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# *lifelines*

KANSAS STATE UNIVERSITY COLLEGE OF VETERINARY MEDICINE



## Study shows potential negative effect from antioxidants

One Health: Research results have relevance to both animals and humans

You've probably heard on TV about the benefits of products 'rich with antioxidants' in commercials and infomercials. While there may be some positive effects that could help ameliorate the predations of disease and aging, recent interdepartmental studies at K-State have shown that high levels of antioxidants can cause harm.

Dr. David Poole and Dr. Timothy Musch who share appointments in the Departments of Anatomy and Physiology and Kinesiology have been working on projects that measure the effects of antioxidants at the CVM's Cardiorespiratory Exercise Laboratory. They have been studying how to improve oxygen delivery to the skeletal muscle during physical activity by using antioxidants, which are nutrients in foods that can prevent or slow the oxidative damage to the body. Their findings show that sometimes antioxidants can impair muscle function, which is an important consideration in performance animals such as greyhounds and race horses or in humans.

"Antioxidant is one of those buzz words right now," said Steven Copp, a doctoral student in Anatomy and Physiology and a researcher in the lab. "Walking around grocery stores you see things advertised that are loaded with antioxidants. I think what a lot of people don't realize is that the antioxidant and pro-oxidant balance is really delicate. One of the things we've seen in our research is that you can't just give a larger dose of antioxidants and presume that there will be some sort of beneficial effect. In fact, you can actually make a problem worse."

Copp and Daniel Hirai, also a doctoral student in Anatomy and Physiology, have conducted various studies associated with how muscles control blood flow and the effects of different doses and types of antioxidants.

Abnormalities in the circulatory system, such as those that result from aging or a disease like chronic heart failure, can impair oxygen delivery to the skeletal muscle and increase fatigability during physical activity, Copp said.

"If you have a person trying to recover from a heart attack and you put them in cardiac rehab, when they walk on a



**Dr. Timothy Musch reviews a readout with his lab team (standing, from left) Daniel Hirai, Peter Schwagerl, Sue Hageman and (seated) Steven Copp.**

treadmill they might say it's difficult," Dr. Poole said. "Their muscles get sore and stiff. We try to understand why the blood cells aren't flowing properly and why they can't get oxygen to the muscles, as happens in healthy individuals."

Copp said there is a potential for antioxidants to reverse or partially reverse some of those changes that result from aging or disease. However, K-State's studies amongst others have shown that some of the oxidants in our body, such as hydrogen peroxide, are helpful to increase blood flow.

"We're now learning that if antioxidant therapy takes away hydrogen peroxide – or other naturally occurring vasodilators, which are compounds that help open blood vessels – you impair the body's ability to deliver oxygen to the muscle so that it doesn't work properly," Dr. Poole said.

Copp added, "The research we do here is very mechanistic in nature, and down the road our aim is to take our findings and make recommendations for diseased and aging populations."

**Calendar  
of  
Events**

**Feb. 25: Alumni Fellow Seminar:  
Dr. Steven C. Henry**

*Frick Auditorium  
Mosier Hall*



**Feb. 27: Small Animal Emergency  
Medicine Conference**

**March 2: Phi Zeta Research Day**

**April 16: Kind Hearts/Caring Hands Celebration**

Get more *lifelines* online at <http://www.vet.k-state.edu/depts/development/lifelines/1002.htm>

## Dr. Nagaraja receives the Karuna award in India



The College of Veterinary Medicine can now boast of two winners of the prestigious Karuna Award — both from the same academic department. Dr. T.G. Nagaraja recently traveled to Bangalore, India, with his wife and daughter, where he was given the 2009 award in recognition of his research and education work. In 2007, Dr. M.M. Chengappa, head of the Department of Diagnostic Medicine/Pathobiology was also honored by the Karuna Trust for National Progress.

“I felt honored and humbled to have received the award,”

Dr. Nagaraja said. “What made it special was that my family members in India were able to attend the ceremony to see me receive the award.”

The Karuna Trust (karuna means “kindness”) is a nonprofit organization in the state of Karnataka that takes care of stray, abandoned or abused animals.

**Dr. B.C. Ramakrishna (left), chairman and managing trustee of the Karuna Trust for National Progress, decorates Dr. T.G. Nagaraja as part of the ceremony for the Karuna Award.**

## KTEC Award of Excellence goes to Dr. Tamura

Dr. Masaaki Tamura was recently acknowledged for his research work with a \$40,000 award from the Kansas Technology Enterprise Corporation (KTEC). The KTEC Award for Excellence was presented as part of a symposium sponsored by the Kansas Idea Network for Biomedical Research Excellence (K-INBRE). The award was for Dr. Tamura’s proposal, “Targeted gene therapy with AT2 receptor nanoparticles for lung adenocarcinoma.”

