally in veterinary science, according to the 2021 QS World University Rankings by Subject, which are issued annually. UC Davis also ranked number one nationally and number two globally in agriculture and forestry.

The school also topped the Blue Ridge Institute for Medical Research's ranking of U.S. Schools of Veterinary Medicine, handily capturing the top spot for the twelfth year in a row. The school secured \$36.9 million in National Institutes of Health (NIH) funding in 2020, an increase of more than \$6 million over the previous year.

In addition, the 2020 American Veterinary Medical Association recently released the 2020 Economic State of the Veterinary Profession, in which UC Davis graduates were found to have the most optimal debt-to-income ratio of all veterinary schools.



## AMAZON AND CONGO BASIN FOCUS OF NEW EMERGING INFECTIOUS DISEASE RESEARCH CENTER

The perimeters of the Amazon and Congo Basin forests are highly vulnerable to new and emerging infectious diseases. A new research center, the EpiCenter for Emerging Infectious Disease Intelligence, will focus on these two regions to advance understanding of how viruses emerge and spill over from wildlife to humans. The research aims to improve global preparedness and response for when such events occur.

This work is supported by the National Institutes of Health's National Institute of Allergy and Infectious Diseases, or NIAID, which awarded the University of California, Davis, School of Veterinary Medicine \$8 million over five years to lead center activities.

The center will be funded under NIAID grant U01AI151814. The award is one of 10 research centers and a coordinating center made by NIAID to establish a network of Centers for Research in Emerging Infectious Diseases, or CREID, around the globe where emerging and re-emerging infectious disease outbreaks are likely to occur.

Multidisciplinary teams of investigators in the program will conduct pathogen/host surveillance,

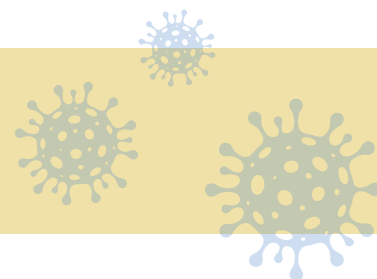
study pathogen transmission, pathogenesis and immunologic responses in the host, and will develop reagents and diagnostic assays for improved detection for important emerging pathogens and their vectors.

"Our center brings together leading experts in emerging infectious disease surveillance with a One Health approach," said lead principal investigator Christine Kreuder Johnson, director of the EpiCenter for Disease Dynamics at the UC Davis One Health Institute. "When the world emerges from the COVID-19 pandemic, we need to be sure to not let our guard down. We need to expand international collaborations in infectious disease research that integrate human, animal and environmental health."

Johnson said the center aims to help prevent the spread of emerging diseases by advancing our understanding of how environmental change brings about infectious diseases.

"We hope this effort will facilitate new and exciting research in infectious disease with partners around the world," she added.

# COVID-19 Updates



## VACCINATIONS AND TESTING

The school worked with UC Davis Health to facilitate COVID-19 vaccinations of its essential clinical and laboratory staff, primarily in the hospital and in the California Animal Health and Food Safety (CAHFS) system, immediately upon inclusion of these personnel in the State's vaccination priority list.

The school also coordinated with the campus to set up a weekly COVID-19 testing site, which occurs on Wednesdays in the heart of the Veterinary Medicine area, in building VetMed 3B.



## WILDFIRE RESPONSE IN A PANDEMIC

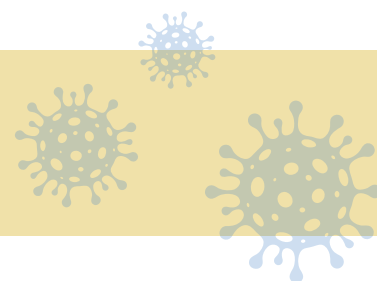
The school cared for animals burned in the LNU Lightning Complex fires even as our clients, students, faculty and staff were personally affected by those fires that have struck in our home area. The situation was different than usual also because of the issues caused by the pandemic, which impacted the capacity of the hospital (as well as other veterinary facilities in Northern California).

