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# *lifelines*

News from the  
College of Veterinary Medicine  
at Kansas State University

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## A Beefy Collaboration

### Kansas State University agrees to bring on Texas Tech University as a partner with its Beef Cattle Institute

Kansas State University and Texas Tech University have entered an agreement to bring Texas Tech into the Beef Cattle Institute, which fosters collaboration to deal with issues relating to the beef industry.

The Beef Cattle Institute was established in the Kansas State College of Veterinary Medicine in 2007 under the leadership of Dr. Dan Thomson, the Jones professor of production medicine and epidemiology and a Texas Tech alumnus.

The Beef Cattle Institute has become one of the world's premier collaborative centers for research, education and outreach in the beef industry. Texas Tech and Kansas State University are leaders in providing the beef industry, from producers to retailers, with the people and tools needed to succeed both today and into the future, making this collaboration a natural fit.

"An integrated approach between our schools is a smart use of our resources so that collectively, we can better serve the beef industry that provides significant economic infrastructure for our schools and our states," said Dr. Thomson, director of the institute. "I look forward to growing opportunities for our faculty and students together through research, outreach and educational opportunities."

By adding expertise from Texas Tech's College of Agricultural Sciences and Natural Resources, these universities can take the Beef Cattle Institute to another level of success and deliver far-reaching solutions for the beef industry, provide expanded opportunities for students and faculty, and better serve citizen interests.

"This partnership not only strengthens the collaborative research between our two universities, but also elevates the national profiles

of each," said Texas Tech President M. Duane Nellis. "Texas Tech and Kansas State boast some of the world's leading researchers in the beef industry and their joint efforts will benefit not only the universities, but also the public for years to come."

Texas Tech and Kansas State University have a shared vision for the service to the beef industry, its many and varied stakeholders and the citizens who benefit from the beef industry, from beef consumers to employees of allied businesses. Moreover, a large proportion of U.S. beef cattle are finished between Lubbock, Texas, and Manhattan, Kansas, which generates substantial regional and national revenues.

"We are excited to partner with Texas Tech University and share a multidisciplinary vision to solving real-world issues the beef industry faces," said Kirk Schulz, president of Kansas State University. "Such valuable and service-oriented collaborations are a crucial part of our land-grant mission and will help Kansas State University become a Top 50 public research university by 2025."



BEEF CATTLE INSTITUTE  
KANSAS STATE UNIVERSITY



TEXAS TECH  
UNIVERSITY

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**Popular instructor passes away.**

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## Dr. David Eshar travels to Israel to study black-tailed prairie dogs

There's no place like home for Dr. David Eshar, assistant professor of exotic, wildlife & zoo animal medicine in the College of Veterinary Medicine at Kansas State University. While prairie dogs are common in Kansas and the central plains, Dr. Eshar is conducting a study on a group of black-tailed prairie dogs where he grew up in Israel, with veterinarians from the Tisch Family Zoological Gardens in Jerusalem.

"The Jerusalem Zoo, also called 'the Biblical Zoo' is the top attraction in Israel, admitting nearly 1 million visitors annually," Dr. Eshar said. "This well-managed zoo keeps a large collection of prairie dogs that are well-trained and handleable. The purpose of this study, which is sponsored by the Abaxis company, was to evaluate the effect of isoflurane gas anesthesia on blood gas analytes and selected physiological parameters in black-tailed prairie dogs using point-of-care blood analyzers that require a small blood volume and provide prompt and bed-side results, an advantage when performing anesthesia. Basically, we want to know what happens to them physiologically during anesthesia and with that improve their anesthetic care and reduce anesthetic risks."

The black-tailed prairie dog (*Cynomys ludovicianus*) is a member of the order Rodentia and the family Sciuridae. Dr. Eshar said that ecologically, prairie dogs are a keystone species in North American prairie environment, making them an important species to biologists and wildlife veterinarians alike. Black-tailed prairie dogs are also frequently studied in

research, kept in zoological collections, and also kept as pets.

"General anesthesia is frequently required for examination and diagnostic testing of prairie dogs, and inhalant anesthetics are typically used for anesthesia," Dr. Eshar said. "However, a comparative report showed that rodents and other small mammals had a significantly higher anesthesia-related mortality rate when compared to other anesthetized species."

He noted that the measurement of physiologic parameters is important when evaluating the overall health status of an animal. These parameters can help in detection of an unidentified pathologic state, or to eliminate a possible cause of an animal's illness. However, limited venous access and smaller body size make blood testing challenging. Clinical expertise and using modern technology designed to work with these challenges allows for improved care for smaller-sized mammals.



