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# DISCOVERY

Research at the University of Tennessee College of Veterinary Medicine

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**In this Issue** p1–CEM research symposium; p2–NIH public access, grants.gov, honors, microarray technology, funding deadlines; p3–applied computational genomics, awards; p4–publications & presentations

## CEM Research Symposium Bridges UTK Campuses

Titles are in for the Second Annual Comparative and Experimental Medicine Research Symposium, to be held June 17. Sixty-one participants have committed to giving sixty-five 10-minute oral presentations on topics ranging from horseshoe crabs to laminitis in horses to glucokinase gene expression in hepatocytes to human cytomegalovirus.

Departments from all three Knoxville campuses were invited to participate in this year's event, which is co-sponsored by the College of Veterinary Medicine, Graduate School of Medicine, Tennessee Agricultural Experiment Station, and UTK Office of Research.

The day will begin with keynote speaker Dr. Robert Webster (see below), followed by multiple sessions of presentations. Students whose presentations are judged to be the best will receive travel awards. Departmental representation is detailed at right, showing the number of titles submitted.

The full schedule and abstracts will be available at *http://www.vet.utk.edu/research/index.shtml* by clicking on the caduceus on the lower left side of the page.

**Departmental Representation**

| | |
|---|---|
| Anesthesiology | 2 |
| Animal Science | 4 |
| Biochemistry and Cellular and Molecular Biology | 3 |
| Comparative Medicine | 2 |
| Ecology and Evolutionary Biology | 1 |
| Family Medicine | 1 |
| Forestry, Wildlife and Fisheries | 2 |
| Genome Science and Technology | 2 |
| Large Animal Clinical Sciences | 5 |
| Mechanical, Aerospace, and Biomedical Engineering | 2 |
| Medicine | 1 |
| Microbiology | 10 |
| Nutrition | 5 |
| Pathobiology | 19 |
| Small Animal Clinical Sciences | 6 |

**June 17**

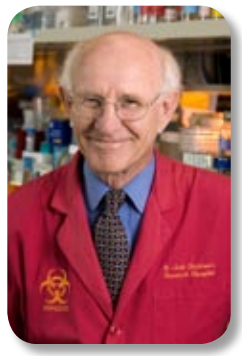
**Second Annual Comparative & Experimental Medicine Research Symposium**

Plant Biotechnology Bldg & Hollingsworth Auditorium

## Avian Influenza Expert to Kick Off Research Symposium

Touted as an excellent story-teller, Robert G. Webster, professor at St. Jude Children's Research Hospital, is set to kick off the Second Annual CEM Research Symposium by providing presenters and attendees a look into his world-renowned research in avian influenza with "H5N1 Influenza: Has the risk been overblown?"

He is currently the Rose Marie Thomas Chair in the Division of Virology, Department of Infectious Diseases at St. Jude, where he continues to examine the structure and function of influenza virus proteins and the development of new vaccines and antivirals. The major focus of his research is the importance of influenza viruses in wild aquatic birds as a major reservoir



of influenza viruses and their role in the evolution of new pandemic strains for humans and lower animals.

A native of New Zealand, Webster received his BSc and MSc in microbiology from Otago University in New Zealand. In 1962, he earned his PhD from the Australian National University and spent the next two years as a Fulbright Scholar working on influenza in the Department of Epidemiology at the University of Michigan, Ann Arbor.

During most of his career, Webster has been Director of the World Health Organization Collaborating Center for Studies on the Ecology of Influenza in Animals and Birds, one of only five such collaborating centers in the world. His curriculum vitae contains over 500 original articles and reviews on influenza viruses, and he has trained many scientists who now contribute to our understanding of the evolution and pathogenesis of influenza.

# NIH-Funded Researchers Must Submit All Publications to PubMed

As of April 7, a federal law mandates that all publications stemming from National Institutes of Health (NIH)-funded research be submitted to PubMed Central within one year of their publication. The new law follows a previously optional policy, but government officials are seeking even more public access of citizen-funded projects.

Deemed the "Public Access Policy" by NIH, the rule will require authors to retain enough copyright to comply with the deposition order. Most journals already allow PubMed deposits after a 12-month period, and some of them, like *Gastroenterology*, offer authors the option to have their manuscripts deposited automatically by the journal. However, it is up to the authors, who are ultimately responsible, to ensure that the policy is followed.