To respond to the fire in a way that best utilized our resources and to assist the greatest number of injured animals, our veterinary hospital clinicians and staff prioritized ambulatory (in the field) and telehealth consultation to maximize our service within our treatment area. Animals judged to need more intensive care or surgical intervention took priority as hospitalized patients.

In addition, the newly formed Wildlife Disaster Network treated more than 10 wildlife patients, including bears, mountain lions, a coyote, a fox and a bobcat.

The Veterinary Emergency Response Team (VERT) treated more than 1,000 animals in the field, while the hospital admitted and treated 35.

# COVID-19 Updates



## GENETIC SIMILARITIES IN ACE2 RECEPTOR LIKELY MADE ZOO GORILLAS VULNERABLE TO SARS-COV-2

On Jan. 11, the San Diego Zoo announced members of its gorilla troop had tested positive for SARS-CoV-2, the first known instance of natural transmission to great apes. Two gorillas had begun coughing Jan. 6.

Gorillas are among our closest relatives and share many genetic similarities with humans. One particular similarity has likely made them vulnerable to COVID-19: the gene coding for angiotensin-converting enzyme-2, or ACE2.

Last year, an international team of researchers led by Joana Damas, postdoctoral researcher at UC Davis and Harris Lewin, distinguished professor of evolution and ecology at UC Davis, where he holds a joint appointment in the School of Veterinary Medicine, published a survey of the ACE2 protein sequences of 410 species of animals including birds, fish, amphibians and reptiles. They discovered that many animals, including gorillas, share the same amino acids on their ACE2 receptors as humans, likely leaving them potentially vulnerable to the SARS-CoV-2 virus.

In their work, published in August 2020 in *Proceedings of the National Academy of Sciences*, the researchers predicted that the risk of infection with the novel coronavirus would decrease the more each species' ACE2 amino acids differ from those of humans. They noted, though, that the virus may utilize a different receptor in other species. The San Diego Zoo was one of the many institutions that contributed genomic material for the study.

Wild gorillas are susceptible to human respiratory diseases, according to Gorilla Doctors, a program affiliated with the Karen C. Drayer Wildlife Health Center at the UC Davis School of Veterinary Medicine. So far, however, there is no evidence of wild gorillas



contracting SARS-CoV-2, according to Gorilla Doctors. The organization has added the novel coronavirus to their regular monitoring of the animals' health, mostly by fecal sampling.



Photo (cropped): Mieciu K2 [https://commons.wikimedia.org/wiki/File:Rhesus\\_Macaques.jpg](https://commons.wikimedia.org/wiki/File:Rhesus_Macaques.jpg)

## RHESUS MACAQUES DEVELOP PROMISING IMMUNE RESPONSE TO SARS-COV-2

In a promising result for the success of vaccines against COVID-19, rhesus macaque monkeys infected with the human coronavirus SARS-CoV-2 developed protective immune responses that might be reproduced with a vaccine. The work was carried out at the California National Primate Research Center at the University of California, Davis, and is published Jan. 22 in the journal *Nature Communications*.

## VACCINE NOW AVAILABLE FOR CATTLE PRODUCERS TO FIGHT FOOTHILL ABORTION

Hygieia Biological Laboratories of Woodland, California secured conditional license for their **Epizootic Bovine Abortion (EBA)** vaccine by the USDA Center for Veterinary Biologics.

The announcement of conditional licensure signifies big news for range cattle management in the West, as it means that the vaccine is now available to producers commercially. Utilized to prevent fetal loss in first-calf heifers from the bacteria *Pajaroellobacter abortibovis*, the vaccine is now available through local livestock veterinarians.