*Dr. David Eshar listens to a prairie dog's heart while in Israel.*

## Dr. Ralph Richardson flunks retirement; Named interim dean and CEO of K-State Olathe

Kansas State University has named Dr. Ralph Richardson as the interim dean and CEO of K-State Olathe, effective Aug. 2.

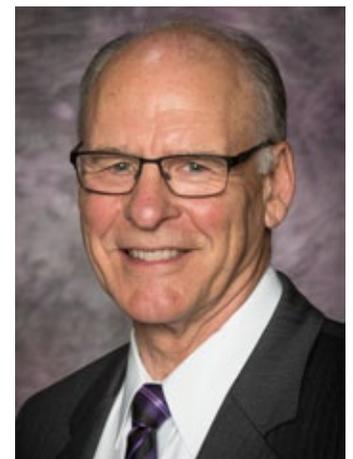
Dr. Richardson has served as dean of the College of Veterinary Medicine at Kansas State University since 1998 and will be succeeded by Dr. Tammy Beckham, currently director of the Institute for Infectious Animal Diseases in College Station, Texas.

"We are confident Dr. Richardson's strengths and leadership in the animal health area, knowledge of the Kansas City community and administrative acumen will continue to build on the education, training and research K-State Olathe provides to the Kansas City area," said April Mason, Kansas State University provost and senior vice president. "The Olathe campus is critically important in our efforts to become a Top 50 public research university by 2025, and we appreciate Ralph's willingness to serve in this key position."

Prior to joining Kansas State University, Richardson was the department head of veterinary clinical sciences at Purdue University from 1987 to 1998. During his time at Purdue, Dr. Richardson conducted research in the area of human-

animal comparative medicine, specifically the way naturally occurring cancer in companion animals could serve as a model for human cancer treatments.

"I look forward to helping grow the opportunities that K-State Olathe provides for Kansas State University, the state of Kansas and for the Greater Kansas City region," Dr. Richardson said. "This campus provides an ideal platform to engage university, private industry, government and our state's greatest concentration of private citizens. I am excited about building on the foundation that has been laid, growing existing programs and exploring future opportunities."



*Dean Ralph Richardson.*

## CVM's Dr. Deryl Troyer teams up on patent for preclinical cancer detection test platform

A U.S. patent has been awarded to a Kansas State University technology that quickly detects the early stages of cancer before physical symptoms ever appear.

Dr. Deryl L. Troyer, professor of anatomy and physiology; Dr. Stefan H. Bossmann, professor of chemistry; and Dr. Matthew Basel, postdoctoral fellow in anatomy and physiology, developed a nanoplatform technology to detect human cancer cells and tumors in the beginning stages.

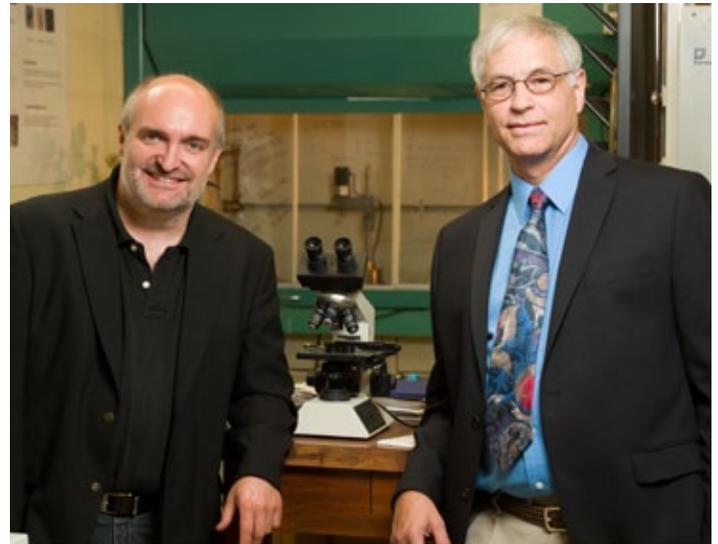
“Early detection of cancer increases the chances of successful therapy,” Dr. Troyer said. “This is because in most cases treatment can be initiated before metastases occur. Early detection also is advantageous because therapies that do not have devastating side effects are more likely to be successful.”

The technology was recently awarded U.S. Patent 8,969,027, titled “Fluorescence Assays for Serine Proteases.” It was issued to the Kansas State University Research Foundation, a nonprofit corporation responsible for managing technology transfer activities at the university. Patents also have been awarded in Australia, Canada, France, Germany and the U.K.

