

SPOTLIGHT ON University of California-Davis Veterinary Medicine

Advancing animal health and welfare through research

Driving health innovation at the University of California-Davis School of Veterinary Medicine

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doi.org/10.2460/ajvr.23.03.0056

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When the University of California launched the School of Veterinary Medicine at its Davis campus 75 years ago, the school founders adopted an innovative outlook to research. They created a department of clinical pathology to bridge the basic sciences to clinical innovation, transformed livestock medicine from an individual animal approach to herd health, and emphasized functional anatomy in the curriculum to create a simultaneous focus on physiology, pathology, and clinical practice.

Those innovations ensured that the University of California-Davis (UC Davis) would produce leading scientific and clinical breakthroughs while sending top-notch graduates into practice. In addition, as the university campus grew around the school, it provided new opportunities for collaboration across disciplines like engineering, biological sciences, and human medicine.

Today, the school receives the most research funding of any veterinary school—\$89 million in 2021 to 2022—and is engaged globally, conducting research in the one-health paradigm.

Two research centers that receive significant philanthropic support are important to UC Davis' success. The Center for Companion Animal Health supports research into health issues affecting dogs, cats, and other small pets, while the Center for Equine Health supports horse health research. Together they provide more than \$2 million annually to advance faculty research.

Breakthroughs that have occurred with their support include the identification of the cause of canine chondrodystrophy that results in millions of disk herniations each year, a cure for FIP—a disease previously 100% lethal to cats—and the development of the standing equine PET scanner, enabling highly accurate diagnosis and management of lameness in horses.

Another key component of UC Davis' success is its Veterinary Center for Clinical Trials. The center coordinates and implements all aspects of trials—including collaborations with the School of Medicine, Department of Engineering, and other partners—across a variety of species and medical disciplines. Currently, the center is sponsoring 65 trials.

UC Davis is active in many areas of veterinary research—a few are highlighted below.

One Health

Research on zoonotic disease has benefits for animals and humans. Understanding viruses and other potential pathogens shared across species yields health insights for disease prevention and treatment in carriers and receptors, while providing vital information for conservation. Since its founding in 2009, the One Health Institute has received more than \$300 million to study zoonotic disease and currently leads the One Health Workforce-Next Generation project that collaborates with more than 100 universities.

Comparative Medicine

The school's relationship with the university's School of Medicine is yielding a growing number of comparative medicine collaborations, from the world's largest comparative ophthalmology program to a comparative oncology program that is the only National Cancer Institute program of its kind in the nation. These collaborations, which benefit both animals and humans, have yielded significant advancements in treatments of cancer, spina bifida, and ocular diseases. In addition, UC Davis prepares comparative medicine specialists through the T32 Comparative Medical Scientist Training Program.

Artificial Intelligence Helps Identify Life-Threatening Diseases

UC Davis veterinary researchers are leading the charge in using artificial intelligence (AI) to quickly diagnose life-threatening diseases, and have demonstrated how to reliably diagnose 2 diseases through AI programs. They recently identified a technique to predict leptospirosis in dogs, eliminating a former 2-week diagnosis process through traditional blood tests. The group also developed an AI algorithm to predict Addison's disease with an accuracy rate greater than 99%. They are actively pursuing AI for the prediction of outcomes for other types of infections, including a prediction model for antimicrobial-resistant infections, which is a growing problem in veterinary and human medicine.

The UC Davis community is proud of the impact that the school's 75 years has had on veterinary medicine and looks forward to new discoveries during this era of profound and accelerated healthcare innovation.