EBA, also called Foothill Abortion Disease, is often misunderstood and challenging to diagnose. Because of this, losses are difficult to calculate but even a conservative estimate exceeds \$10 million annually in California, Oregon, and Nevada alone. This license marks a pivotal advancement in decreasing those substantial losses and comes as the result of decades of work by generations of scientists and cattlemen.

First described in the 1950s by researchers at the University of California, Davis, School of Veterinary Medicine, subsequent collaborations between the



school, the University of Nevada, Reno, and later the California Cattlemen's Association, proved invaluable in expanding the understanding of the disease and how to manage it. Grants such as the UC Regents Proof of Concept Grant, the Russell L Rustici Rangeland and Cattle Research Endowment, as well as support from the Livestock Memorial Research Fund and the UC Department of Animal Science, continued to support the efforts and, after joining with Hygieia, commercialization of a vaccine has become a reality.

A decade of vaccine trials have been conducted to establish the safety and efficacy of the product. According to Dr. Jeffrey Stott (in photo), lead researcher at the UC Davis Veterinary School, "The vaccine has proven safe and phenomenally effective; the fervor for its widespread availability is palpable among cattle producers."

## WHAT'S KILLING KILLER WHALES?

Pathology reports on more than 50 killer whales stranded over nearly a decade in the northeast Pacific and Hawaii show that orcas face a variety of mortal threats — many stemming from human interactions.

**A study** analyzing the reports in the journal PLOS ONE indicates that understanding and being aware of each threat is critical for managing and conserving killer whale populations. It also presents a baseline understanding of orca health.

The study was conducted by a team of marine mammal specialists led by a veterinary pathologist with the British Columbia Ministry of Agriculture and coordinated through SeaDoc Society, a Washington-based program of the University of California, Davis' School of Veterinary Medicine.

Despite there being no singular common cause of death, the study found a common theme: Human-



caused deaths occurred in every age class — from juveniles to subadults and adults.

The authors acknowledge the report is an incomplete picture of orca health and mortality. Necropsies can only be performed on whales found in an adequate state to receive them, and even then, the cause of death cannot always be determined. But the report offers one of the most comprehensive looks yet at the multitude of human and environmental threats affecting killer whales and can help inform strategies to better protect them.

## BURNED ALPACAS HOSPITALIZED FOR FOUR MONTHS FINALLY GO HOME

It is a rare occurrence for an animal to be hospitalized for four months, but two recently released alpacas that suffered burns in the LNU Lightning Complex Fire did just that. Apple Jack and Jasper became household names at the UC Davis veterinary hospital during their stay, being seen by nearly every fourth-year veterinary student who had a large animal rotation. The students and technicians even decorated their barn stall for the holidays.

Apple Jack sustained the worst injuries of the two, with his burns being characterized as 4th degree, meaning exposure and loss of bone on his feet. This required daily wound care for nearly three months until his feet healed sufficiently to be maintained without bandages.

Jasper had an easier go of recovery, but nonetheless suffered substantial burns to his feet also. He was able to heal in about one month but stayed with Apple Jack as his companion throughout the hospitalization to boost his spirits. The Large Animal Clinic encourages companion animals to stay with their hospitalized herd members if their presence does not interfere with care. Jasper's companionship seemed to keep Apple Jack positive, so the two stayed together all four months.

Their owner praised the team's "phenomenal job" in caring for the two and was happy to see that the team "stuck with them and encouraged us they would make it."

The school treated more than 1,000 animals during the fire season. The school also treated wild animals in a partnership between the school's recently created Wildlife Disaster Network and the California Department of Fish and Wildlife, and a video

went viral of the release back into the wilderness of a mountain lion that was successfully treated for a month by school veterinarians. The lion had sustained burns during the Bobcat Fire in northern Los Angeles.



## SCHOOL PART OF COALITION TO ENHANCE FOOD SAFETY

The Western Center for Food Safety—a joint effort between UC Davis' School of Veterinary Medicine and the College of Agricultural and Environmental Sciences—will join several other California organizations to launch a multi-year study to improve food safety through enhanced understanding of the ecology of human pathogens in the environment that may cause food-borne illness outbreaks. The study is sponsored by the U.S. Food and Drug Administration.

