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Editor

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DISCOVERY



Research at the University of Tennessee College of Veterinary Medicine

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The What's and Why's of Internal Grant Routing

The Boston Globe reported in its November 2 issue that a Massachusetts educational program's grant proposal was rejected outright because it was 46 minutes late being submitted via grants.gov.¹ Repeated attempts by program leaders and phone calls by multiple senators could not change the minds of the US Department of Education, who refused to budge on the deadline. Despite claims by the submitting organization that they had tried to submit the entire day before the due date, the organization was informed 6 months later that its renewable grant would be halted.

This *Boston Globe* story serves as a good example of the importance of time management in preparing and submitting grants.

Once a PI decides to submit a grant application, he or she finds an opportunity for funding, follows the grant agency's directions, and sends the application. That's all there is to it, right? Not exactly. As we see with the Massachusetts program, that PI might have just wasted his or her most precious commodity: time.

A lot more goes into submitting a grant application than doing research, writing, and submitting. At least one week before the grant application is sent, the research coordinator (Debbie Hampstead) must submit the application for approval by both the department head and the associate dean for research.

In order to be approved internally, the application must contain a proposal routing form, a budget worksheet form, and a copy of the research

proposal. The two forms are found at www.vet.utk.edu/research/compliance_forms.shtml.

If the proposal is approved (and most of them are), the project is entered into a restricted university database and reviewed to ensure sponsor guidelines have been followed. At this stage, spelling errors or even inadvertent omissions are sometimes caught before mailing or sending the application electronically.

Common mistakes of first-time grant writers:

- Designating themselves as the applicant on grant budget paperwork

If you apply for a grant as an employee of the university, the university is the applicant. You are doing research for the university using university facilities and staff along the way; therefore, any grant monies you apply for belong to the university. If a check comes in with your name on it, it must be returned to the agency, which then must process another check to the correct party—a time-consuming process that might delay your funding.

- Not reading carefully/following agency guidelines

Sixty percent of proposals are rejected at first reading because of this reason.² If the sponsor guidelines say they do not fund studies that involve euthanizing animals, and you plan to euthanize 12 in the first week of the study, the agency will flag your application as not meeting their criteria for funding. If the instructions say to limit the research plan to 10 pages and you

include 12, that gives reviewers an easy way to exclude your application from further review.

These mistakes are more likely to be avoided by following the proposal routing process in place at the CVM. Submitting the proposal to the research coordinator too late, or not until after you've mailed the application, results in the proposal being filed under "insufficient review." In extreme cases, this could lead to refusal to accept the funding. For example, what if a PI does not have rDNA approval or IACUC approval? If that approval never came, the investigator could not perform the work for which he or she had been paid and would have to refuse the award. The CVM administrators who approve proposals might be able to circumvent that situation.

To avoid a situation similar to that in the *Boston Globe* report, submit early! For complete information on the grant submission process, see www.vet.utk.edu/research/info/pdf/PIGuide_FlowChart2.pdf.

¹ Abel D. Technicality may end student program. *The Boston Globe*. November 2, 2007. Available at: http://www.boston.com/news/local/articles/2007/11/02/technicality_may_end_student_program/?page=1. Accessed December 7, 2007.

² New CC, Quick JA. *Grantseeker's Toolkit: A Comprehensive Guide to Finding Funding*. New York: John Wiley & Sons, 1998.

With TReg Cells, We Can't Have Our Cake and Eat It, Too

Korea's Biological Research Information Center invited **Dr. Barry Rouse** to be one of six special lecturers at their Korean Association of Immunobiologists meeting in Seoul in November. He also chaired and presented at the Infection and Immunity Symposium there.

His presentation entitled "Regulatory T cells and infectious diseases" outlined his research in the role of these cells in herpes simplex virus-related stromal keratitis, but it also explored the poorly understood and controversial role of TReg cells in the body's inflammatory reactions, vaccine responses, and cancer-fighting ability.

Although TReg cells appear to be beneficial in lessening the severity of keratitis lesions, they have also been shown in laboratory animals to hinder the body's response to tumors, lessen immunity to some infections, and reduce the efficacy of some vaccines. This duality and the fact that TReg activity seems to be more potent

in neonates contribute to the scientific community's uncertainty regarding these cells. Rouse's laboratory seeks to use information about TRegs to establish new treatment methods for stromal keratitis.

Rouse joined other lecturers from Australia, Japan, the United Kingdom, and the United States over the two-day meeting, which also included plenary lectures by Dr. Ralph Steinman and Dr. Peter Doherty.

