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Improving Beef Safety

Organizations team up in \$25 million research effort



The Beef Cattle Institute will be establishing a holistic food safety culture across all sectors of the beef food chain throughout the beef-safety research effort.

Seventeen Kansas State University scientists will join researchers from the University of Nebraska-Lincoln and other universities and government agencies in a coordinated, multi-pronged approach to improve the safety of beef.

The \$25 million effort will focus on ways to reduce the occurrence and public health risks from Shiga toxin-producing *Escherichia coli* (STEC), a serious threat to the food supply that results in more than 265,000 infections in the United States each year. Eating contaminated food or direct contact with fecal matter from infected cattle and other ruminants causes most of these illnesses.

Dr. Dan Thomson, Jones Professor of Production Medicine at K-State, feedlot veterinarian and director of the Beef Cattle Institute, will lead efforts establishing a holistic food safety culture across all sectors of the beef food chain.

“Cattle producers, feedlot operators, transporters, processors, retailers and

consumers all must understand and execute their roles in beef safety,” Dr. Thomson said. “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 grant was awarded to UNL by the U.S. Department of Agriculture’s National Institute of Food and Agriculture. The team of 48 investigators will be led by UNL veterinary scientist Dr. Jim Keen.

“As a national leader in food safety research and education, Kansas State University is pleased to play a major role in a project so vital to the health of the American public,” said Dr. Kirk Schulz, K-State president. “As we work toward becoming a top 50 public research university, projects like these showcase our exceptional research track record in this area.”

Dr. Randy Phebus, K-State professor of animal sciences and industry will join UNL’s Dr. Keen and three others on the overall project’s executive management team. That team will oversee seven inter-related projects that span the five-year life of the grant.

“This USDA-NIFA coordinated agricultural program (CAP) grant shines the light on UNL, K-State and our other collaborators across the country to address one of the most important issues facing the beef industry, Shiga toxin-producing *E. coli* pathogens, from the calf to the beef consumer,” Dr. Phebus said.

Dr. Bruce Schultz investigates the causes of male infertility

Although a baby is born every eight seconds, approximately one in six couples is affected by infertility or subfertility. For a man living with cystic fibrosis, fatherhood is not an option. About 98 percent of male cystic fibrosis patients do not have a vas deferens, the tube that connects the testes and prostate gland making it impossible to have children naturally. At the Kansas State College of Veterinary Medicine, Dr. Bruce Schultz, professor, and his research team are investigating male infertility.

"I started my research about 14 years ago," said Dr. Schultz. "There wasn't much information about that part of the duct. If you were born without any part of the tube, you wouldn't die from it so no one really researched it. I had to start my research from the basics and show that the cells that line the tube actually do something. Over the last 14 years, we've had several articles published that show the tube responding to hormones and signaling agents. The environment that sperm come through is far more dynamic than anyone ever thought."

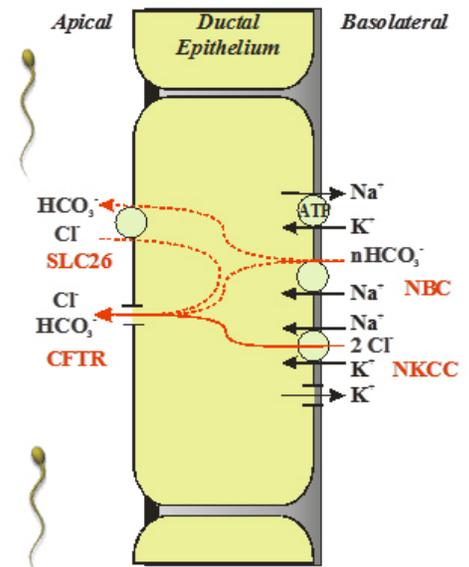
Infertility affects couples equally around the world regardless of location, race or socioeconomic status. About half of all cases include some male factor, which means that one in 12 men will be diagnosed with some form of infertility. In most of these cases, however, the

underlying cause cannot be determined and there is no logical intervention.