## ENCOURAGING FUTURE VETERINARIANS IN TULARE

In December, the school's UC Davis Veterinary Medicine Teaching and Research Center in Tulare overcame logistics issues from the pandemic to host five students who participated in the SVM Summer Enrichment Program (SEP). The SEP provides disadvantaged undergraduate students with experience to improve their veterinary school applications. Due to the pandemic, the program was virtual and the students were not able to gain hands-on veterinary experience over the summer. However, in December, the VMTRC was able to host each student for one week. Under mentorship with the Dairy Production Medicine clinicians and residents, the students participated in dairy herd checks where they became familiar with palpation and pregnancy diagnosis, herd health monitoring and sample collection, evaluation of dairies, milking management, cow comfort, lameness and body conditioning scoring. They also spent time in the VMTRC Milk Quality lab learning milk culturing techniques and bacterial identification.



## OCEAN TOXIN A HEARTBREAKING THREAT FOR SEA OTTERS

Heart disease is a killer threat for southern sea otters feasting on domoic acid in their food web, according to a study led by the University of California, Davis.

The study, published in the journal *Harmful Algae*, examined the relationship between long-term exposure to domoic acid and fatal heart disease in southern sea otters, a threatened marine mammal.

“Sea otters are an amazing indicator of what’s happening in the coastal environment, not just to other marine animals, but to us, too, especially on the issue of domoic acid,” said Christine K. Johnson, director of the EpiCenter for Disease Dynamics in the One Health Institute at the UC Davis School of Veterinary Medicine and senior author of the study.

The study was also the first to demonstrate a disturbing and unexpected trend: Domoic acid exposure is especially detrimental for prime-age adult sea otters, whose survival is vital for population growth.

“That’s worrisome for the long-term population recovery of southern sea otters, which are a threatened species,” said lead author Megan Moriarty, a wildlife veterinarian who conducted this research for her Ph.D. in epidemiology at UC Davis. “This study emphasizes that domoic acid is a threat that isn’t going away. It’s a food web toxin and is pretty pervasive.”



## HONEY BEES NEED VETERINARIANS TOO

Honey bees play a critical role in agricultural production and pollinate roughly one-third of all food eaten in the United States. Safeguarding their health is of the utmost importance.

The Western Institute for Food Safety and Security (WIFSS) at UC Davis, has teamed up with Elina Niño and Bernardo Niño at UC Davis E.L. Niño Bee Laboratory, Jonathan Dear (in photo) at UCD School of Veterinary Medicine, and Ramesh Sagili at Oregon State University Honey Bee Laboratory to create a new course designed to educate veterinarians in treating diseases of honey bees through an award from the USDA Specialty Crop Multi-State Program. The program, developed at UC Davis, is composed of an asynchronous online course and a hands-on, in-person training workshop and qualifies for continuing education units for veterinarians. Participants can take the online course at any time at their own pace. The online portion is a prerequisite for the in-person training. The in-person will be postponed due to COVID-19 and will be available when permitted and conditions are safe.

More information can be found at the program webpage at <https://www.wifss.ucdavis.edu/beevets/>

# BRIEFS

## SERVICE UPDATE:

### CALIFORNIA ANIMAL HEALTH & FOOD SAFETY LABORATORY SYSTEM

CAHFS has now started testing commercial animal feeds in contract with the CDFA Feed & Fertilizer Commercial Feed Regulatory Program



### TULARE CENTER JOINS NIAMRRE

The school's UC Davis Veterinary Medicine Teaching and Research Center in Tulare is a hub for addressing the issues of antimicrobial resistance. To build collaborations and enhance engagements, the school has joined the National Institute of Antimicrobial Resistance Research and Education (NIAMRRE) to leverage its impacts in coordination with other NIAMRRE members to combat the global threat of antimicrobial resistance across humans, animals, and the environment. The Tulare center will lead the effort.