Steinman is a professor and senior physician at the Rockefeller University, and his Laboratory of Cellular Physiology and Immunology discovered dendritic cells in 1973. He received the 2007 Albert Lasker Award for Basic Medical Research.

Doherty, a 1995 recipient of the Lasker Award, also won the Nobel Prize for Physiology or Medicine in 1996. He is the co-leader of the Infection and Host Defense Program at St. Jude Children's Research Hospital.

Happy Holidays



Affymetrix Core Facility Offers Microarray Short Course

Looking for a wonderful holiday gift for a post-doc? How about the Microarray Technology and UT Microarray Database Applications short course being offered **December 17 and 18** in M313 Walters Life Sciences Building?

On Monday, the course will cover the basics of microarray experiments such as expression of genetic information, software and applications, sample preparation, and experimental design considerations.

Tuesday's class will involve the database: data display and quality, retrieval and analysis, and advanced analysis, including clustering, gene ontology, and pathway analysis.

The course is a total of five hours and is open to primary investigators and technicians, as well as post-docs. Class size is limited, so e-mail brekapal@utk.edu or affycore@utk.edu to enroll.

Don't Let Your Disease Research Data Become Diseased

Just as laboratories need biosafety protocols, so does a computer need viral protection to prevent or correct unwanted contamination. A recent "Backdoor Trojan" circulating through CVM-associated computers was a difficult lesson in the importance of keeping anti-virus software updated and doing regular virus scans. Approximately 20 computers became infected with this virus, which provides others with remote access to the infected machine. That could mean that private information became less-than-private for a while.

Charles Lambrecht, computer operations manager, provides this four-step process for eliminating this particular virus on a PC:

1. Update your software and determine your McAfee anti-virus version. First, look at the system tray in the lower, right corner of the computer screen, and find the white and blue shield with a red "V" in the middle.

Place your cursor over the shield icon, and RIGHT click your mouse. Then left click on the "Update Now" option. Once updates are finished, click on the "Close" button.

To get the latest version, first RIGHT click on the shield icon and left click on "About VirusScan Enterprise." If you have version 8.0 or earlier, it is time to update.

2. Clean your PC. Restart your computer and boot into Windows SAFE mode by pressing F8 DURING the black and white screens but BEFORE the color, starting Windows messages appear.

A menu will appear. Using the arrow keys, select "Safe Mode" and press Enter. Press Enter at the next question. Windows will start slowly!

Log in and click "Yes" on the screen asking if you want to be in safe mode.

Next, click on "start," then "All Programs," and choose the McAfee or Network Associates menu. Run an "On-Demand Scan." If the scan removes/deletes/cleans anything, wait until the entire scan finishes, and then restart your computer and do the safe mode scan again.

3. If you are not running version 8.5, go to antivirus.utk.edu, and follow the instructions to download and install it. This software can be used on your home PC for free, too.

4. After installing McAfee 8.5, repeat step one

Schultz Article One of Most Accessed in *Chem Res Toxicol*

Of the 44 articles published in *Chemical Research in Toxicology* from July to September 2007, **Dr. Terry Schultz's** article was one of the most accessed.

The article, entitled "Verification of the structural alerts for Michael Acceptors," is co-authored by **JW Yarbrough**, RS Hunter, and AO Aptula. The most-accessed list is featured quarterly and is on the journal's home page: pubs.acs.org/journals/crtoec/promo/most/most_accessed/index.html.

to update the virus signature files. Then do step two. Repeat until McAfee doesn't find anything. Reboot your computer, and log in normally.

To clean a memory stick/flash drive, do the following:

1. Temporarily disable the auto-run feature. Once McAfee is updated, you can use it to scan and clean a memory stick. What you DON'T want to do is have Windows automatically open the memory stick and show the files. This action will re-infect your PC!

HOLD DOWN the Shift key when you insert your memory stick, and Windows WON'T open a window.

2. Scan the memory stick. Once the memory stick is inserted and ready, right click on the McAfee shield and run an "On-Demand Scan" of your computer. It will clean the memory stick as well as re-scan the whole PC. This will take longer, but it will help if somehow the memory stick managed to re-infect your PC!

Funding Deadlines Drawing Near

Deadline	Sponsor	Program	\$ Amount	URL
Dec. 14	American Institute of Cancer Research	PIs and post-docs	Up to 75,000/yr	www.aicr.org
Dec. 15	American Association of Feline Practitioners	Feline medicine & surgery	Up to 20,000	www.aafponline.org
Jan. 9	United States Equestrian Foundation	Areas of special concern to show & performance horses	Up to 25,000	Contact research office
Jan. 11	American Heart Association SE	Fellowships, grant-in-aid, & beginning grant-in-aid	Varies	www.americanheart.org
Feb. 5	NIH	New R01s	Varies	www.nih.gov
Feb. 16	NIH	New R03s & R21s	Varies	www.nih.gov
Feb. 25	NIH	R15, AREA awards	Varies	www.nih.gov

Thesis/Dissertation Workshops

Thursday, Jan. 31
5:30-7:00 pm

Friday, Feb. 1
9:30-11:00 am

Hodges Library Auditorium

*Note: Friday's workshop is a repeat of Thursday's workshop. No registration required.

