The tumor metastasis research of Dr. Thomas Rosol, Professor in the Department of Veterinary Biosciences, was highlighted in the Winter 2012 issue of the Comprehensive Cancer Center’s publication *Frontiers*. Metastatic tumors from breast, prostate, and other malignancies cause the vast majority of cancer deaths in humans. The Rosol lab has developed multiple novel animal models for bone metastasis. For example, when dog prostate cancer cells are injected into the systemic circulation of mice, tumor cells localize to the brain, eyes, lungs, kidneys, and bone within 15 minutes. All of these cells quickly die except those in the bone. Rosol and his team tracked these events in a mouse model using bioluminescent imaging and cancer cells that carry the luciferase gene that makes fireflies glow. “…metastatic cells interact with the bone microenvironment and create a fertile environment that enables them to grow,” Rosol says.

To read more about Dr. Rosol’s metastasis research, go to [http://cancer.osu.edu/pdfs/Frontiers/Winter_2012.pdf](http://cancer.osu.edu/pdfs/Frontiers/Winter_2012.pdf), starting on pg. 18.
Dr. Amit Sharma's Research Published in PLoS Pathogens Journal

The research work of Amit Sharma (pictured left), a recent PhD graduate from the Department of Veterinary Biosciences, has been accepted in the PLoS Pathogens journal. The article is entitled "Thriving under stress: Selective translation of HIV-1 structural protein mRNA during Vpr-mediated impairment of eIF4E translation activity." This publication was a team effort from Amit Sharma, former graduate student Alper Yilmaz, Professor Alan Cochrane (University of Toronto), Kim Marsh, and Principal Investigator Dr. Boris-Lawrie (pictured right).

This newly published research points to the discovery of a fundamental mechanism explaining the conventional wisdom: “stress can be good”. By studying a human retrovirus, the Boris-Lawrie lab found that viral infection impaired the ability of lymphocytes to make new proteins. Genetic tests of HIV-1 revealed the viral protein mediating this effect: protein R, which is necessary for HIV-1 pathogenesis. Analysis of the ribonucleoprotein complexes showed that viral protein R sabotages the first step in protein synthesis, which is recognition of the mRNA by ribosomes. The research team was struck by the fact that the virus and a minority of the cell’s protein building blocks (only 25%) appeared to subvert the sabotage. They considered that protein synthesis undergoes natural fluctuations in the life of a cell. While protein synthesis is robust during cell growth, it is heavily down-regulated during mitosis. They reasoned that HIV-1 may co-opt a cellular mechanism to reactivate protein synthesis during progression into the cell’s growth phase. Sharma tested the hypothesis and showed that a nuclear protein was co-opted by the virus to link HIV-1 mRNA to ribosomes. The results elucidate an essential mechanism cells use to reactivate protein synthesis during stress. The scope of the findings reaches from virology to tumor biology to healthy cell growth control.

Amit Sharma joined the Boris-Lawrie lab in 2007 after taking VBS 880.07, Post-transcriptional gene regulation, fostered his interest in viruses and RNA biology. He became an American Heart Association fellow in 2009, a Pelotonia fellow in 2011, and defended his dissertation with three publications in March of this year. In the future, Dr. Sharma will combine virology and structural biology to discover therapeutic medicines.
Dr. Michael Oglesbee was part of an international review panel, evaluating research programs of the Vetsuisse Faculty (faculty of veterinary medicine), University of Berne. Dirk Dobbelaere (professor, University of Berne) was instrumental in hosting the review that was designed to evaluate an initiative in which research programs are being aligned thematically into priority foci. The rationale driving the initiative is that competitiveness in research at both the national and international level is greatly enhanced when focused into cross-disciplinary and highly collaborative research teams. These teams are most effective when organized at the college and university level, providing a platform to engage external partners. Priority foci allows for efficient planning not only in faculty hires, but in infrastructure development along with recruitment of faculty and graduate students. The focus must be balanced with support of high value independent projects; the objective of the external review was to evaluate strategy. Priority foci included host-pathogen interaction, veterinary public health, a derm-focus group, and a Neuro-center.

