THE OHIO STATE UNIVERSITY
COLLEGE OF VETERINARY MEDICINE

BIOS Our life's work is to find out how life works
Department of Veterinary Biosciences

T35 Training Grant

A T35 Training Grant, entitled Short Term Training for Veterinary Students, has been renewed by the National Institutes of Health. The grant provides $354,000 over the next five years to provide stipend support for 10 students per year that are part of the college's Summer Research Program. In aggregate, T35 support of the program now extends to 10 years.

The summer research program for veterinary medical students is directed by Dr. Michael Oglesbee (PI on the T35) and coordinated by Ms. Michele Morscher. The purpose of the training program is to provide short-term intensive research experiences to professional veterinary medical students. The short-term goal is to stimulate an interest in the pursuit of hypothesis-based research that examines mechanisms, treatment, and prevention of disease. The long-term goal is to increase the number of veterinary students that embrace research as part of their career, with a focus that ranges from basic science/discovery to translational and epidemiological studies. These individuals fill a unique niche in the biomedical community, combining a comparative medical education with investigatory skills that are essential to advancing human and animal health.

Success of the renewal reflects the contributions of several individuals. In addition to Dr. Oglesbee and Michele Morscher, invaluable support was provided by the Office of Research and Graduate Studies, headed by Dr. Pat Green (Associate Dean) with input from Dr. Kate Hayes-Ozello (Grants Management Specialist) and Ms. Kathy Froilan (Graduate Program Coordinator).

2014 Anatomic Pathology Resident Graduates

Congratulations to our graduates this year!

Kristin Lewis, DVM, PhD

Advisor: Dr. Pamela Lucchesi
Project title: Functional remodeling following myofilament calcium sensitization in rats with volume over load heart failure

Jessica Simmons, DVM, PhD

Advisor: Dr. Thomas Rosol
Project Title: Pathogenesis of Prostate Cancer Bone Metastasis

5 Year NIH Grant

Dr. Prosper Boyaka and a team lead by Dr. Stephanie Seveau (OSU Department of Microbiology) have been awarded a five-year NIH grant to study the activity of listeriolysin O during infection and means to protect host against this virulent factor of Listeria monocytogenes, the etiologic agent of the life-threatening foodborne illness listeriosis. This work is expected to identify host pathways that can be targeted for therapeutic interventions against a wide range of diseases caused by intracellular pathogens

1R01AI107250. MULTIFACETED ACTIVITY OF LISTERIOLYSIN O DURING HOST CELL INVASION BY LISTERIA

Travel Award Recipient

Congratulations to Parker Woods who was a recipient of a travel award at the 13th annual OSUWMC Trainee Research Day! He received his award in the "Inflammation, Immunity, and Infection" category for graduate students. The title of Parker's presentation was " Alternatively Activated Macrophages Attenuate Influenza-Induced Lung Injury in Mice Heterozygous for the F508DEL Mutation in CFTR." His mentor is Dr. Ian Davis.

OSU HHMI Fellowship

Congratulations to Jenna Antonucci from Dr. Li Wu's lab, she has been selected to be a 2014-2015 Howard Hughes Medical Institute Grad Scholar! The HHMI fellowship program is designed to facilitate the research training of outstanding international pre-doctoral students who are ineligible for fellowships or training grant support through federal agencies. For more information, please visit http://www.gradsch.osu.edu/howard-hughes-medical-institute-hhmi-fellowship-program.html

VBS Research Seminar

This year's Distinguished Graduate Seminar Award winners are:
1st Place—Sarah Chaney, presented: "Pseudomonas aeruginosa biofilms curtail neutrophil function in the chronic wound environment."
2nd Place—Famke Aeffner, presented: "Pathophysiologic Effects of Influenza Infection on the Murine Lung and Evaluation of Novel Therapeutic Targets"

This year's Distinguished Graduate Publication Award winners are:
1st place—Dipu Mohan Kumar, titled: "Ehrlichia chaffeensis uses its surface protein EtpE to bind GPI-anchored protein DNase X to trigger entry into mammalian cells."
2nd Place—Zac VanGundy, titled: Continuous retinoic acid induces the differentiation of mature regulatory monocytes but fails to induce regulatory dendritic cells."

