



Study: proteins suppress tumor growth in fruit flies

The concept sounds simple, but understanding the process has been elusive. Cut off the nutrient supply to suppress the growth of tumors.

Now researchers in the College of Veterinary Medicine at Kansas State University are unveiling promising results by studying the behaviors of specific proteins in fruit flies. The proteins have known counterparts in human.

“In our latest study, we identified ‘Headcase’ (Hdc) and ‘Unkempt’ (Unk) as two nutrient-restriction-specific tumor suppressor proteins that form a complex that acts to restrict cell-cycle progression and tissue growth in response to nutrient stress in *Drosophila* [fruit flies],” said Dr. Jianzhong Yu, assistant professor and cancer biologist in the Department of Anatomy and Physiology.

Dr. Yu is collaborating with Drs. Naren Li and Yulan Xiong and a graduate student, QinfangLiu. The four of them recently published an article on their latest research, “Headcase



Figure: “Headcase” functions together with “Unkempt” to regulate tissue growth in fruit flies.

and Unkempt Regulate Tissue Growth and Cell Cycle Progression in Response to Nutrient Restriction,” in the journal *Cell Reports*.

Their study was supported in part by a grant from the Kansas INBRE (P20 GM103418), a start-up fund and SUCCESS-FYI Intramural Grant from the College of Veterinary Medicine. The work is also supported by the Johnson Cancer Research Center at Kansas State University.

“Given the role of the human counterparts of these proteins, our results suggest that Hdc and

Unk may function as tumor suppressors in mammals,” Dr. Yu said. “Although the human ortholog of Unk has not been studied in the context of cell proliferation, we showed that both Hdc and Unk are able to inhibit tissue growth in vivo in the *Drosophila* model. Thus, it is worthwhile in the future to investigate the growth control function of these two proteins, especially in regard to the formation of cancer tumors.”

K-State team authors public health chapter



New book on Public Health Competencies will be out soon.

A multidisciplinary team of professors and a former research assistant from K-State have just mastered a chapter on laws and regulations for a new book for the Council on Public Health Education.

The team includes Dr. Ellyn Mulcahy, director of the MPH program/associate professor of DMP; Dr. Justin Kastner, associate professor of DMP; Dr. Jason Ackleson, adjunct faculty in DMP; Dr. Sara Gragg, assistant professor of animal sciences and industry; and Dr. Danny Unruh, former research assistant in animal sciences and industry.

The textbook, “Master of Public Health Competencies: A Case Study Approach,” is edited by Dr. Anthony Santella, associate professor of health professions at Hofstra University. The book features 22 chapters contributed by public health professors and scientists from a variety of major universities, hospitals and health departments.

The chapter by the K-State team is titled, “Developing Primary Laws and Secondary Regulations for Food Safety: The Case of FSMA and Its Attendant Rules.” Dr. Kastner said while MPH students would certainly benefit from the chapter, he thinks lay readers will be interested in the history and trajectory of U.S. food safety policy too.

“As educators involved in several of K-State’s graduate programs (public health, veterinary medicine, food science, etc.), we mentor public health-minded students of all kinds – but especially those interested in food safety,” Dr. Kastner said. **Read more at Lifelines online.**

Staff awards recognize culture of collegiality

Eight staff members have the distinction of being the first recipients of a new group of awards that highlights collegiality and compassion.

“The CVM Staff Council was established in 2017 to represent all Unclassified and University Support Staff of the CVM,” said Gina Scott, computer information specialist and chair of the Staff Council. “One of the first areas of development identified by the council was the overall recognition of staff for their contributions to the mission of the CVM.”

“We were so excited to implement this creative initiative designed by Staff Council,” said Dr. Bonnie Rush, interim dean of the veterinary college. “It was a privilege to honor hard-working and committed staff through these inaugural awards. There are many deserving staff working throughout the college – we



Dr. Bonnie Rush presents Barb Self with the High Five Award.

intend for these awards to become a time-honored tradition.”

The recipients are as follows:

High Five Award: Presented to an employee who has gone above and beyond in enhancing one or more components of the CVMs mission.

Recipient: Barb Self, clinical services assistant at the large animal desk in the Veterinary Health Center.

Culture, Collegiality & Compassion Award: Presented to an employee who enhances a feeling of belonging for all of



Drs. James Carpenter and Mary Bagladi-Swanson congratulate Christine Hackworth on the Culture, Collegiality and Compassion Award.

the CVM and creates a more inclusive environment while enhancing the CVM’s mission.

Recipient: Christine Hackworth, veterinary nurse in the exotics and dermatology sections of the Veterinary Health Center.

Six employees were recognized with Commitment to Excellence Awards: Brandy Nowakowski, Susan Hazelbaker, Stephanie Hober, Ashley Lignitz, Mal Hoover and Erica Blackwell.