“Our proposal describes the development of a lung cancer-targeted, very effective and safe gene therapy using biodegradable nanoparticles,” Dr. Tamura said. “The most unique part of this research is the intent to develop safe, effective gene expression vectors using nanotechnology.”

KTEC annually selects two eminent scholars for research consistent with the KTEC mission to drive Kansas economic development through bioscience technology. This year’s other recipient was Melissa Larson of the KU Medical Center.

“It is an honor to be recognized by KTEC and K-INBRE for our hard work,” Dr. Tamura said. “I am representing my present and former post-docs, graduate students and assistants, my colleagues in the K-State stem cell research group and my collaborator at the University of Kansas, Dr. Cory Berkland (who is in the pharmaceutical chemistry department). We could not do this research without their



**Dr. Masaaki Tamura, center, receives the KTEC Award of Excellence from Dr. Joan Hunt, K-INBRE Principal Investigator and KU Medical Center University Distinguished Professor, left, and Dr. Dale Abrahamson, KU Medical Center University Distinguished Professor and chair of the K-INBRE Incentives and Awards Committee.**

participation.”

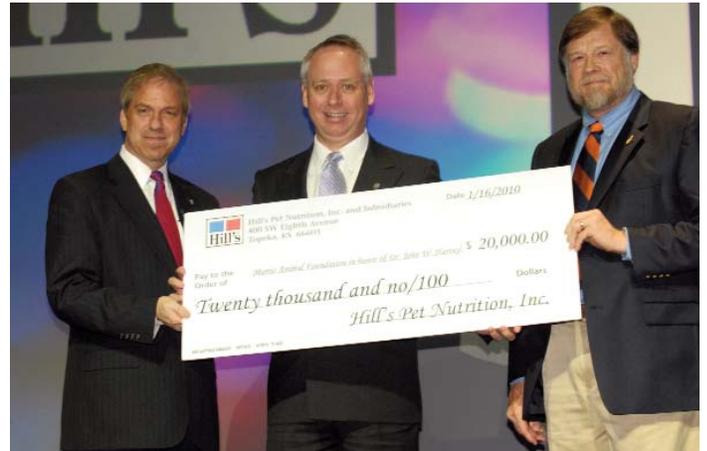
K-INBRE and its symposium are funded through the National Institutes of Health (NIH) Center for Research Resources. Its purpose is to improve the competitiveness of Kansas biomedical researchers for NIH support. K-INBRE funds are available to support students, faculty development and retention, and cutting-edge research.

## Alumni spotlight: Dr. Harvey receives Morris lifetime achievement award

Because of his outstanding contributions to veterinary medicine, Hill's Pet Nutrition Inc. named Dr. John W. Harvey, DVM (K-State class of 1970), Ph.D., professor and executive associate dean and award-winning professor at the University of Florida College of Veterinary Medicine, as the recipient of its prestigious Mark L. Morris Sr. Lifetime Achievement Award for 2010. This award is presented annually at the opening ceremony of the North American Veterinary Conference. It goes to a veterinarian who has made significant contributions to the welfare of companion animals through a lifetime of professional work. Dr. Harvey received the award for his lifelong work in clinical pathology and physiology with his expertise in hematology.

"This year we had many outstanding nominees for this prestigious award. Dr. Harvey is a highly dedicated and world renowned educator, and his accomplishments make him very deserving of this Lifetime Achievement Award," said Daniel Aja, DVM, director of professional affairs at Hill's.

Dr. Harvey has many scholastic accomplishments which include 113 refereed papers in both veterinary and human medicine journals (many describing syndromes not previously recognized), three books, 46 book chapters, 56



**Dr. Daniel Aja, DVM, director of professional affairs at Hill's, and Paul Raybould, executive vice president of the Morris Animal Foundation, present a \$20,000 check to Dr. John Harvey, K-State class of 1970 and faculty member at the University of Florida.**

proceedings papers, 65 abstracts and 31 research grants. He is an accomplished lecturer both nationally and internationally with more than 250 major seminar engagements throughout the world.