The external review panel is pictured here (left to right): Ivan Morrison, professor of immunology, Roslin Institute, University of Edinburgh; Fiona Tomley, professor experimental parasitology, Royal Veterinary College, University of London; Michael Oglesbee, professor of virology and neuropathology, The Ohio State University; Vania Braga, faculty of medicine, Imperial College London; Dirk Pfeiffer, professor of veterinary epidemiology, Royal Veterinary College, University of London; Petr Horin, faculty of veterinary medicine, Institute of Genetics, University of Veterinary and Pharmaceutical Sciences (Czech Republic).

Selected Publications, Presentations, Invitations, Graduations:

Publications:


Presentations:

Zac VanGundy (mentored by Dr. Tracey Papenfuss) presented at The Hayes Research Forum on Friday, February 24, 2012. His poster, “Tolerogenic DCs Differentiation and Development of Suppressive DC Precursors with the Hormone Estriol” was presented in the Biological Sciences category.

Invitations:

Dr. Li Wu was invited to join the NIH Study Section for review of HIV/AIDS-related applications of pre- and post-doctoral fellowships on April 3, 2012.

Spring 2012 Graduates:

Name: Dhohyung Kim
Current Advisor: Dr. Stefan Niewiesk
Dissertation Title: Mechanism of maternal antibody inhibition and vaccination strategies in the presence of maternal antibodies
Future position after graduation: Postdoctoral research fellow at Harvard Medical School.

Name: Wei Liu
Advisor: Dr. Charles Brooks
Dissertation Title: Structural basis and functional impact of ligand-independent dimerization for human prolactin receptor
Future position: Post-doctoral associate in the Department of Cell and Developmental Biology, Weill Cornell Medical College

Name: Amit Sharma
Advisor: Dr. Kathleen Boris-Lawrie
Functional control of HIV-1 post-transcriptional gene expression by host cell factors
Future position/plans after graduation: Currently considering academic and industrial post-doctoral positions

Staff Profile: Nadia Ruffin

Nadia Ruffin is a Research Assistant in the Clinical Trials Office (CTO)/Tissue Bank in the College of Veterinary Medicine. Her duties include assisting with clinical trials predominantly in the Oncology Department, collecting tissue for the Tissue Bank, maintaining the CTO website and social media, data entry, and ordering supplies. Nadia was born and
raised in the Buckeye State and is from Cincinnati. She graduated from the Ohio State University in 2005 with a B.S.in Animal Sciences and a minor in Entomology. Nadia is very interested in pursuing a career in veterinary public health and has had the opportunity to work at the Ohio Department of Agriculture and the University of Georgia performing disease testing and research. In her free time, Nadia enjoys spending time with her son and family, playing with her dogs, watching cartoons (yes, she is a big kid), studying insects, reading, doing graphic/ website design work, and computer repair (she is a self proclaimed geek). We are all happy to have Nadia in the VBS family!

**Announcements:**

Flexible Spending Accounts year-end filing deadline March 31. Human Resources is reminding faculty and staff who participated in the Flexible Spending Accounts program for the 2011 Plan Year that the deadline for submitting reimbursement requests is Saturday (3/31). Forms may be sent via US mail or dropped off by 5 p.m. at South Campus Gateway, 1590 N. High St., Suite 300. To verify current account balance, visit [FSA online](http://hr.osu.edu/benefits/flexiblespending). FSA reimbursement request forms available online. Contact: [service@hr.osu.edu](mailto:service@hr.osu.edu) or 292-1050

Read more: [http://hr.osu.edu/benefits/flexiblespending](http://hr.osu.edu/benefits/flexiblespending)

**Wellness News:**

**Eat ‘five a day’ for March National Nutrition Month**

Eating a minimum of five fruits and vegetables a day is critical to promoting good health. People who eat a diet with generous amounts of produce are likely to reduce their risk of chronic diseases, including stroke, cardiovascular diseases and certain cancers. If you are eating two servings a day, commit to eating three (or five). For variety, think of the colors of the rainbow. Eating fruits and vegetables of different colors gives your body valuable vitamins, minerals and fiber. To learn more, visit [http://www.fruitsandveggiesmatter.gov/](http://www.fruitsandveggiesmatter.gov/)

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*For comments or suggestions for our newsletter, please contact Ms. Elizabeth Hope, Program Assistant at hope.18@osu.edu Department of Veterinary Biosciences.*