"There are several factors that can cause male infertility," said Dr. Schultz. "One reason we believe is due to the environment of the tube. The cells that line the tube respond to hormones and to nerves by changing the secretion of salts and fluid. During arousal these cells will raise the pH for the sperm cells, which will prepare them for fertilization. We believe that some forms of infertility can be linked to errors in the secretion of salts or the regulation of pH. In our research, we are using drugs to stimulate or modify these responses."

Fifty percent of pregnancies in the United States are unplanned. For couples who are planning pregnancies and experiencing infertility, there are not many options. Through research, there is hope in targeting and managing the environment in the duct to increase fertility.

Dr. Schultz recently received year four of his NIH/ NICHD grant for his research titled: "Neuroendocrine-modulated epithelial HCO₃-transport." His research team includes: Dr. Fernando Piercucci-Alves, research assistant professor; Florence Wang, technician; graduate students, Qian Wong and Sheng Yi; and undergraduate students, Jacob Hull and Jimmie Stewart.



"Our work shows that the machinery necessary for bicarbonate secretion is present in cells lining the vas deferens," Dr. Bruce Schultz said.

Dr. Schultz's work has collaborated with the Johnson Center for Basic Cancer Research and several veterinary students have worked in his laboratory through summer employment. Three undergraduates who have worked in his lab have been awarded Undergraduate Research Fellowships by the American Physiological Society.

Dr. Bai collaborates with Integrated Nano-Technologies to detect BVDV



This instrument is being tested for detecting BVDV in cattle.

Science moves at much faster rates thanks to partnerships with private industry. One example at the CVM would be the collaboration between Dr. Jianfa Bai, assistant professor, and a company called Integrated Nano-Technologies, to improve its portable, "chute-side" diagnostic technology for detecting RNA viruses.

"In the field, it's very difficult to detect pathogens directly," Dr. Bai said. "You

have to send a sample into the lab and process in the lab before you get the results. Their device is kind of a battery-run, portable, hand-held device. In the field, you can collect the sample, process the sample and detect the pathogen at the same time."

For more in-depth coverage, check out the video report at: www.vet.k-state.edu/depts/development/lifelines/1202.htm.

Students travel to Veterinary Student Day

Several veterinary students traveled to Atlanta on Jan. 23 for the Veterinary Student Day. The event is designed to encourage veterinary students to explore different career opportunities through public health. The following students attended the event; first-year students: Bailey Davis, Kyle Clymer, Anna Altobelli and Audrey Wood; second-year students: Karin Moser, Izabela Ragan, Allison Bryan and Allison Nelson; and third-year student: Nicholas Crossland.

Approximately 400 students attended the event. Attendees came from several locations including the United States, Mexico, Canada and the Caribbean. Students participated in a series of lectures that covered the topics of "The culture of 'One Health': Humans, animals and emerging zoonotic diseases," "Rolling up our sleeves to fight Rocky Mountain spotted fever in Arizona," "Toxocara spp. in

dogs and cats: Roundworms can cause human disease," "Multistate Outbreak of Listeriosis linked to Whole Cantaloupes from a Colorado Farm," "Rabid zebras and bats and deer! Oh my!" and "Work Shouldn't Make you Sick: Occupational Exposures in Veterinary Medicine."

A session was held to discuss the different opportunities available in public health. There was also a panel



Allison Nelson, second-year student, using aseptic technique to determine if she is an infected case or not.

of professionals in the public health field available for discussion. Hands-on activities were made available for students to participate in.

Check it out at the Library

"Eating healthy for you and your pet"

By Carol Elmore

Maybe you resolved for 2012 to eat healthier and lose weight. Making this a goal for a family pet may also have been on your improvement list. The Veterinary Medical Library has lots of helpful books on this topic for both humans and animals.