Journals that see little NIH-funded research published in their pages might not have an appropriate copyright agreement, so it is imperative that authors be proactive before signing a copyright agreement they cannot, by law, follow.

One option for authors is to send a copyright addendum to the journal along with the manuscript. SPARC, the Scholarly Publishing & Academic Resources Coalition, offers an author addendum on its Web site (*http://www.arl.org/sparc/*) and recommends ammending other copyright forms to include the following language:

*The journal acknowledges that the author retains the right to provide a copy of the final manuscript to NIH, upon acceptance for journal publication or thereafter, for public archiving in PubMed Central as soon as possible after publication by the journal.*

# Lee, Liggett Win Travel Awards

Jason Liggett, graduate student in Comparative and Experimental Medicine, and Dr. Seong-Ho Lee, research assistant professor in Pathobiology, both received graduate/postdoctoral travel fellowships to attend the Experimental Biology (EB) 2008 Meeting to be held in San Diego in April. More than 13,000 biological and biomedical scientists attend the EB meeting each year. The award consists of up to $1,000 in travel expenses, plus a discounted meeting registration fee.

Liggett and Lee are part of the Environmental Carcinogenesis Laboratory research team at UTCVM and are mentored by Dr. Seung Joon Baek. The work at the laboratory focuses on the study of gene expression by anti-cancer compounds, found in diet, nonsteroidal anti-inflammatory drugs (NSAIDs), PPARγ ligands, and anti-oxidants.

# *Grants.gov Moving to New Submission Procedure*

***Out with PureEdge Viewer–In with Adobe Acrobat***

After battling with submission quirks using PureEdge Viewer, Grants.gov officials have decided to transition to Adobe Acrobat for submission of grant applications beginning in April. The transition will be complete by June 30, with all applications using Adobe format.

However, only two versions of Acrobat will be compatible, and investigators MUST work from one of these versions for their grants to be submitted correctly. **Adobe Acrobat** versions **8.1.1** and **8.1.2** are approved as compatible with the new system.

Although alternate versions of Acrobat will display the application package, once it is submitted, Grants.gov computers will not recognize its contents, causing a delay in submission or acceptance.

Grants.gov offers detailed instructions on how to ensure that the correct version of Acrobat is opening the application package: *http://www.grants.gov/help/general_faqs.jsp#19*. Grant writers are encouraged to view this page and follow its instructions to prevent unnecessary emergencies.

In addition, researchers should download a new application package each time they submit because applications often change from month to month.

# CEM Graduate Students Boast First-Author Papers

Four graduate students in the Comparative and Experimental Medicine program recently learned their first-author papers would be published.

Papers by **Michael Hance** (**H Plummer**), **Hye Mee Joo** (**M Sangster**), **Ferenc Toth** (**N Frank**), and **Mugdha Sukhthankar** (**S Baek**) were accepted to *Breast Cancer: Basic and Clinical Research*, *Proceedings of the National Academy of Sciences*, *American Journal of Veterinary Research,* and *Gastroenterology*, respectively.

Hance, Toth, and Sukhthankar are in their 3rd year in the PhD program; Joo is in her 4th year. See "Publications" in this issue and the June issue for full details.

## Web Archives Available for Course on Microarray Technology and Database Applications

*http://mediabeast.ites.utk.edu/mediasite4/Catalog/?cid=9f63cd71-1ebd-4c94-9e3a-6c1a94a1788b*

# Funding Deadlines Drawing Near

| Deadline | Sponsor | Program | $ Amount | URL |
|---|---|---|---|---|
| Apr. 1 | American Cancer Society | Basic, preclinical, clinical, & epidemiology; Post-docs; Research profs; New investigators | 44,000-200,000 | *www.cancer.org* |
| Apr. 1 | Morris Animal Foundation | Established investigators, first awards, & fellowships (if pre-proposal submitted) | 7,500-35,000 | *www.morrisanimalfoundation.org* |
| Apr. 4 | Association of Zoos and Aquariums | Animal health, welfare, breeding & reintroduction, education, field conservation, & professional training | 10,000-20,000 | *www.aza.org* |
| May 1 | Nestle Purina | Resident or graduate student studies of dog & cat nutritional issues | 15,000 | *www.purinavets.com* |
| May 15 | AKC Canine Health Foundation | If full proposal requested | 12,000+ | *www.akcchf.org* |

# Research Resource Spotlight

## Bioinformatics Platform Applied Computational Genomics Course (ACGC)

The ACGC is a one-week course to be held May 2-8 at the University of Toronto, Mississauga in Ontario and in July in Western Canada (location TBA). The Bioinformatics Platform team designed the ACGC to empower bioinformatics/ biology researchers and students by teaching a hands-on course that outlines tried-and-proven approaches, as well as new developments.