### By Carol Elmore

Because the Internet is frequently consulted for information, I asked members of our staff at the Veterinary Medical Library for some of the favorite Web sites they use on the job. Many sites were mentioned without hesitation, several that covered topics comprehensively were mentioned, such as wikipedia.org, which is a good starting place for basic information. Although Wikipedia is no longer editing its entries, definitions and overview articles are still

# Check it Out at the Library

## "Web sites we recommend"

quite valuable. A Web site that answers questions is [www.about.com](http://www.about.com) which utilizes a variety of experts for information. Independent verification of the information from both of these sites is recommended, but they are great places to begin locating information. Another mentioned site with more technical information was [techrepublic.com](http://techrepublic.com), which is useful for information technology help. The white papers section of this Web site has interesting articles on popular topics such as electronic conferencing and

cloud computing.

Veterinary and medical Web sites were also mentioned. One of my favorite sites is [www.ivis.org](http://www.ivis.org), the International Veterinary Information Service, because it has a link to many difficult to find foreign and U.S. full-text proceedings. Another staff member likes to use [www.clinicaltrials.gov](http://www.clinicaltrials.gov), which is a registry of federally and privately supported clinical trials conducted in the United States and around the world. It is searchable by condition, drug intervention, sponsor and location.

For journal location, [www.doaj.org](http://www.doaj.org), the Directory of Open Access Journals, was mentioned as a valuable source for scientific and scholarly peer reviewed, full-text, free journals. Another staff member suggested a Web site that pronounced medical terminology had been useful. After checking out several possible Web sites, I found one of my new favorite sites, [www.forvo.com](http://www.forvo.com), which will actually speak words. It covers many different subjects including medical terminology and gives examples from as many as 231 languages. These are just a few of our recommendations so don't hesitate to come to the Veterinary Medical Library for help with and recommendations of other Internet Web sites.



Under the  
microscope:

## Dr. Lisa Pohlman

Assistant Professor -  
Clinical Pathology  
Diagnostic Medicine/  
Pathobiology



Place of birth: Toronto, Canada

**Family Information:** My husband, Dave, and I got married last July after dating for 15 years. We had a very small wedding (just family) in a tiny, very old, country church — the church where my grandparents were married and many relatives, including my great grandparents, are buried. Dave and I are both Canadian, so we spend most of our holidays visiting friends and family in Canada, just north of Ottawa where we have a hobby farm and a cottage on a lake.

**Pets:** Five dogs (two perfect toy poodles, two naughty but lovable beagles I adopted when I was a veterinary student at the University of Guelph, and one collie/shepherd cross that is 17 years old) as well as one somewhat disgruntled three-legged cat.

**What is your favorite season and why?** My favorite season is spring. That comes from growing up in Canada where the winters are very cold and harsh (unlike here). When spring arrives, the sun is shining, the days are getting longer, the flowers start to bloom and the birds are singing — just waking up every day is wonderful. Everyone is always so happy and appreciative when the weather is finally so beautiful after the long, cold winter!

## Big dollars raised for CVM at Telefund



**Rachel Parris, class of 2011, thanks Dr. Melinda Wilkerson for a backpack given as a prize for calling efforts during Telefund 2010. The two-day calling total for the College of Veterinary Medicine was \$84,740, beating last year's fundraising total by \$7,000.**

## Doc students earn props at CRWAD



**Dr. Charles Dodd and Gregory Peterson, both doctoral students in pathobiology, were cited for excellence in their respective research projects at the annual Conference of Research Workers of Animal Disease held December in Chicago. Read about their projects at Lifelines online at: <http://www.vet.k-state.edu/depts/development/lifelines/1002.htm>**

## CVM News Ticker

**Dr. Hans Coetzee** presented at the North American Veterinary Conference in Orlando, Fla., Jan. 18 and 19, 2010. Topic: "Antimicrobial Therapy of Bovine Respiratory Disease."

**Dr. Mike Apley** presented at the Nebraska VMA on Jan. 21. His topics included: "What antibiotics do in cattle: Clinical effects of antibiotics (what difference do you really make), post-treatment intervals, time to effect, adverse and synergistic interactions"; "Antibiotic resistance, your practice, and public perception: Does it affect how you should be doing things in mid-America?"; and "Cowside diagnosis and prognostication: Discarded, available, and in-development." Dr. Apley also presented at the Missouri VMA on Jan. 30 on the topics of: "Susceptibility testing and antibiotic selection; What do antibiotics do?"; "Pain in food animals - research and applications"; and "Regulations and legislation affecting your food animal practice."

**Dr. Greg Grauer** presented at the American Medical Association meeting in Austin, Texas, on Feb. 9. His topic was "Renoprotective therapies for chronic kidney disease."