One of our newer books, "The Life You Want: Get Motivated, Lose Weight and Be Happy" (RM222.2 .G7227 2011), has chapters such as barriers to weight loss success, overcoming emotional eating, and rewiring your sugar, fat and salt-loving brain. In the appendix section are helpful tips on body mass index, goal setting, and exercise. If you watch "The Biggest Loser" on television, "The Biggest Loser Simple Swaps: 100 Easy Changes to Start Living a Healthier Lifestyle" (RM222.2 .F667 2009) might be helpful with its recipes, pictures, and easy to read format. "The 7 Principles of Fat Burning: Get

Healthy, Lose Weight and Keep It Off!" (RM222.2 .B4517 2010) or "Mayo Clinic on Healthy Weight" (RM222 .M39 2000) might be of interest, too.

If you included a family dog or cat in your healthy eating and dieting resolutions, then several of our books will also be of interest to you. "Chow Hounds: Why Our Dogs Are Getting Fatter and a Vet's Plan to Save Their Lives" (SF991 .W37 2010) could give guidance. "The Dog Ate It: Cooking for Yourself and Your Four-Legged Friends" (SF427.4 .E25 2006) has recipes and tips on healthy eating for people and animals. "Fat Cat Thin: How to Keep Your Cat Lean, Fit, Healthy and Happy" (SF447.6 .A43 2007) offers aid for the owner of a cat who needs to slim down. A new book in our collection that discusses animal nutrition on a more scholarly level, "Canine and Feline Nutrition: A

Resource for Companion Animal Professionals" (SF427.4 .C37 2011) will add additional information on your pet's nutritional health requirements.

Exercising with your dog using tips from "The Simple Guide to Getting Active with Your Dog" (SF427.45 .B66 2002) or "150 Activities for Bored Dogs: Surefire Ways to Keep Your Dog Active and Happy" (SF427.45 .W75 2007) might be helpful. "50 Games to Play with Your Cat" (SF446.7 .S77 2007) might help your cat get a little exercise.

We have many other books on human and animal nutrition and dieting at the Veterinary Medical Library so don't hesitate to come to the library to find books and articles that can help you achieve your healthy eating goals.





Dr. Zsolt Szladovits

Instructor of Veterinary Anatomy, A&P



Hometown: Budapest, Hungary

Family Information: My mom, Edit, food engineer; my dad, John, retired veterinary practitioner; and my brother, Balázs, clinical pathologist at the Royal Veterinary College

Pets: I had a Vizsla in Budapest for 10 years.

What is a favorite childhood memory? I loved all of my summer family vacations at the Lake Balaton (the Hungarian sea).

If you could live anywhere, where would it be and why? In Kitzbuhel, which is one of the most beautiful places in the Alps. I love its charm, nice climate, beautiful scenery, and all of the outdoor activities that I could do there, throughout the whole year.

What is a hobby or talent that your friends or co-workers might not know about? I just upgraded my tennis to competition level by winning the 2011 Kansas Fall Classic Tournament in men's doubles

CVM NEWS TICKER



Kristin Clement

The KSU Foundation has announced the hiring of **Kristin Clement**. She is the VMTH Director of Communications and Marketing. Kristin earned her bachelor's degree in finance from K-State in 2009. She previously worked at Nanoscale Corporation, located in Manhattan, Kan., as the marketing coordinator. Kristin and her husband Matt have a chocolate lab named Jordy. She will be working with the Alumni and Development staff in Trotter 103, but she is temporarily located in Mosier O208.

The CVM says "goodbye" to longtime employee, **Pam Davis**. She has worked at the CVM for 30 years in the Anatomy and Physiology department. Throughout Pam's career, she has helped teach more than 3,000 veterinary students in courses over microanatomy, veterinary physiology and the behavior of domestic animals. A reception was held for Pam at the CVM on Jan. 13.



Pam Davis

Students participate in Telefund



Second-year student Robert Munson follows his script while calling alumni for scholarship pledges. CVM students helped raise money at Telefund which was held Feb. 5 and 6. The students raised \$56,950 with 482 pledges for the college.

UPCOMING EVENTS

Feb. 22-23 - Alumni Fellow

Feb. 25 - Veterinary Technician Conference*

Mar. 6 - Phi Zeta Day

*Continuing Education Events, visit:

<http://www.vet.ksu.edu/CE/Conference.htm>

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