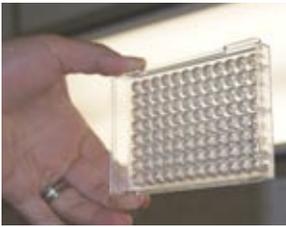




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**Saying goodbye to a very familiar face. See page 4**



**Richard Estrada goes Under the Microscope. See page 4**

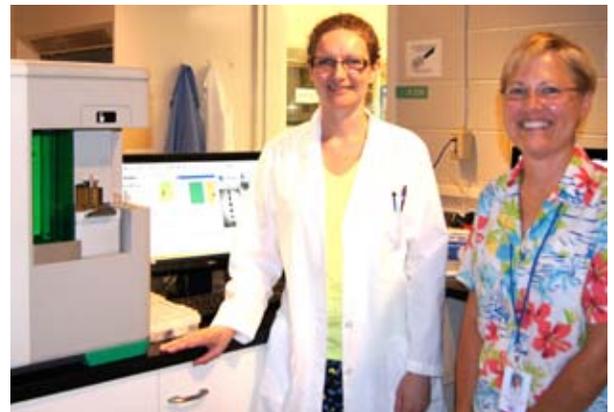
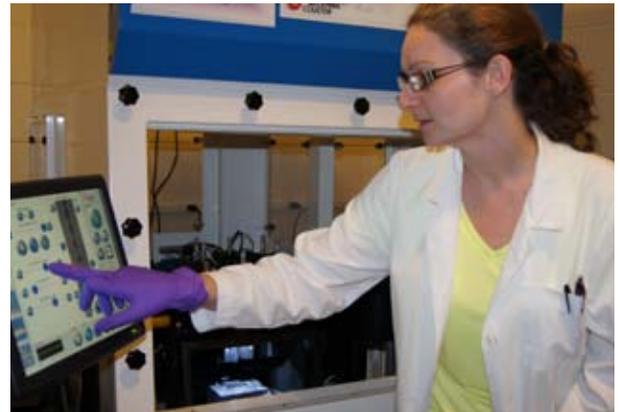
# Going with the 'Flow'

Flow Cytometry Lab creates opportunities for cellular research/collaboration

Cellular scientists now have access to an extraordinary set of tools at the College of Veterinary Medicine. The Kansas State University Flow Cytometry Lab held an open house on June 28 for researchers from across campus. This multi-user core facility offers new and upgraded analyzers that can be used in a wide variety of research.

“Flow cytometry is a technology to measure properties of individual cells or particles in a fluid stream at a very high flow rate so we can get lots of information about the surface proteins that the cells may express, such as DNA/RNA content,” said Dr. Melinda Wilkerson, lab director and professor in immunology and clinical pathology. “So anyone that has cells that can be put into a single suspension can use this technology. They can be cancer cells in culture. They could be insect cells from entomology or even plant cells.”

**Watch a full video report about the new Flow Cytometry Lab and its open house at Lifelines online: [www.vet.k-state.edu/depts/development/lifelines/1307.htm](http://www.vet.k-state.edu/depts/development/lifelines/1307.htm).**



**Top: Dr. Catherine Ewen, associate director of the Cytometry Lab, demonstrates the MoFlo XDP which has high-speed sorting capabilities. Bottom: Dr. Ewen and Dr. Melinda Wilkerson explain the four-color capabilities of the BioRad S3.**



## K-State 150: The Art of Veterinary Medicine

Art has played an important role at the College of Veterinary Medicine over the years. Visit Lifelines online to see a review of the official CVM logos and other ways that art has played a part in the college's history: [www.vet.k-state.edu/depts/development/lifelines/1307.htm](http://www.vet.k-state.edu/depts/development/lifelines/1307.htm)

## Dr. David Eshar leads tortoise survey project in Israel

Dr. David Eshar, assistant professor of exotics had just finished collecting data for a study investigating normal biochemical and hematological values in clinically healthy African Spurred (Sulcata) tortoises (*Geochelone sulcata*) from several zoological collections in Israel. More than 120 tortoises were surveyed with the aid of veterinary students Lior Kamara, Sarah Halpern and Shoshana Levshin, all from the class of 2016. This project was supported by a University Small Research Grant (USRG) and the Abaxis company.

“These tortoises are one of the largest species that are commonly kept in

zoological collections,” Dr. Eshar explained. “With its magnificent shell, calm nature and large size, it has also become a preferred pet. The goal of this study is to produce hematologic and biochemistry values for the African Spurred tortoise in accordance with accepted guidelines published in the scientific literature.”

Dr. Eshar and his team worked with several zoos in Israel including the Jerusalem Zoo and the Ein Gedi (by the Dead Sea) Zoo. This was an ideal time to conduct this study as the veterinary students were already in Israel for externships while on their summer vacation.