This course will assist researchers and students to increase their efficiency in problem solving by introducing them to the tools and services of the Bioinformatics Platform. After the course, attendees of the ACGC will have FREE Internet access to all the Bioinformatics Platform tools and databases used in the course.

For more information, visit the Web site: *http://www.gcbioinformatics.ca/training* or E-mail Lisa Bicek, Bioinformatics Initiatives Project Manager at *training@gcbioinformatics.ca* (subject: ACGC inquiry).

## Publications

Cont. from p. 4

**Odoi A**, Gathuma JM, Gachuiri CK, Omore A. Feeding practices and effects of gastrointestinal parasite infections on live weight gain of small ruminants in smallholder mixed farms in Kenya. *Res Vet Sci.* 2008;84:185-193.

Pascoe E, **Andrews FM.** Ulcer update. *Pract Horseman*. 2007;Nov: 61-67.

**Prado TM**, **Doherty TJ**, Boggan EB, **Airasmaa HM**, **Martin-Jimenez T**, **Rohrbach BW**. Effects of acepromazine and butorphanol on tiletamine-zolazepam anesthesia in llamas. *Am. J Vet Res*. 2008;69:182-188.

Roelof A, Irausquin TD, Scavelli LC, Stefanacci JD, DeMarco J, Flood S, **Rohrbach BW**. Comparative evaluation of the liver in dogs with a splenic mass by using ultrasonography and contrast-enhanced computed tomography *Can Vet J*. 2008;49:46-52.

Rojsanga P, **Sukthankar M,** Wandee G, **Baek SJ.** Berberine, a natural isoquinoline alkaloid, induces NAG-1 and ATF-3 expression in human colorectal cancer cells. *Can Lett.* 2007;258:230-240.

**Schuller HM, Al-Wadei HAN, Majidi M**. GABA(B) receptor is a novel drug target for pancreatic cancer. *Cancer.* 2008;112:767-778.

**Sims MH, Mendis-Handagama C, Moore RN**. Virtual microscopy in a veterinary curriculum. *J Vet Med Educ*. 2007;34:416-422.

**Sura PA, Krahwinkel DJ**. Self-expanding nitinol stents for the treatment of tracheal collapse in dogs: 12 cases (2001-2004). *J Am Vet Med Assoc.* 2008; 232:228-236.

**Toth F, Frank N, Elliott SB**, Geor RJ, Boston RC. Effects of an intravenous endotoxin challenge on glucose and insulin dynamics in mares. *Am J Vet Res*. 2008;69:82-88.

Wilson DA, **Kelmer G**, Kramer J. Diaphragmatic hernia: Etiology, clinical presentation, and diagnosis. *Compend Cont Ed Pract Vet Equine*. 2008;3:28-36.

Wilson DA, **Kelmer G**, Kramer J. Diaphragmatic hernia: Treatment, complications, and prognosis. *Compend Cont Ed Pract Vet Equine*. 2008;3:37-46.

Yamaguchi K, **Whitlock N, Liggett J, Legendre A, Fry M, Baek SJ**. Molecular characterization of canine nonsteroidal anti-inflammatory drug-activated gene (*NAG-1*). *Vet J.* 2008;175:89-95.