The researchers’ technology consists of iron/ironoxide core/shell nanoparticles coated with amino acids and a fluorescent dye. The amino acids and dye interact with enzymes in a blood sample and make it possible to diagnose a cancer type even if a patient is not showing physical symptoms associated with cancer.

A sample of a patient’s blood is converted into a blood serum. The serum is used to perform tests with enzymes — mainly proteases — that are in the bloodstream and that are expressed at different levels in cancer patients and healthy adults. Each enzyme is analyzed and compared to the enzyme pattern of different tumor types. Each type of cancer has a unique protease signature, similar to a genetic fingerprint registered in a database.

“Since we are able to detect virtually all solid tumors at stage 1 during routine blood testing, this cost-effective technology



*Dr. Stefan Bossman with the CVM's Dr. Deryl Troyer.*

used together with the already established cancer technologies has the potential of saving half the lives of those diagnosed with cancer during the next decade,” Dr. Bossmann said. “This test can be easily incorporated into clinical labs.”

Drs. Troyer and Bossmann are currently collaborating with China’s First Affiliated Hospital of Kunming Medical University on conducting double-blind cancer detection tests. Double-blind tests are one of the most stringent testing procedures as neither the test participants nor the administrators know who is in the control group and who is in the experimental group. If the researchers’ detection test achieves a high accuracy rate, it will likely become a viable medical test for physicians in the U.S. and across the world.

## Center of Excellence for Emerging and Zoonotic Animal Diseases introduces students to high-containment laboratory research

While the National Bio and Agro-Defense Facility is under construction, the training of future transboundary animal disease researchers is happening now. This summer, the Center of Excellence for Emerging and Zoonotic Animal Diseases, or CEEZAD, introduced 10 students from Kansas State University and six other institutions to high-containment laboratory research in a two-week program at K-State’s Biosecurity Research Institute.

“The program was intended to introduce students who are interested in learning more about transboundary emerging zoonotic animal disease, specifically graduate students and DVM students,” said Dr. Jessica Green, CEEZAD program

coordinator. During the first week of the program, the students learned the basics about bio-containment, such as how to wear various types of personal protective equipment and how to enter the BSL-3 facility.



Learn more about the training session in this month’s video report at: <https://www.youtube.com/watch?v=ZXoQU1C89yA>.

## RIP: Professor emeritus Dr. Wally Cash



The CVM is sad to bring news of the passing of longtime anatomy instructor, Dr. Wally Cash, gone June 29 at age 68. Dean Ralph Richardson said, "Wally, a gifted professor of anatomy and a much loved teacher of thousands of K-State veterinarians, dedicated his life to inspiring young people to develop a lifelong love of learning." Dr. Cash earned his bachelor's degree in biological sciences in 1969, DVM in 1971, and Ph.D. in anatomy/physiology/pathology in 1982, all from K-State.

## CVM News Ticker

**Dr. Raelene Wouda** attended the American College of Veterinary Internal Medicine Forum in Indianapolis, Indiana. She moderated the oncology comprehensive review sessions on the topic immunotherapeutics and attended the annual meeting of the Comparative Oncology Trials Consortium (COTC) of which K-State is a member. In May, she spoke at the University of Kansas School of Medicine as part of the University of Kansas Cancer Center's Seminar Series, on the topic of Comparative Oncology and the invaluable contribution our companion animals can make to understanding cancer and improving the prevention, diagnosis and treatment of this devastating disease.

**Dr. Beth Davis** presented at the Texas Equine Veterinary Association Breathe Easy In-Depth Respiratory Meeting held in Austin, Texas. Her topics included: Upper and lower airway disease; Herpes virus in horses; Bacterial respiratory disease and Inflammatory respiratory diseases IAD and RAO. She also provided laboratory sessions on bronchoalveolar lavage procedure and reading airway cytology slides; thoracic ultrasound; thoracic radiographs; arterial blood gas sampling, and stationary and dynamic endoscopy of the upper respiratory tract.

**Dr. Brad White** presented at the Montana Veterinary Medical Association 2015 Summer Meeting in Big Sky, Montana. His topics included: Update on BRD identification and management; Optimizing calf health pre-weaning; Reproductive profiling in cow-calf herds: Managing for success; and Preventing and managing losses in cow-calf herds.

## Swearing the Officer's Oath



Congrats to the CVM's newest Army Veterinary Corps Health Professions Scholarship Program recipients, all sworn in as captains in June. From left to right: Second-year student Cameron Willoughby, and first year students, John Brandsma, Dustin Renken and Thomas West.

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