**Second-year student Lior Kamara holds an African Spurred tortoise (*Sulcata*) for Dr. David Eshar.**

## Study shows antibiotic resistance in bovine respiratory disease

A survey of records of bovine respiratory disease (BRD) cases at the Kansas State Veterinary Diagnostic Laboratory showed that drug resistance in one of the primary pathogens, *Mannheimia haemolytica*, increased over a three-year period.

“We have been seeing an increase in the number of antibiotic resistant bacteria that cause pneumonia — also called BRD — in cattle,” said Dr. Brian Lubbers, assistant professor in the

diagnostic lab, based at Kansas State University. “Many of these bacteria are resistant to, not one, but almost all of the antibiotics that we use to treat pneumonia in cattle.”

BRD is one of the most important diseases of feedlot cattle, particularly, said Dr. Lubbers (adding that the economic toll from the disease has been estimated to approach \$1 billion annually in the United States alone) if one takes into account drug and labor costs, decreased production, and animal death losses.

Until now, one of the aspects that has not been studied very well is the cost linked to antimicrobial resistance in BRD cases, he said. To take a closer look, he and colleague Dr. Gregg Hanzlicek, also an assistant professor in the diagnostic lab, examined records of cases in which specimens of bovine lung tissue were

submitted to the diagnostic lab over the three years, 2009 to 2011. Most of the cattle were from Kansas and Nebraska.

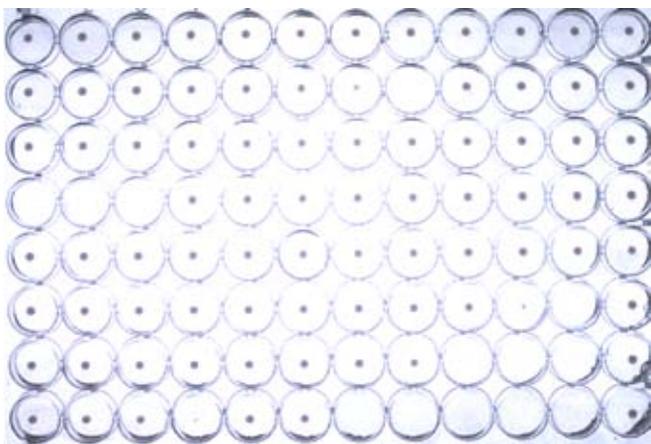
They found that over that period, a high percentage of *M. haemolytica* bacteria recovered from cattle lungs were resistant to several of the drugs typically used to treat that pathogen.

The researchers also found, however, that no specimens were resistant to all six antimicrobial drugs.

Using resistance to three or more antimicrobials as the definition of multi-drug resistance, 63 percent of the bacteria would be classified as multidrug resistant in 2011, compared with 46 percent in 2010 and 42 percent in 2009.

The results of the study were published by the *Journal of Veterinary Diagnostic Investigation*. The abstract is available online.

“Antimicrobial resistance in veterinary medicine has received a considerable amount of recognition as a potential factor leading to antimicrobial resistance in human medicine,” Dr. Lubbers said. “However, the contribution of multidrug resistance to limited or failed therapy in veterinary patients has received much less attention.”



**Bacterial growth in this cell tray provides evidence of resistance to antibiotics in bovine respiratory disease, as discovered in a study led by Dr. Brian Lubbers and Dr. Gregg Hanzlicek with the Kansas State Veterinary Diagnostic Laboratory.**

## BCI uses USDA grant to create STEC training modules

The Beef Cattle Institute has recently been awarded part of a \$25 million USDA grant to focus on ways to reduce public health risks from Shiga toxin-producing *E. coli*, or STEC. STEC causes more than 265,000 infections in the U.S. every year and is a serious threat to food safety.

STEC can cause severe diarrhea, hemorrhagic colitis, and hemolytic uremic syndrome, which can lead to death. The old and young are especially susceptible. Illnesses caused by STEC strains can be contracted by eating undercooked, contaminated food or by direct contact with fecal matter containing the bacteria. Seven strains of *E. coli* have been declared adulterants in meat products by the USDA, meaning that meat containing those strains of *E. coli* will be condemned and destroyed.

The BCI will be creating several training modules for its part in the STEC grant. The modules will provide intervention strategies from the literature found to decrease *E. coli* prevalence. They will be used by industry personnel in order to gain knowledge about the public health risks and will facilitate their ability to provide safe food products. The modules will be featured on the BCI's animal care training website. Different modules will be specific to various sectors within the beef industry including feedlot cows, cow-calf operations, cull dairy cows, veal calves, small and large scale packing plants, distributors, and restaurants. Four Kansas State University student interns have been brought on board to work on the project over the summer.