Research Resource Spotlight

NIH Offers Regional Seminar on Grants in Chicago

E-Journals

Have you ever needed to find the most current article on a specific topic but realized that library trip is probably not a good idea since it's sleeting outside or it's a lot later at night than you thought?

University libraries offer a substantial number of electronic journals, and the Pendergrass library subscribes to all English-language veterinary journals.

The E-journals list (linkserv.lib.utk.edu:9003/sfx/az/) gets updated more frequently than

the catalog, so that list should be the first choice when searching. If unsuccessful using E-journals, try the catalog next. The browse search works best when looking for journals.

Once you find what you need, most journals have a search or browse feature that allows you to quickly find the article you want instead of potentially thumbing through an entire bound volume of the printed journal.

When the library is open, seek help if you can't find a journal you're looking for (974-7338).

Each year, the National Institutes of Health (NIH) offer several regional seminars designed to help "demystify the application and review process, clarify federal regulations and policies, and highlight current areas of special interest or concern."

One such seminar will be held June 19 and 20 at the Hyatt Regency Chicago. The meeting will give investigators (both professors and graduate students) the opportunity to interact with NIH policy officials, grants management and program staff, and representatives from the Office of Laboratory Animal Care.

The sessions are designed to provide participants with everything they need to know to submit an NIH grant, and they allow ample time for participant questions.

More information and registration details are found at tiger.uic.edu/depts/ovcr/research/seminar/NIH/.

Grad Student Accepts Post-Doc at Rochester

Pranita Sarangi, a PhD candidate in Dr. Barry Rouse's lab, has accepted a post-doctoral research position under Dr. Minsoo Kim at the Center for Vaccine Biology and Immunology at the University of Rochester Medical Center in New York.

She plans to join that laboratory in mid March after finishing her degree in the Comparative and Experimental Medicine graduate program here.

Presentations

Cont. from p. 4

Animal Diseases held in Chicago, December 2-4. Other authors were CN Carter, J Riley, and J Smith.

He was also an author on a presentation by AD Haddow (other co-authors: UD Kitron, RR Gerhardt, DG Mead, and JK Moulton) entitled "Preliminary analysis of the spatial and temporal differences in cases of La Crosse encephalitis in Tennessee," which was presented at the 39th Annual Conference of the Society of Vector Ecology in Springfield, IL, in September.

In addition, **Dr. Odoi** was co-author (along with J Riley, J Smith, R Stepusin, T Cattoi, and S McCollum) on a presentation by CN Carter. "Laboratory-based early animal disease detection utilizing a prospective space-time permutation scan statistic" was presented at the 13th International Symposium of the World Association of Veterinary Laboratory Diagnosticians, held in Melbourne, Australia, in November.

The following abstract was presented in Chicago by **Dr. R Pierce** at the American College of Veterinary Surgeons (ACVS) Symposium in October: "Post-operative complications of small colon enterolithiasis in 97 horses."

Dr. HS Adair's "Hyperbaric oxygen

wound therapy" appears in the ACVS Symposium proceedings.

Giving three talks at the ACVS Symposium was **Dr. K Tobias**: "Why I use ameroid constrictors"; "Advanced facial reconstruction"; and "Portosystemic shunts."

Drs. P Sura and **Tobias** also presented a poster at the conference entitled "Cholecystectomy for the treatment of gallbladder mucoceles in dogs: 25 cases (2003-2006)."

In addition, **Dr. Sura** presented "Ultraflex Nitinol stents for the correction of tracheal collapse in dogs," on which **Dr. DJ Krahwinkel** was co-author.

Dr. LND Potgieter presented "Agents of agroterrorism" at the Idaho Bureau of Homeland Security on September 11.

At the American Association of Bovine Practitioners Annual Conference in Vancouver, Canada, in September, **Dr. T Prado** presented an abstract entitled "Evaluation of a modified surgical technique to correct urine pooling in cows."

In October, **Dr. Prado** presented a series

of talks on large and small animal reproduction at the VIII Congreso Nacional de Medicina Veterinaria [8th National Veterinary Medicine Conference] in Coronado, Panama.