Researchers predict spread of invasive long-horned ticks in North America

A recently invaded tick species known as the “long-horned tick” could establish itself in wide swathes of North America — if they are transported accidentally. This prediction was published in a new study in *Nature’s Scientific Reports* by Dr. Ram Raghavan, assistant professor, and his international collaborators.

“The long-horned tick is also known as the East Asian tick, in Australia as the bush tick and in New Zealand as the cattle tick,” explained Dr. Raghavan. “This species of tick is native to Japan, China, Primorsky Krai region of eastern Russia and Korea; and it is well-established as an invasive species in Australia, New Zealand, and on several Pacific Islands.”

In some of these countries, Australia and New Zealand in particular, Dr. Raghavan said this tick is implicated in the transmission of theileriosis to cattle — costing several millions of dollars each year, and in other places they are known to transmit severe fever thrombocytopenia virus to humans.



Dr. Ram Raghavan collects long-horned ticks near Southeast Queensland in Australia.

Dr. Raghavan pointed out widespread concerns that the tick — *Haemaphysalis longicornis* — will successfully establish invasive populations in the US and spread broadly from where it has been currently found.

“Our primary focus in this study was to predict where this tick could establish in North America, and to do that as robustly as possible considering all the caveats in spatial distribution modeling,” Dr. Raghavan said.

Dual-degree duo earns scholarships



Elsie McCoy and MaRyka Smith are recipients of concurrent DVM/Ph.D. scholarships.

Spring is a time of transformation and renewal. For two veterinary students; Elsie McCoy and MaRyka Smith, it is also a time of new opportunity and plenty of hard work ahead. Both students are new recipients of the concurrent DVM/Ph.D. scholarship in the CVM.

The philosophy of this scholarship program, which started in 2011, is to bring together clinical medicine and research disciplines to create unique opportunities and expand career options in veterinary medicine. Areas of graduate training include, but are not limited to, biomedical research, infectious disease, epidemiology and diagnostic medicine.

“We have awarded as many as three scholarships for any given application cycle,” said

Dr. Frank Blecha, associate dean for research. “Currently, there are 11 concurrent DVM/Ph.D. students enrolled. Seven of these students are on DVM/Ph.D. scholarships from the college and two students are on scholarships from the USDA Animal and Plant

Health Inspection Service’s NBAF Scientist Training Program. Five previous DVM/Ph.D. scholarship students have matriculated from both degree programs.”

The scholarship pays for DVM curriculum tuition and fees, regardless of residency status or when they receive the scholarship. Expenses for Ph.D. grad work are supported by major professors.

MaRyka is a first-year DVM student in the pathobiology Ph.D. program and is studying Rift Valley Fever Virus under Dr. A. Sally Davis.

Elsie is a third-year DVM student and is in the pathobiology Ph.D. program focusing on beef cattle production research, primarily liver abscesses in feedlot cattle under Dr. Dan Thomson.

Advice on booster vaccinations for pets

When it comes to booster vaccinations for dogs and cats, Kansas State University veterinarians say most are safe and necessary for the majority of pets but that several factors, including the pet’s health and lifestyle, should be considered.

“Vaccines were developed to help prevent infectious disease, and they do,” said Dr. Susan Nelson, clinical professor at the Veterinary Health Center. “Some vaccines, known as core vaccines, are essential and every dog or cat should receive them because of widespread prevalence and severity of the diseases that they prevent.”



Drs. Susan Nelson and Susan Moore say a pet’s health and lifestyle should be considered when it’s time for booster vaccinations.

CVM News Ticker

Sarah Quick began her yearlong veterinary nurse internship Jan. 14. Sarah comes to us from Dallas, Texas. She’s a 2018 veterinary nurse graduate of Cedar Valley College and has a bachelor’s degree in biomedical sciences and wildlife and fisheries sciences from Texas A&M. She worked as a veterinary assistant while attending school, for the past year and a half. Her interests include exotics/zoo medicine, ophthalmology, small animal orthopedic surgery and equine internal medicine and surgery.



The new issue of the One Health Newsletter is now online. The four-person editorial team includes three faculty members from the KSUCVM. The theme in this issue is about One Health Regulation and Policy.

See it online at: www.vet.k-state.edu/OneHealth



Dr. Meena Kumari was invited by the National Institute on Drug Abuse (NIDA) and the National Institute on Alcohol Abuse and Alcoholism (NIAAA) Genetics and Epigenetics Consortium to attend and present her data on exosomes at the January 2019 meeting. Her presentation was entitled: “Do exosomes hold the key to genetic and epigenetic modifications in drug addiction.” Her work was very well received.

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