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Comparative Medicine vs. Comparative and Experimental Medicine What's in a Name?

In January 1980, the College of Veterinary Medicine (CVM) and the Graduate School of Medicine at the local University of Tennessee Medical Center (the then-Center for Health Sciences) joined forces to create a new master of science and doctor of philosophy degree program, with the goal of using both animal and human biology and medicine to provide a comparative animal orientation for students to understand disease. The Comparative and Experimental Medicine (CEM) program, as it was called, was envisioned by Dr. Hiram Kitchen when the college was established, and Dr. Leon Potgieter mentored the program's first student. Shortly after the program's initiation, Dr. Potgieter took over as director, a position he held until Dr. Robert Moore became director in 2001.

The CEM program remains a jointly-administered graduate program between the Graduate School of Medicine and the CVM, where the administrative office is located. The interdisciplinary nature of the CEM program means that its 30 current students are all over the Knoxville campuses—at the medical center and in the UT departments of Microbiology, Pathobiology, Small Animal Clinical Sciences, Nutrition, Large Animal Clinical Sciences, and yes, Comparative Medicine.

When the CVM was founded, the Comparative Medicine Department was called Environmental Practice. That changed sometime around 1994, when the college's executive committee recognized the need for a more public-friendly name that was also more encompassing of the wide variety of disciplines within the department, which included, at the time, exotic animal medicine and laboratory animal medicine.

Although no sign on a door marks the existence of the CEM program, the “graduate studies” portion of the Office of Research and Graduate Studies refers to CEM. In the three-person office, Kim Rutherford and Misty Bailey co-coordinate day-to-day operations of the program, with Kim handling admissions and the timeable. ∞

CEM ≠ CM

Farewell, Dr. Buddy Moore

Since 2001, Dr. Robert “Buddy” Moore has administered the research and graduate programs at the CVM. By 2002, overall research expenditures for the college had increased by 29%, up over half a million dollars from the previous year. This climb continued until the national economic downturn began to surface in 2006, and by then, expenditures had grown by nearly 100% since Moore's first year.

These expenditures are considered, in the research world, to be the best measure of a program's research success, since expenditures measure actual funds spent out of active research

accounts. Therefore, by the most reliable measure, Moore will be leaving a heavy-handed stamp on the CVM when he leaves us to join the UT Space Institute in Tullahoma, TN, as its executive director. There, he will oversee the research program and graduate education.

Please wish Dr. Moore well in his new position, which he begins after the holiday break. He has certainly lived up to his nickname (Buddy) with many people throughout the college and UT Knoxville. ∞



Moore as catcher for a CEM pick-up game of cricket in 2007.

Whittemore's FRED Eases Small Animal Endoscopy Training

Dr. Jacqui Whittemore saw the need for a better way to train veterinary students to perform canine endoscopies; this recognition led to the creation of FRED: Flexible and Rigid Endoscopic Training Device.

Whittemore and former student Dr. Katie Cook Kottkamp used off-the-shelf products on the road to creating FRED, and after several bumps in that road, they discovered a working combination of materials and epoxy. Whittemore has submitted a provisional patent application for FRED and, with the UT Research Foundation, is working to find the right developer for production and marketing.

FRED's major benefits are that it is much less expensive to produce than most endoscopic simulators, its use reduces

the need for research animals in teaching endoscopic technique, and its materials will not damage sensitive endoscopic equipment.

FRED's gastrointestinal endoscopic images are virtually indistinguishable from images acquired in live patients, and Whittemore plans to develop both respiratory and urinary modules in the future. These modules are interchangeable, replaceable after wear, and washable. ☺



Hurst Earns Travel Award

The journey to La Jolla, California, was a bit easier for Comparative and Experimental Medicine graduate student **Sarah Hurst** as a result of a travel award given to her by the International Mammalian Genome Society to present her research results at the International Mammalian Genome Conference (details in Presentations).

This travel award is Hurst's second one this year. She is mentored by **Dr. Madhu Dhar** and is a second-year PhD student. ☺

Recent Publications

Adams H, **Kennedy M**, van Vuuren M, Bosman A, Keet D, **New J**. The epidemiology of lion lentivirus among a population of free-ranging lions (*Panthera leo*) in Kruger National Park, Republic of South Africa. *J S Afr Vet Assoc*. 2009;80:151–156.