At the Annual Scientific Meeting of the Association of Pharmaceutical Sciences, **Drs. W Qu, C Egger,** and **A Shukla** presented the poster "Pharmacokinetics of fentanyl citrate after intravenous administration in dogs." The conference was held in San Diego in November.

Dr. D Rotstein traveled to Barbados in November to present a session on marine mammal pathology at the 4th Pan Commonwealth Veterinary Conference.

As part of UT's Public Health Seminar series, **Dr. S Thompson** presented "Initiatives to protect agriculture & food sectors from terrorist and criminal acts" on September 13. She also presented "Response to an animal disaster—key issues" at the Tennessee Public Health Association in Nashville on November 1.

September 11, at the Idaho Bureau of Homeland Security in Coeur D'Alene, **Dr. M. Welborn** presented "Potential impacts of agroterrorism and assessing vulnerability on a community basis."

CVM Faculty Members Get \$25,985 for Sponsored Projects Since October

Title	PI	Agency	Start date	Type	\$ Amount
Reverse transcription free microarray analysis	SA Kania	Sci-Tec, Inc.	10/1/07	1/2	20,000
Endocrine function in non-hibernating captive American black bears	SL McCain	American Association of Zoo Veterinarians	11/1/07	1/1	5,985

Recent Publications . . .

Cho KN, Sukhthar M, Lee SH, Yoon JH, Baek SJ. Green tea catechin (–)epicatechin gallate induces tumour suppressor protein ATF3 via EGR-1 activation. *Eur J Cancer.* 2007;43:2404-12

Fernando R, Foster JS, Bible A, Strom A, Pestell RG, Rao M, Saxton A, Baek SJ, Yamaguchi K, Donnell R, Cekanova M, Wimalasena J. Breast cancer cell proliferation is inhibited by BAD: Regulation of cyclin D1. *J Biol Chem.* Sep. 2007; 282:28864-73.

Hendrix DVH, Stuffle J, Cox S. Pharmacokinetics of topically applied ciprofloxacin in equine tears. *Vet Ophthalmol.* 2007;10:344-347.

Johnson LM, **Hecht S, Arendse AU, Adams WH.** What is your diagnosis? Cystic meningioma in a dog. *J Am Vet Med Assoc.* 2007;231:861-2.

Marioni-Henry K, Schwarz T, Weisse C, Muravnick KB. Cystic nasal adenocarcinoma in cat treated with piroxicam and chemoembolization. *J Am Anim Hosp Assoc.* 2007;43:347-51.

Newkirk KM, Parent AE, Fossey SL, Choi C, Chandler HL, Rajala-Schultz PJ, Kusewitt DF. Snai2 expression enhances UVR-induced skin carcinogenesis. *Am J Pathol.* 2007;171:1619-39.

Newkirk KM, Chandler H, Parent AE, Young DC, Colitz C, Wilkie D, Kusewitt DF. New ultraviolet radiation exposure induces corneal degeneration in 129 mice. *Toxicol Pathol.* 2007;35:817-24.

Sims M, Howell NE, Harbison B. Use of videoconferencing in a veterinary curriculum. *J Vet Med Ed.* 2007;34:299-310.

Smith JR, Legendre AM, Thomas WB, LeBlanc CJ, Lamkin C, Avenell JS, Wall JS, Hecht S. Cerebral blastomyces dermatitidis infection in a cat. *J Am Vet Med Assoc.* 2007;231:1210-4.

Sura P, Tobias KM, Morandi F. Comparison of trans-splenic and per-rectal portal scintigraphy for diagnosis of congenital portosystemic shunts. *Vet Surg.* 2007;36:654-660.

Toth F, Adair HS, Holder TEC, Schumacher J. Femoral head ostectomy to treat a donkey for coxofemoral luxation. *Eq Vet Educ.* 2007;19:478-91.

. . . And Presentations

At the 4th International Equine Conference on Laminitis and Diseases of the Foot, **Dr. HS Adair** presented "More pieces of the puzzle – laminitis research at the University of Tennessee." The conference was held in West Palm Beach, FL, in November.

Dr. M Allender gave an oral presentation entitled "Health and disease in the conservation of the Eastern Box Turtle, *Terrapene carolina carolina*" at the 3rd Box Turtle Conservation Workshop, Patuxent National Wildlife Research Center, Laurel, MD, in November.

At October's Annual Conference of the American Association of Zoo Veterinarians in Knoxville, **Drs. M Allender, M Mitchell, M Dreslik, C Phillips, and V Beasley** had a poster entitled "Characterizing agreement of hemagglutination inhibition assays using four different Ophidian Paramyxovirus isolates in wild Eastern Massasauga Rattlesnakes (*Sistrurus catenatus*) from Illinois."