One of the interns, Becky Legere, will be entering her third year of veterinary school, hoping to work in mixed animal or equine medicine after graduation. She came to K-State after a master's degree in equine science, working with a K-State alumnus, Dr. Jeff Pendergraft (Ph.D. in animal sciences), at Sul Ross State University in Alpine, Texas. Before that was a stint in the biomedical



**Meet the interns who will be creating training modules for working with Shiga toxin-producing *E. coli*, or STEC. From left to right: Elsie Suhr, Alexia Sampson, Rachael Gortowski and Rebecca Legere.**

industry and an undergraduate degree in Biomedical Engineering at Worcester Polytechnic Institute in Worcester, Mass.

"Working with industry leaders in different sectors of beef production has been really interesting," Becky said. "Drawing out the practical applications from research papers and making this information accessible to the producers will be really helpful for the beef industry in the long term."

Another intern, Elsie Suhr, is going to be starting her senior year at K-State in animal sciences and industry in the production management option. She is in the College of Veterinary Medicine's Early Admissions Program. Originally from Sabetha, Kan., Becky is a graduate of the Kansas Academy of Mathematics and Science at Fort Hays State University. After graduating, Elsie plans to obtain her master's degree, possibly in ruminant nutrition, prior to DVM studies at Kansas State.

One of the other interns on the project, Rachael Gortowski, will be a second-year veterinary student with plans to work in research after graduation. She earned a bachelor's degree in animal science from the University of Illinois and worked in a university swine nutrition research lab before starting veterinary school at K-State. She is excited to be working on

a project with the potential to impact so many people and has enjoyed learning about all sectors of the beef industry.

The fourth summer intern, Alexia Sampson, is a fifth-year senior here in animal sciences and industry with an emphasis in pre-veterinary medicine. She is from the Bronx, N.Y., and has thoroughly enjoyed her time in Manhattan, Kan. She is excited about working on the STEC project because it is her goal to become a large animal veterinarian.

The modules are currently in the production phase. Dr. Daniel Thomson, director of the Beef Cattle Institute and one of the project investigators, said, "Cattle producers, feedlot operators, transporters, processors, retailers, and consumers all must understand and execute their roles in beef safety. The BCI will develop and offer training and outreach tools to enhance stakeholder knowledge for all sectors of the beef industry. This will result in a more knowledgeable beef industry workforce and an enhanced beef safety infrastructure."

The eight modules will be finished by the end of the summer.

## Under the microscope



### Richard Estrada

Agricultural Technician, Comparative Medicine Group



**Hometown:** Scottsbluff, Neb.

**Family Information:** Mother and father who have been married for 54 years, three brothers and a sister. My wife, Deborah, and I have four children: Anthony, 27, Mitchell, 20, Jacob, 14, and Sarah, 12.

**Where did you work before and what will you do in your new position?** I was a custodian specialist for the Division of Facilities working at the Cardwell complex for Steve Grinke. I have almost always had pets, and have friends who are farmers, so I will mainly be taking care of cats, however I will be trained in all areas.

**What is a favorite way to celebrate the 4th of July?** I used to attend church and on the fourth we would have gunny sack and three-legged races, a dunking booth and water balloon fights — you know, real old school stuff.

**What's your favorite meal of the day?** Saturday or Sunday supper. My wife and I really enjoy cooking together.

**What is the first movie you remember going to as a child?** Back in the 1970s, the first "Rocky."

## CVM NEWS TICKER

**Dr. Nancy A. Monteiro-Riviere**, a toxicologist at the College of Veterinary Medicine was appointed to the Risk Assessment Advisory Structure of Scientific Committees of Experts, The Scientific Committee on Consumer Safety by the European Commission as of March 2013.

This committee's role influences the policy development of the European Union in areas of consumer safety, public health and the environment, and new emerging problems. Draft opinions and new mandates are reviewed in the working groups. There are five major plenary meetings that take place in Luxembourg along with several audio/video conferencing throughout the year. In the photo, she is shown at the European Commission Meeting in Luxembourg in April.



**Dr. Anelise Nguyen** led this year's Girls Researching Our World (GROW) workshop in the College of Veterinary Medicine. The workshop demonstrated basic concepts of toxicology to sixth graders in Trotter 201.



**Ranjni Chand**, a Ph.D. student in pathobiology, demonstrates the concept of absorption to sixth graders in the GROW program as part of a workshop on toxicology.

## Last laughs with Dr. Wally Cash



After four decades of teaching veterinary anatomy, Dr. Wally Cash decides it's time to retire. He shared memories at a retirement dinner held in his honor at Black Jack Hills (outside Manhattan), joined by his wife, Trisha, and daughter, Caitlin. His colleagues remarked on Dr. Cash's thorough knowledge, dedication to the students and his infectious laugh, which will be missed. Good luck, Dr. Cash!

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