Black CC, **Solyman SM**, **Eberlein LC**, **Bemis DA**, **Woron AM**, **Kania SA**. Identification of a predominant multilocus sequence type, pulsed-field gel electrophoresis cluster, and novel staphylococcal chromosomal cassette in clinical isolates of mecA-containing, methicillin-resistant *Staphylococcus pseudintermedius*. *Vet Microbiol*. 2009;139:333–338.

Carter RA, McCutcheon LJ, George LA, Smith TL, **Frank N**, Geor RJ. Effects of diet-induced weight gain on insulin sensitivity and plasma hormone and lipid concentrations in horses. *Am J Vet Res* 2009;70:1250–1258.

Carter RT, **Oliver JW**, Stepien RL, Bentley E. Elevations in sex hormones in dogs with sudden acquired retinal degeneration syndrome (SARDS). *J Am Anim Hosp Assoc*. 2009;45:207–214.

Choudhary S, **Wang H-CR**. Reactive oxygen species in proapoptotic activity of oncogenic H-Ras for histone deacetylase inhibitor to induce caspases in human bladder cancer cells. *J Cancer Res Clin Oncol*. 2009;135:1601–1613.

Cronley C, **Strand E**, Patterson DA, Gwaltney S. Homeless people who are animal caretakers: A comparative study.

Psychol Rep. 2009;105:481–499.

Doherty TJ. Postoperative ileus: Pathogenesis and treatment. *Vet Clin North Am Equine Pract: New Perspectives in Equine Colic*. 2009;25:351–361.

Kalck KA. Inflammatory bowel disease in horses. *Vet Clin North Am Equine Pract: New Perspectives in Equine Colic*. 2009;25:303–315.

Kambe A, Yoshioka H, Kamitani H, Watanabe T, **Baek SJ**, Eling TE. The cyclooxygenase inhibitor sulindac sulfide inhibits EP4 expression and suppresses the growth of glioblastoma cells. *Cancer Prev Res*. 2009;2:1088–1099.

Little AM, **Hecht S**, **Kirk CA**, **Bohling MW**. What is your diagnosis? – Diaphragmatic hernia in a dog. *J Am Vet Med Assoc*. 2009;235:1041–1042.

Peretich AL, **Cekanova M**, **Hurst S**, **Baek SJ**, **Dhar MS**. PPAR γ agonists down-regulate the expression of Atp10c mRNA during adipogenesis. *Open Obes J*. 2009;1:41–48.

Pierce RL. Enteroliths and other foreign bodies. *Vet Clin North Am Equine Pract: New Perspectives in Equine Colic*. 2009;25:329–340.

Plummer AE. Impactions of the small and large intestines. *Vet Clin North Am Equine Pract: New Perspectives in Equine Colic*. 2009;25:317–327.

Proctor KW, **Kelch WJ**, **New, Jr. JC**.

Estimating the time of death in domestic canines. *J Forensic Sci*. 2009;54:1433–1437.

Rojsanga P, Sukthanthar M, Krisanapun C, Gritsanapan W, Lawson DB, **Baek SJ**. In vitro anti-proliferative activity of alcoholic stem extract of *Coscinium fenestratum* in human colorectal cancer cells. *Exp Ther Med*. 2009;1:181–186.

Souza MJ, **Ramsay EC**, **Patton S**, **New JC**. *Baylisascaris procyonis* in raccoons (*Procyon lotor*) in Eastern Tennessee. *J Wildl Dis*. 2009;45:1231–1234.

Strickland J, Spiers D, Fletcher L, **Oliver J**, Aiken G. Physiological basis of fescue toxicosis. In: Fribourg HA, Hannaway DB, West CP, eds. *Tall Fescue for the Twenty-first Century*. Madison, WI: American Society of Agronomy; 2009. pp. 203–228.

Tan J, **Mao G**, **Cui M-Z**, Lamb B, Sy M-S, **Xu X**. Residues at P2-P1 positions of epsilon- and zeta-cleavage sites are important in formation of beta amyloid peptide. *Neurobiol Dis*. 2009;36:453–60.