## UTCVM Brings in $888,819 for Sponsored Projects Since November

| Title | PI | Agency | Start date | Type | $ Amount |
|---|---|---|---|---|---|
| Effects of volatile fatty acids on bioelectric properties of the equine stomach | FM Andrews | Comparative Gastroenterology Society | 1/23/08 | Yr 1 of 1 | 6,000 |
| Investigations into the wound healing potential of a novel spun bioscaffold matrix | MW Bohling | 3S Corporation | 12/20/07 | 1/1 | 2,000 |
| Molecular pathways that mediate genetic susceptibility to low dose ionizing radiation | SA Kania | UT-Battelle–Oak Ridge National Laboratory | 2/15/08 | 2/2 | 23,856 |
| Evaluation of tyrosinase antigen expression in canine and equine melanoma | JC Phillips | Merial Limited | 12/6/07 | 1/1 | 8,403 |
| Investigation of reported failures of canine heartworm chemoprophylaxis in the United States, 2003-2007 | BW Rohrbach | Novartis Animal Health | 1/18/08 | 1/1 | 81,590 |
| T-Regulatory cells in HSV immunity and immunopathology | BT Rouse | NIH | 2/1/08 | 3/4 | 341,670 |
| Mechanisms in herpetic keratitis | BT Rouse | NIH | 1/1/08 | 1/1 | 355,300 |
| Estrogen enhances the carcinogenic effects of the nicotine derivative NNK | HM Schuller | National Lung Cancer Partnership | 1/31/08 | 1/1 | 50,000 |
| Pharmacokinetics of topically applied ciprofloxacin and moxifloxacin in equine tears, cornea, and aqueous humor | HD Westermeyer | American College of Veterinary Ophthamology | 1/1/08 | 1/1 | 5,000 |
| RNA interference of feline herpesvirus by synthetic siRNAs in corneal epithelial cells | RP Wilkes | Winn Feline Foundation | 1/1/08 | 1/1 | 15,000 |

# Recent Publications . . .

**Allender M, Schumacher J**, Milam J, George R, **Cox R, Martin-Jimenez T**. Pharmacokinetics of intravenous itraconazole in the American horseshoe crab (Limulus polyphemus). *J Vet Pharmacol Ther*. 2008;31:83-86.

**Allender MC, Schumacher J, Thomas V, McCain SL, Ramsay EC**, James EW, Wise AG, Maes RK, **Reel D**. Infection with Aleutian disease virus-like virus in a captive striped skunk. *J Am Vet Med Assoc*. 2008;232: 742-746.

**Andrews FM**. Clinical Commentary: Poor performance: Can heartburn slow a horse? *Equine Vet Educ*. 2008;20:125-126.

Cohen ND, MacKay RJ, Toby E, **Andrews FM**, Barr BS, Beech J, Bernard WV, Clark CK, Divers TJ, Furr MO, Kohn CW, Levy M, Reed SM, Seahorn TL, Slovis NM. A multicenter case-control study of risk factors for equine protozoal myeloencephalitis. *J Am Vet Med Assoc*. 2007;231:1857-1863.

Dawson DA, Allen JL, **Schultz TW**, Poech G. Time-dependence in mixture toxicity with soft-electrophiles: 2. Effects of relative reactivity level on time-dependent toxicity and combined effects for selected Michael acceptors. *J Environ Sci Health A Tox Hazard Subst Environ Eng.* 2008;43:43-52.

**Durant AM**. What is your diagnosis? *J Am Vet Med Assoc*, 2008;232:197-198.

Enoch SJ, Cronin MTD, **Schultz TW**, Madden JC. Quantitative and mechanistic read across for predicting the skin sensitization potential of alkenes acting via Michael addition. *Chem Res Toxicol*. 2008;21:513-520.

**Frank N**, Buchanan BR, **Elliott SB**. Effects of long-term oral administration of levothyroxine sodium on serum thyroid hormone concentrations, routine blood test results, and echocardiographic measurements in healthy adult mares. *Am J Vet Re*s. 2008;69:68-75.

**Frank N, Elliott SB**, Boston RC. Effects of long-term oral administration of levothyroxine sodium on glucose dynamics in healthy adult mares. *Am J Vet Res.* 2008;69:76-81.

**Geyer N, Bartges JW, Kirk CA**, **Cox S**, **Hezel A**, **Moyers T**, **Hayes J.** Influence of prednisolone on urinary calcium oxalate and struvite relative supersaturation in healthy young adult female domestic shorthaired cats. *Vet Ther*. 2007;8:239-246.

**Hendrix DVH, Cox S.** Pharmacokinetics of topically applied ciprofloxacin in tears of mesocephalic and brachycephalic dogs. *Vet Ophthalmol.* 2008;11:7-10.

**Hezel A**, **Bartges JW, Kirk CA, Cox S**, **Geyer N, Moyer T, Hayes J.** Influence of hydrochlorothiazide on urinary calcium oxalate relative supersaturation in healthy young adult female domestic shorthaired cats. *Vet Ther.* 2007;8:247-254.

