



lifelines

News from the
College of Veterinary Medicine
at Kansas State University

July 2016

Vol. 11 No. 7

CVM names new associate dean

Dr. Peggy Schmidt has been named associate dean for academic programs and student affairs, joining the CVM Sept. 6. Dr. Schmidt currently serves Western University of Health Sciences as director of outcomes assessment, and she has been an educator for 12 years.



Dr. Peggy Schmidt

Coetzee returns to head A&P

The CVM has named Dr. Hans Coetzee as department head for the Department of Anatomy and Physiology. Dr. Coetzee returns to the CVM where he was on the faculty from 2005 to 2011, before accepting a position with Iowa State University. He will begin Oct. 1.



Dr. Hans Coetzee

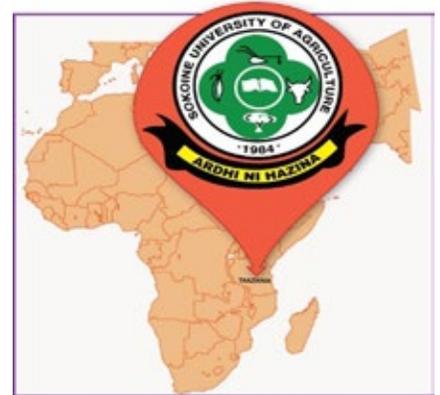
Twinning in Tanzania

OIE supports twinning program between CVM and Sokoine

The CVM is pleased to announce the establishment of a twinning partnership with Sokoine University of Agriculture Faculty of Veterinary Medicine in Morogoro, Tanzania, which has been formed through a program administered by the World Organisation for Animal Health (OIE) in Paris, France.

The Veterinary Education Establishment Twinning Program was established by the OIE in 2013 and has since supported partnerships between well-matched, eligible veterinary education establishments. The program aims to strengthen veterinary education by establishing partnerships which lead to exchanges of ideas, knowledge and experiences for students and faculty. The ultimate program objective is to ensure that veterinary graduates all over the world are equipped with the competencies needed to support their national veterinary services. The OIE has committed a \$457,213 grant for the twinning project between K-State and Sokoine University.

“The OIE believes that strengthening the capacities of its Member Countries and, in particular, ensuring that veterinarians possess an adequate level of education, are fundamental,” explained Dr. Monique Eloit, director general of the OIE.



“Veterinary students will become the professionals who will ensure that their countries meet the health challenges of tomorrow.”

The partnership will strengthen the curriculum and educational resources at Sokoine University of Agriculture Faculty of Veterinary Medicine and provide opportunities for both universities to be exposed to global health challenges and veterinary production systems in a different cultural and socioeconomic setting.

“International collaborations are critical to the future of our profession and our ability to educate the next generation veterinary workforce,” Dean Tammy Beckham said. *See more at Lifelines online.*

Inside this issue of *lifelines*



**US and UK experts
visit CVM.**

See page 2



**Study looks at
microbiomes.**

See page 3



**Chameleon survey
in Israel**

See page 3

UK and US security experts call for cooperation between veterinarians and international agencies

A pair of UK and US security experts called for greater cooperation between veterinarians and international agencies toward reducing biological threats and improving international security during a recent visit to the College of Veterinary Medicine at Kansas State University.

The experts, Andrew Weber, former assistant secretary of defense and deputy coordinator for Ebola response at the U.S. Department of State; and David Elliott, a leader in cooperative threat reduction at Defense Science and Technology Laboratories, UK government, spoke about the relationship between global security and outbreaks of animal and zoonotic diseases. Weber, who had been a key player in dismantling the former USSR's bioweapons program, highlighted the potential use of animal pathogens and zoonotic agents (pathogens that can cause disease in humans as well as animals) as bioweapons should they fall into the wrong hands.

"All veterinarians are security people," Weber said. "We depend on them to keep us safe from infectious diseases of both humans and animals. I encourage veterinarians to think globally about their responsibilities which can make the world a safer place, and encourage emerging leaders in the veterinary profession to consider careers in improving global health security."

While addressing the potential use of animal pathogens by terrorists, Weber pointed out how cooperation and laboratory capacity building can limit access to these agents.

"In the case studies we have of terrorist groups seeking to develop biological weapons, the one technical hurdle they seem to fail at repeatedly is obtaining the pathogen – obtaining the



Andrew Weber and David Elliott take questions on the role of veterinarians in capacity building to reduce biological threats.

starter culture," Weber said. "We have an opportunity to reduce the risk of terrorism by consolidating or reducing the number of laboratories that have *Bacillus anthracis* (anthrax)."