### NATIONAL VETERINARY ENTREPRENEURSHIP ACADEMY

The Graduate School of Management and the School of Veterinary Medicine are collaborating to hold the online National Veterinary Entrepreneurship Academy from July 12-16. Sponsored by Boehringer Ingelheim, the academy is tailored for scientists and medical professionals who wish to bring their innovations to the marketplace. <https://gsm.ucdavis.edu/nvea>

### STUDENTS EXPAND CARE FOR PETS OF HOMELESS

Davis Pet Advocacy and Wellness (PAW): A Clinic for the Pets of the Homeless is a local satellite clinic of the existing Mercer Veterinary Clinic for the Pets of the Homeless established in Sacramento by students and faculty members of the UC Davis School of Veterinary Medicine (SVM). Opened in November, Davis PAW looks to establish monthly clinics, and not only provides a valuable service to the community's homeless population, but also provides hands-on experience for UC Davis veterinary students, as well as a basis for research on pets of the homeless.



# BRIEFS

## NEW EQUINE, FELINE FACILITIES OPENED



The UC Davis veterinary hospital's Equine Reproduction Service has a newly renovated clinical teaching and research space at the school's Center for Equine Health. The newly renovated space includes four custom-designed stocks and all new flooring. The Equine Reproduction Service team, led by Service Chief Dr. Ghislaine Dujovne and newly acquired faculty member Dr. Pouya Dini, also has a new student meeting space and expanded laboratory as part of the renovation.

The Small Animal Clinic at the school's veterinary hospital has opened a feline treatment and housing suite to better care for sick and injured cats. The new facility combines a hospitalization ward with examination and treatment space. The suite is considered part of the Veterinary Medical Center project.



## VETERINARY HOSPITAL AND VETERINARY GENETICS LAB EARN ACCREDITATIONS

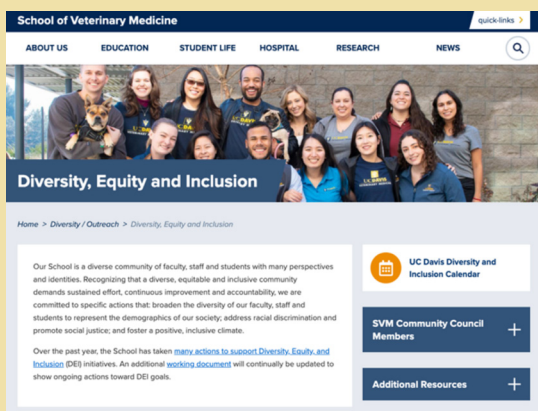
The UC Davis veterinary hospital has continued to achieve the highest level of veterinary excellence following evaluation by the American Animal Hospital Association (AAHA). The School of Veterinary Medicine's teaching hospital recently earned re-accreditation by AAHA after a rigorous review of the hospital's practice protocols, medical equipment,

facility, and client service – continuing the level of success it has enjoyed for many years.

The UC Davis Veterinary Genetics Laboratory recently achieved the ISO/IEC 17025 accreditation by the American National Standards Institute National Accreditation Board, the highest level of accreditation available to testing laboratories.

# BRIEFS

## SCHOOL DIVERSITY INFORMATION AND RESOURCES



UC Davis Veterinary Medicine is a community that prides itself on its diversity, equity, and inclusion, and understands that we are comprised of individuals having many perspectives and identities. The commitment to social justice through diversity, equity and inclusion (DEI) is ongoing, with a mandate from the [school's strategic plan](#) and direction provided by the Community Council.

To make information on the school's DEI activities easier to find, the school has recently increased information and resources on the school's website and made the resources easier to find. "Diversity" has been added to the main menu under the "About Us" tab, and the Diversity Equity and Inclusion page includes information on support resources, the school's actions, the Community Council, a dean's statement and more. It also links over to the student diversity pages, which can be accessed directly from the website's main menu under the "Student Life" tab.