**Joo HM**, He Y, **Sangster MY**. Broad dispersion and lung localization of virus-specific memory B cells induced by influenza pneumonia. *PNAS.* 2008;105:3485-3490.

**LeBlanc AK**, Jakoby B, Townsend DW, Daniel GB. Thoracic and abdominal organ uptake of 2-deoxy-2-[F-18]fluoro-D-glucose ((18)FDG) with positron emission tomography in the normal dog. *Vet Radiol Ultrasound*. 2008;49:182-188.

**Marioni-Henry K**, Van Winkle TJ, Smith SH, Vite CH. Tumors affecting the spinal cord of cats: 85 cases (1980-2005). *J Am Vet Med Assoc.* 2008;232:237-243.

**Martin-Jimenez T**, Lindeblad M, Kapetanovicc IM, Chen Y, Lyubimov A. Comparing pharmacokinetic and pharmacodynamic profiles in female rats orally exposed to lovastatin by gavage versus diet. *Chem Biol Interact.* 2008;171:142-151.

**Mendis-Handagama SMLC**, Ariyaratne HBS. Effects of hypothyroidism on anti-mullerian hormone expression in the prepubertal rat testis. *Histol Histopathol*. 2008;23:151-156

**Newkirk KM**, MacKenzie DA, Bakaletz AP, Hudson LG, Kusewitt DF. Microarray analysis demonstrates a role for slug in epidermal homeostasis. *J Invest Dermatol*. 2008;128:361-369.

# . . . And Presentations

**Drs. M Abd-Eldaim, KV Thomas,** and **M Kennedy** presented a poster at the Conference of Research Workers in Animal Diseases in Chicago, December 2. The poster, entitled "Human influenza virus isolated from giant anteaters," was also authored by S Nofs, D Toplan, and D Rouse from the Nashville Zoo at Grassmere.

On February 8, **Dr. HS Adair** gave an invited presentation on equine aquatic therapy at the American Physical Therapy Association Annual meeting in Nashville.

At the Exotic Species Symposium at UT in January, **Dr. M Allender** presented "Diseases of free-ranging and captive Ophidians," "Diseases of free-ranging and captive Chelonians," "Invertebrate captive husbandry and medicine," and "Chelonian shell repair."

**Dr. Allender** also presented "Introduction to zoological medicine," "Introduction to shark medicine," and "Infectious diseases of snakes" at the University of Illinois, College of Veterinary Medicine in February.

At the December meeting of the American Association of Equine Practitioners (AAEP) in Orlando, FL, **Dr. F Andrews** presented "Effects of intravenously administered omeprazole on gastric juice pH in adult horses" as part of the Medicine–GI session.

Also presenting at the AAEP meeting were **Dr. N Frank** with "How to feed horses with endocrine disorders" in the In-Depth Practical Nutrition Session, and **Dr. G Kelmer** with "How to repair an abdominal body-wall hernia in the horse using a mesh implant" as part of the How-To Session.

MS candidate **A Peretich** presented her research at the Keystone Symposium on Molecular Control of Adipogenesis and Obesity in Banff, Alberta, Canada, in February. The abstract, "PPARgamma agonists down-regulate the expression of a phospholipid translocase during adipogenesis," is also authored by **Drs. M Cekanova, SJ Baek**, and **M Dhar**.

**Dr. X Xu** presented "The role of the GxxxG motif in the interaction of CTFβ with the γ-secretase complex and formation of Aβ" as part of the Alzheimer's Disease: Physiological Functions of APP and APP Metabolites section of the 37th Annual Meeting of the Society for Neuroscience in San Diego. Other authors for the November presentation were **Drs. G Mao, J Tan,** and **M-Z Cui.**

At that same meeting, the following abstracts were presented: "Sequence in the flanking γ-secretase cleavage sites plays a critical role in γ-secretase-mediated APP processing and Aβ formation" by **Drs. J Tan, G Mao, M-Z Cui**, M-S Sy, and **X Xu**; "The GxxxG motif in the transmembrane domain of APP plays an essential role in the interaction of CTFβ with the γ-secretase complex and formation of Aβ" by **Drs. G Mao, J Tan, M-Z Cui**, and **X Xu**.

THE UNIVERSITY of TENNESSEE
College of Veterinary Medicine

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