Elliott explained another way in which veterinary medicine can have a positive impact on global security.

"If you're in the veterinary sector, look at some of the good this sector can do," Elliott said. "For example, increasing productivity, helping people to manage healthier livestock – all of that tends to raise living standards. By projecting your expertise abroad, you can make a positive impact on people's lives, and that reduces the drivers of conflict and civil unrest."

Elliott also talked about benefits of working with intergovernmental animal health agencies, the World Organisation for Animal Health (OIE) and the United Nations Food and Agricultural Organization (FAO).

Veterinary students land international travel awards for research projects

Two veterinary students will work on research projects overseas as recipients of 2016 international student travel awards from the office of International Programs.

This year's recipients are both third-year veterinary medicine students. Sohaila Jafarian, Manhattan, will work on a One Health water sanitation project in Managua, Nicaragua. Marie Keith, Maple Hill, will work on a rabies project at the Division of Infectious Diseases at the Chinese Center for Disease Control and Prevention in Beijing.

The objective of the College of Veterinary Medicine's travel awards program is to facilitate international experiences and make a positive contribution to animal and public health. Students must apply for the awards and demonstrate a need based on "novel, brilliant, interesting and worthwhile" ideas.

"We've focused on providing fewer but larger travel awards this year, with an emphasis on supporting projects that will

not only be relevant to the student's Doctor of Veterinary Medicine studies, but also provide a benefit to the host country," said Dr. Keith Hamilton, executive director for the college's international programs. "We had eight excellent applications this year and it was difficult to make a decision on the winners. We're very pleased with the amount of interest from the students and the quality of their applications."



Marie Keith and Sohaila Jafarian were selected for international travel awards.

Challenging Conventions

ICCM study reevaluates food safety assessment method

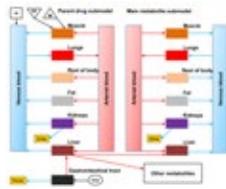
New research published by the Institute of Computational Comparative Medicine (ICCM) is challenging conventional notions in regard to tissue drug residues and human food safety in cattle and swine.

Drs. Zhoumeng Lin, Christopher I. Vahl and Jim E. Riviere have found that diseases can dramatically influence the type of drug residue produced in tissues of food animals that are used by regulatory agencies to monitor for human food safety. Withdrawal times (time from last drug administration to slaughter) are determined in healthy animals during the drug development process assuming that the ratio of drug to any metabolite produced is constant. This so called “marker residue ratio” is then used to set legal tissue tolerances in food safety inspection programs. Diseases in treated animals may alter this ratio.

“While this is just one study, we believe our work could have significant impact on food safety in the future,” said Dr. Riviere, director of the ICCM.

“We created a general physiologically based pharmacokinetic (PBPK) model for representative drugs such as ceftiofur, enrofloxacin, flunixin and sulfamethazine, which are typically used in cattle and swine and have had residue violations reported” said Dr. Lin, an assistant professor in the anatomy and physiology department.

Their study, “Human Food Safety Implications of Variation in Food Animal Drug Metabolism,” was recently published in Nature’s Scientific Reports.



Dr. Megan Niederwerder examines microbiome associations related to PRRS and PCV2

Researchers in the College of Veterinary Medicine at Kansas State University have teamed up with the Lawrence Livermore National Laboratory in California to evaluate the impact and association of microbiomes in connection with two of the most devastating viral diseases in swine.

“Understanding how the microbiome impacts health and disease in swine is a relatively new field of study,” said Dr. Niederwerder, the lead author and an assistant professor in the Department of Diagnostic Medicine/Pathobiology and Kansas State Veterinary Diagnostic Laboratory.

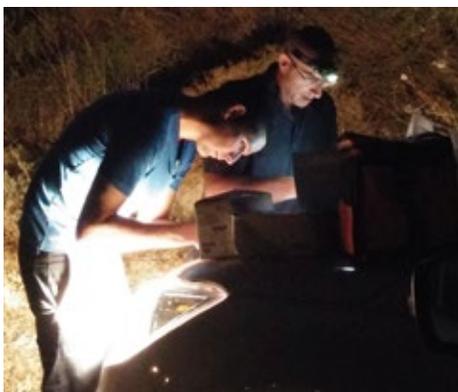
Dr. Niederwerder explained the term microbiome refers to the community of microorganisms living within or on the surface of our bodies. The gastrointestinal tract houses the greatest proportion of these microorganisms.