Tóth F, **Frank N**, **Elliott SB**, **Perdue K**, Geor RJ, Boston RC. Optimisation of the frequently sampled intravenous glucose tolerance test to reduce urinary glucose spilling in horses. *Equine Vet J*. 2009;41:844–851.

Tóth F, **Frank N**, **Chameroy KA**, Boston RC. Effects of endotoxaemia and

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Research Resource Spotlight



UTRF Offers Patent-Filing Assistance

Two stories in this issue of *Discovery* focus on UTCVM faculty members who have filed patents. Both of these faculty sought the assistance of the UT Research Foundation (UTRF) in achieving this feat.

The UTRF is available to help faculty in evaluating inventions on novelty and commercial potential, as well as in funding and managing the patent process, marketing an invention to potential licensees, and negotiating licensing agreements.

Staff at UTRF also have the know-how to manage licensee and government compliance issues, and they are skilled in the process of registering copyrights and trademarks. With several attorneys and marketing experts on hand, the entire invention process comes together seamlessly.

For more information about UTRF's services, see their Web site at <http://utr.f.tennessee.edu>. ☺

Mendis-Handagama Receives Patent for Testosterone Studies

A patent filed in 2003 by **Dr. Charmi Mendis-Handagama** was awarded September 29, 2009. "Methods of rejuvenating Leydig cells and enhancing testosterone production in a male subject," as it is titled, was assigned patent number US 7,595,056 B1.

The enhanced testosterone production is accomplished by co-administering luteinizing hormone and thyroxin. Mendis-Handagama's work on Leydig cells as they relate to testosterone has been the subject of many published articles, and she is currently seeking funding based on her studies. ☺

UTCVM Investigators Earn Over \$3.7 Million for Recent Sponsored Projects

Title	PI	Agency	Start date	Type	\$ Amount
Weight reduction in severely obese dogs	CA Kirk	Private industry	10/7/09	Yr 2/3	10,206
Effect of alternative and complementary treatment on dogs with osteoarthritis of the hip or stifle	DL Millis	Morris Animal Foundation	11/1/09	2/2	41,904
Effect of alternative and complementary treatments on dogs with osteoarthritis	DL Millis	Morris Animal Foundation	5/1/09	1/1	2,500
Training to enhance regional collaboration and utilize the national credentialing standards for animal emergency responders. . .	SR Thompson	DHS	10/1/09	2/3	1,771,837
Training to enhance effective and timely sharing of information and intelligence on the importation and transportation of food. . .	SR Thompson	DHS	10/1/09	2/3	1,760,298
Green tea catechins in precancerous prevention	H-CR Wang	NIH	9/1/09	2/2	190,598

Publications cont. from p. 2

carbohydrate overload on glucose and insulin dynamics and the development of laminitis in horses. *Equine Vet J.* 2009;41:852–858.

Videla R, Andrews F. New perspectives in equine gastric ulcer syndrome. *Vet Clin North Am Equine Pract: New Perspectives in Equine Colic.* 2009;25:283–301.

Wellehan Jr, JFX, **Greenacre CB**, Fleming GJ, Stetter MD, Childress AL, Terrell SP. Siadenovirus infection in two psittacine bird species. *Avian Pathol.* 2009;38:413–417. ☺

Gomez de Witte Honored for Best Poster

Dr. Fiamma Gomez de Witte was awarded for best poster in the category of "best case made for an industry product improving equine health" at the November International Equine Conference on Laminitis. Her poster, "Effects and applications of levothyroxine sodium," will allow her to attend the 2010 laminitis conference (in Monterey, CA) on scholarship from a private sponsor.

Dr. Nick Frank was also an author on the poster. ☺

Happy Holidays!

Recent Presentations

Baek SJ. Green tea and anti-carcinogenesis. At: The Royal Golden Jubilee PhD Program, Mahidol University; October 14, 2009; Bangkok, Thailand.

Craig LE, Krimer PM, Cooley AJ. Canine synovial myxoma: 39 cases. Poster presented at: 60th Annual Meeting of the American College of Veterinary Pathologists; December 5–9, 2009; Monterey, CA.