## VETERINARY MEDICAL TEACHING AND RESEARCH CENTER IN TULARE (VMTRC) HOSTS BOVINE VETERINARY INTERNSHIP PROGRAM

The Bovine Veterinary Internship Program (BVIP), sponsored by Merck, gives veterinary students the opportunity to collaborate with leading veterinarians in the bovine veterinary medicine industry while not only learning the principles of beef or dairy herd health and management, but designing and executing bovine field trials. Merck asked the VMTRC to serve as a host for the BVIP in California. Christina Alba, a local resident from Tulare County who is currently a 3rd-year veterinary student at Western University, subsequently interned at VMTRC for the summer. She is a first-generation college student in



her family, and she is interested in livestock and production animal medicine. Through her internship experience at the VMTRC, which included a randomized, controlled bovine coronavirus (BCV) vaccination

trial in pre-weaned dairy calves, she wants to pursue advanced studies in research and public health after she graduates from veterinary school.

## NEW FACULTY

### **Dr. Sami Al-Nadaf,**

Department of Surgical & Radiological Sciences; Assistant Professor of Clinical Oncology



### **Dr. Marisa Ames,**

Department of Medicine and Epidemiology; Associate Professor of Cardiology



### **Dr. Simon Anthony,**

Department of Pathology, Microbiology and Immunology; Associate Professor of Microbiology



### **Dr. Jeff Blea,** Equine Medical Director



### **Dr. Stefano Borio,**

Department of Medicine and Epidemiology; Assistant Professor of Clinical Dermatology



### **Dr. Pouya Dini,**

Department of Population Health & Reproduction; Assistant Professor of Equine Theriogenology

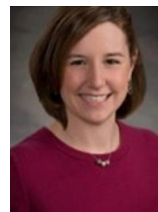


### **Dr. Katherine Farrell,** Department of Surgical & Radiological Sciences; Assistant Professor of Clinical Small Animal Emergency & Critical Care



### **Dr. Eileen**

**Henderson,** California Animal Health & Food Safety Laboratory System and the Department of Pathology, Microbiology & Immunology; Assistant Professor of Clinical Diagnostic Pathology



### **Dr. Kristin**

**Jankowski,** Department of Medicine and Epidemiology as Health Sciences Assistant Clinical Professor; Community Practice



### **Dr. Fabio Lima,**

Department of Population Health & Reproduction; Assistant Professor of Livestock Health/ Assistant Livestock Health and Theriogenology



### **Dr. Bianca da Costa Martins,**

Department of Surgical & Radiological Sciences; Associate Professor of Clinical Ophthalmology



### **Dr. Ehren McLarty,** Department of Surgical & Radiological Sciences; Assistant Professor of Clinical Diagnostic Imaging



### **Dr. Anibal Armien Medianero,**

California Animal Health & Food Safety Laboratory System and the Department of Pathology, Microbiology & Immunology; Professor of Clinical Diagnostic Pathology



### **Dr. Erik Olstad,**

Department of Medicine and Epidemiology as Health Sciences; Assistant Professor in Communication, Professional Skills and Community Practice



### **Dr. Krystle Reagan,**

Department of Medicine and Epidemiology; Assistant Professor of Small Animal Internal Medicine



### **Dr. Melissa Macías Rioseco,**

California Animal Health & Food Safety Laboratory System and the Department of Pathology, Microbiology & Immunology; Assistant Professor of Clinical Diagnostic Pathology



## AWARDS

### **Dr. Wilson Rumbeiha Named Carnegie Fellow**

Dr. Wilson K Rumbeiha from the Department of Molecular Biosciences in the UC Davis School of Veterinary Medicine was awarded a fellowship by the [Carnegie African Diaspora Fellowship Program](#) to travel to Rwanda to work with Dr. Kizito Nishimwe in the School of Veterinary Medicine, University of Rwanda on Strengthening One Health Education and Creation of a One Health Center of Excellence. Specifically Dr. Rumbeiha and Dr. Nishimwe will collaborate on research, develop curriculum, host workshops, etc. in One Environmental Health Toxicology.