The study, entitled “Microbiome associations in pigs with the best and worst clinical outcomes following co-infection with porcine reproductive and respiratory syndrome virus (PRRSV) and porcine circovirus type 2 (PCV2)” was published in the May 2016 issue of *Veterinary Microbiology*. These viral infections have caused billions of dollars in losses to swine producers over the last 25 years.



Weight gain in piglets can be significantly different depending on the diversity of microbiomes in those pigs having the best and worst clinical outcomes following co-infection with PRRSV and PCV2.

Dr. David Eshar conducts summer field pathogen surveillance on wild chameleons in Israel



Working at night, with a field-lab spread on the hood of an SUV, Dr. David Eshar is helping a Koret Veterinary School (Hebrew University, Israel) collect blood samples, and oral and cloacal swabs for a variety of viral and bacterial testing.

It is just before midnight, and a full moon is shining its strong beam, helping Kansas State University’s Dr. David Eshar and his colleagues find and sample wild common chameleons (or Mediterranean chameleons) in Israel.

“The chameleons are diurnal animals that spend the nights sleeping mainly on Jujube and Carob trees, that are now in full blossom and attracting their prey of various insects,” explained Dr. Eshar, assistant professor of wildlife and zoo medicine in the College of Veterinary Medicine. “Surveying the area by foot and on vehicles, shining a strong beam of light at the trees can help locate the sleepy chameleons.” Not an easy task as they are well camouflaged even when asleep

looking like the leaves on the tree branch they are on.

Dr. Eshar’s research is being performed in collaboration with Dr. Boaz Shacham, a herpetologist from the Hebrew University, Jerusalem Israel, and researchers from the Kimron Veterinary Institute, Israel. The researchers aim to investigate the potential presence of several pathogens, such as viruses and bacteria in wild common chameleons.

“The findings of this study will not only enhance the knowledge about the medicine of this reptile species, but will also determine how common these pathogens are in the environment,” Dr. Eshar said.

Undergrad students earn research grants under Dr. Davis



A pair of K-State undergrad students, Kaitlynn Bradshaw and MaRyka Smith, have successfully applied for research grants to support their projects under the mentorship of Dr. A. Sally Davis, an assistant professor of experimental pathology in the CVM. The \$500 awards are provided through the Histochemical Society's new Capstone Grant program, which has the objective of promoting the use of immunohistochemistry or other histochemical techniques in biological research. Bradshaw and Smith are two of the first three students to receive one of these grants.

Bradshaw, a junior in biology, is originally from Hill City, Kansas. Her project is entitled "Calcofluor White Labeling of Pneumocystis." This project involves the fungus *Pneumocystis* known for its ability to cause life threatening pneumonia in immunocompromised individuals.

Smith, Hoyt, Kansas, is a senior majoring in animal sciences and industry. Her project is entitled, "Mechanisms of Acute Kidney Injury in RVFV Infected Ruminant Tissues." This project is a continuation of recently published work on the development of cattle and sheep Rift Valley fever virus challenge models for vaccine efficacy testing in which renal damage was observed.

Veterinary Health Center welcomes interns



The VHC welcomed a new class of interns in June. Back row, from left: Drs. Erik Perez, Pierce Chan, Megan Partyka, Kyla Kressek, and Katie Weatherall, equine. Front row: Drs. Lin-Yi Hsuan, Lauren Pudenz, Christina McCullough, Lacey Robinson, and Loudon Wright.

CVM News Ticker



Officials of the Center of Excellence for Emerging and Zoonotic Animal Diseases, or CEEZAD, celebrated the opening of its new headquarters June 22 with an open house attended by stakeholders, collaborators and Kansas State University officials.

Dr. Juergen Richt, Regents distinguished professor, diagnostic medicine and pathology at Kansas State University and director of CEEZAD, welcomed the dignitaries at an evening reception at the offices, which are in the K-State Office Park. The building, which also is home to the KSU Foundation, opened in fall 2015.

The KSU Foundation recently announced **Eric Holderness** as senior director of development for the CVM. Holderness joined the foundation in 2013, where he served as a development officer for the College of Arts and Sciences and rose to the position of its director of development. As a key member of the Arts and Sciences development team, he helped the team achieve three straight years of record fundraising success.

Holderness received a master's degree in college student personnel in 2011 from Kansas State University and his bachelor's in advertising from K-State in 2009.



lifelines is published monthly by Marketing and Communications in the College of Veterinary Medicine, edited by Joe Montgomery, jmontgom@vet.k-state.edu. Read online at www.vet.k-state.edu/lifelines/1607.html

Connect with us!
facebook.com/ksucvm
youtube.com/ksucvm
twitter.com/ksucvm