Cui M-Z, Hao F, Tan M, Chisolm G, **Xu X.** Protein kinase D2 mediates lysophosphatidylcholine-induced monocyte migration. At: 44th Annual Southeastern Regional Lipid Conference; November 11–13, 2009; Cashiers, NC. P17.

Cui M-Z. Lysophosphatidic acid in vascular disease. Invited talk at: Louisiana State University Health Sciences Center, Shreveport, Department of Molecular and Cellular Physiology seminar series; September 30, 2009; Shreveport, LA.

Ditmyer H. Mycotic mastitis in three dogs due to *Blastomyces dermatitidis*. Poster presented at: American College of Veterinary Pathologists Annual Meeting; December 5–9, 2009; Monterey, CA.

Frank N. Laminitis research: University of Tennessee; Hormones and metabolism: What role do these factors play?; Workshop: Endocrine disease and laminitis. Oral presentations at the: Fifth International Equine Conference on Laminitis; November 2009; West Palm Beach, FL.

Frank N. Table topic: Equine endocrine disorders. Oral presentation at: 55th Annual American Association of Equine Practitioners Convention; December 2009; Las Vegas, NV.

Frank N. Synopsis of vascular and endothelial dysfunction abstracts. Oral

presentation at: 2nd American Association of Equine Practitioners Foundation Equine Laminitis Research Workshop; November 2009; West Palm Beach, FL.

Gomez de Witte F, Frank N. Effects and applications of levothyroxine sodium. Poster presented at: Fifth International Equine Conference on Laminitis; November 2009; West Palm Beach, FL.

Hao F, Tan M, Wu D, Xu X, Cui M-Z. LPA₁, protein kinase C and p38 α mediate lysophosphatidic acid-induced interleukin-6 secretion from human aortic smooth muscle cells. At: 44th Annual Southeastern Regional Lipid Conference; November 11–13, 2009; Cashiers, NC. P18.

Hurst S, Gorman S, Agarwal S, Dhar M. In vitro alterations of a putative phospholipid translocase suggest a role in glucose uptake for C₂C₁₂ muscle cells. At: 23rd International Mammalian Genome Conference; November 1–4, 2009; La Jolla, CA.

Newkirk K, Newman S, White L, Rohrbach B, Ramsay E. Renal lesions in exotic felids. Poster presented at: American College of Veterinary Pathologists Annual Meeting; December 5–9, 2009; Monterey, CA.

Plummer HK III. Potassium channels in cancer. Invited seminar at: Department of Biological Sciences, Bowling Green State University; November 18, 2009; Bowling Green, OH.

Plummer HK III, Hance M. Estrogen activates G-protein inwardly rectifying potassium channels (GIRK) in MCF-7 breast cancer cells. Poster presented at: Annual Meeting of the American Society for Cell Biology; December 6, 2009; San Diego, CA. **Dhar M, Hurst S** acknowledged for training in immunofluorescence.

Souza MJ. Rabies surveillance and prevention in Tennessee. Tennessee Animal Care & Control Conference; October 8–9, 2009; Nashville, TN.

Tadros L, Frank N, Horohov DW. Inflammatory cytokine messenger RNA expression during the development of oligofructose-induced laminitis in horses. At: 2nd American Association of Equine Practitioners Foundation Equine Laminitis Research Workshop; November 2009; West Palm Beach, FL.

Tobias KM. Treatment of methicillin-resistant *Staphylococcus* infections in small animals. At: American College of Veterinary Surgeons Veterinary Symposium; October 2009; Washington, DC.

Wang H-CR. Veterinary education in the USA; Graduate research education in the USA; Oncogenes and cell signaling; Target therapeutics on oncogene-activated cells. Invited presentations at: Northwest Agricultural and Forestry University, College of Animal Science and Veterinary Medicine; October 19–23, 2009; Yanglin City, China.

Whitlock B. Birth defects in cattle. Invited talk at: Coley Veterinary Services 21st Annual Client Meeting; October 2009; Dandridge, TN.



Dr. Wang's lectures were co-sponsored by the GIVE program (AAVMC), UTCVM, and Northwest Agricultural and Forestry University, seen here.