At that same conference, **Drs. M Allender, J Schumacher, J Milam, R George, S Cox, and T Martin-Jimenez** presented "Pharmacokinetics of itraconazole in the American Horseshoe Crab (*Limulus polyphemus*)."

Also at the AAZV conference, **Dr. A Legendre** and **M Bailey** presented a scientific writing session.

Drs. D Rotstein and **C Cross** and **R Archibald** presented a marine mammal necropsy wet lab at the AAZV meeting.

At the 48th International Symposium of the Korean Society of Life Science, **Dr. SJ Baek** was invited to present "NAG-1's role in anti-tumorigenesis and anti-obesity." The presentation was in Kwangju, Korea, in October.

Dr. Baek also presented at the Harry and Elsa Jiler-American Cancer Society 2007 Professors Meeting in Naples, FL, in November. His invited presentation was entitled "NUANCE, a potential novel oncogene is suppressed by nonsteroidal anti-inflammatory drugs in human colorectal cancer cells."

Presenting "Inflammatory bowel disease in a pancake

tortoise" at the 14th Annual CL Davis Zoo & Wildlife Pathology Workshop on October 21 was **Dr. L Craig**.

At the same meeting, **Dr. S Newman** presented "A case of chimpanzee hepatocellular carcinoma."

Dr. Craig also presented at the 58th Annual Meeting of the American College of Veterinary Pathologists, in Savannah, GA, on November 11. That presentation was entitled "Feline eosinophilic sclerosing fibroplasia."

Additionally, **Dr. S. Newman** presented "A case of canine pythiosis" during the GI session of the ACVP conference.

In October, **Dr. C Cross** presented "Domoic acid research" for the Oceans and Human Health Initiative in Ann Arbor, MI.

Drs. C Egger, W Qu, and A Shukla presented a poster entitled "Sustained release of injectable fentanyl formulation in dogs" at the International Veterinary Association of Pain Management meeting, Montreal, Quebec, in November.

Dr. Egger also presented an abstract at the New Orleans American College of Veterinary Anesthesiologists meeting in September. Other authors were Drs. MA Stevenson, EH Hofmeister, G Touzot-Jourde, and **B Rohrbach**. The abstract was titled "Efficacy of pre-anesthetic intra-muscular administration of ephedrine to cats and dogs for prevention of anesthesia-induced hypotension."

At that same meeting, the following abstracts were presented: **Drs. P Quieiroz-Castro, CM Egger, B Rohrbach, and T Doherty**– "Effects of buprenorphine on isoflurane minimum alveolar concentration in dogs"; **Drs. R Seddighi, CM Egger, B Rohrbach, and T Doherty**– "Effects of low and high dose tramadol on the sevoflurane minimum alveolar concentration"; and **Drs. J Wilson, T Doherty, P Castro, and C Egger**– "Effect of lidocaine and ketamine on the minimum alveolar concentration of sevoflurane in dogs."

Dr. F Hopkins presented "Overview of Department of Homeland Security course on agriculture and vulnerability assessment" at the Alabama Association for Food Protection Annual Meeting in Birmingham on October 24.

Giving an invited presentation entitled "Update on diagnostics for FIP" was **Dr. M Kennedy**. She presented at an international summit on feline infectious peritonitis delivered by IDEXX Laboratories in Portland, ME, in October.

Dr. C Kirk gave 8 lecture hours on veterinary nutrition at the North Carolina Veterinary Conference in November. At the Annual East Tennessee Veterinary Medical Association meeting in October, she presented two lectures on food toxicity and canine obesity. In addition, at the Purina Veterinary Forum, she gave a presentation on feline nutrition.

At the Wild West Veterinary Conference in Reno, NV, in October, **Dr. DJ Krahwinkel** was invited to present 6 hours of clinical seminars entitled "Wound care and reconstruction surgery."

Drs. I Lane and **J Bartges** presented a 10-hour course in postgraduate medicine (nephrology and urology) at Auburn University College of Veterinary Medicine (AUCVM) in Alabama.

Dr. Lane also presented a seminar titled "How people learn: Implications for instruction" to AUCVM faculty.

In October, at the Associazione Italiana Veterinari Piccoli Animali [Italian Association of Small Animal Veterinarians] National Congress on Neurology, **Dr. K Marioni-Henry** presented on diseases of the brain and spinal cord tumors of the cat. The meeting was held in Modena, Italy, in October.

Dr. A Odoi presented "Prospective space-time permutations scan statistics for early outbreak detection: application on MRLS in Kentucky" at the 88th Annual Meeting of the Conference of Research Workers in