**Dr. Kris Clothier** (Bacteriology Discipline Head at UC Davis, CAHFS) received the BIOMIC Award for Excellence in Diagnostic Veterinary Microbiology for her work related to antimicrobial resistance, her emphasis on mentorship, and her ability to bring an applied/practitioner perspective to diagnostic microbiology.

**Dr. Terry Lehenbauer:** 2020 American Association of Bovine Practitioners Award of Excellence

**Jeff Stott, PhD (Pathology, Microbiology and Immunology):** received the Zoetis Award for Research Excellence for innovation and productivity in his research. The school was founded in part on the problem that he solved (Epizootic Bovine Abortion).

**Dr. Nicholas Streitenberger** (San Bernardino, Pathology resident) — given the Davis/Thompson Foundation's best diagnostic exercise (2019-2020) award for his work on Bovine Bronchopneumonia by the American College of Veterinary Pathologists.

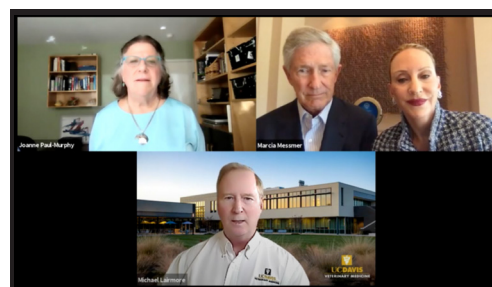
**Dr. Omar Gonzales Viera** (Davis, Pathology resident) — received the AAVLD/ACVP award for best oral pathology presentation for his paper on "Infectious bronchitis virus prevalence, characterization, and strain identification in California backyard chickens."

**Mindy Plunkett** (Supervisor of Receiving at CAHFS-Davis) received the AAVLD Outstanding Performance Award for Diagnostic Service for the work that she and her section did to facilitate receipt of samples throughout the 2018-2020 virulent Newcastle Disease outbreak in California.

**UC Davis alumnus Dr. Don Janssen** (DVM '78) was awarded the Dr. Murray Fowler Lifetime Achievement Award from the American College of Zoological Medicine (ACZM).

**Dr. Stephen White** has been named the 2020 recipient of the Frank Kral Award presented by the American Academy of Veterinary Dermatology.

## PROMOTIONS



### **School Celebrates Creation of New Presidential Endowed Chair**

On November 18, the UC Davis School of Veterinary Medicine celebrated the creation of a new Presidential Chair. Dr. Joanne Paul-Murphy was introduced as the inaugural chairholder of the Messmer Family Presidential Chair in the Companion Exotic Animal Medicine and Surgery Service at the virtual event. The chair was funded by Dean's Leadership Council member and UC Davis Foundation Trustee Marcia Messmer and her husband Max, as well as funds from the UC Presidential Match for Endowed Chairs program.

**Dr. Mary Christopher** has been appointed as Vice Chair of the Department of Pathology, Microbiology, and Immunology (three-year term)

**Dr. Michelle Giuffrida** has been appointed as the Director of the Veterinary Center for Clinical Trials.

**Dr. Patricia Pesavento** has been appointed as Chair of the Department of Pathology, Microbiology, and Immunology (five-year term)

**Dr. Josh Stern** to serve as Faculty Assistant to the Associate Dean of Professional Education (special appointment related to the pandemic)

**Dr. Jennifer Willcox** has been appointed as Associate Director of the Veterinary Center for Clinical Trials.

**Dr. Michael Ziccardi** has been appointed as Executive Director of the One Health Institute (five-year term).