Awards and Presentations

Dr. Li Wu, invited reviewer on NIH Study Sections and international/national committees:

- Ad hoc reviewer. NIH Study Section: Special Emphasis Panel (AIDS Immunology and Pathogenesis) (1/13/2014)
- Ad hoc reviewer. NIH Study Section: AIDS Molecular and Cellular Biology (3/5/2014).
- Invited reviewer. Andy Kaplan Prize (for exceptional junior faculty and senior postdocs in Retrovirology research) review committee. 2014 Cold Spring Harbor Retroviruses meeting. 03/2014
- Invited grant reviewer. Biotechnology and Biological Sciences Research Council (BBSRC), Swindon, UK. 04/2014

Dr. Li Wu, invited international and national meeting presentations and seminars

- Selected and invited oral presentation from the Abstracts. Keystone Symposia. HIV Pathogenesis - Virus vs. Host. Banff, Alberta, Canada, March 9-14, 2014. http://www.keystonesymposia.org/14X4
- Invited seminar. Department of Virology, Institut Pasteur, Paris, France. April 1, 2014.
- Invited seminar. Laboratory for Molecular Virology & Gene Therapy, University of Leuven. Leuven, Belgium. April 4, 2014.
- Invited Keynote Speaker. Think Tank Meeting, HIV Drug Resistance Program, National Cancer Institute, Frederick, MD. April 9, 2014. http://home.ncifcrf.gov/hivdrp/news.html#Think_Tank

The HIV Drug Resistance Program (DRP) hosted the 17th Annual Think Tank Meeting on April 9, 2014, at the National Cancer Institute at Frederick, with sponsorship provided by the Center of Excellence in HIV/AIDS & Cancer Virology (CEHCV), Center for Cancer Research, NCI. An additional component of the 2014 Think Tank Meeting comprised two CEHCV-sponsored presentations from former NCI trainees in HIV/AIDS research who have followed successful paths in the academic arena. These invited talks were intended to give senior fellows a personal viewpoint of the challenges they may soon experience as they transition to an independent career. The 2014 keynote speakers were Mamuka Kvaratskhelia and Li Wu, both of whom are members of the Center for Retrovirus Research .

In addition to their presentations at the 2014 Think Tank Meeting, Drs. Wu and Kvaratskhelia participated in a lunchtime discussion with DRP trainees to share their experiences in the transition from NCI into an academic career and to answer questions from the trainees about this transition. Both the guest speakers and the trainees found this discussion to be a rewarding forum for exchanging ideas and suggestions.

- Heather Strange (Papenfuss lab): Invited oral presentation for a Block Symposium to the 2014 American Association of Immunologist's Annual meeting in Pittsburgh, PA (May 2-6) on, "Mitochondrial DAMPs stimulate TNF-alpha production by canine splenocytes in an in vitro model of SIRS inflammation"
- Zac VanGundy (Papenfuss lab): Invited oral presentation at the 2014 Translational Research Cancer Centers Consortium in Seven Springs, PA (February 19-21) on, "An in-vitro model system to generate breast cancer MDSCs and study immune cell interactions in immunocompetent C57BL/6 Mice"
- Zac VanGundy (Papenfuss lab): Invited oral presentation at the 2014 OSU Edward Hayes Graduate Research Forum on his work an in vitro-in vivo correlative model of breast cancer in mice
- Dr. Junbea Jee (Boyaka lab): American Association of Immunologists Travel Award for Trainees with abstract selected for oral presentation at the Annual Meeting (May 2-6, 2014. Pittsburgh, PA) Title of Abstract: Neutrophils negatively regulates induction of mucosal IgA Ab responses to sublingual immunization

Recent Publications

Shoemaker M, Barrie MT, Peters H, Wolk KE, Stromberg PC, Aeffner F. Cardiac hemangiosarcoma in a Madagascar giant hognose snake (*Leioheterodon madagascariensis*). *Accepted 2014 : Journal of the American Veterinary Medical Association.*

Marshall JM, Flechtner AD, La Perle KM, Gunn JS (2014) Visualization of Extracellular Matrix Components within Sectioned *Salmonella* Biofilms on the Surface of Human Gallstones. PLoS ONE 9(2): e89243. doi:10.1371/journal.pone.0089243

Vangundy ZC, Guerau-de-Arellano M, Baker JD, Strange HR, Olivo-Marston S, Muth DC, Papenfuss TL. Continuous retinoic acid induces the differentiation of mature regulatory monocytes but fails to induce regulatory dendritic cells. BMC Immunol. 2014 Feb 18;15(1):8. This article was selected as BMC Immunology's "Hot Topic" in March 2014.

VanGundy ZC, Markowitz J, Baker JD, Strange HR, Papenfuss TL. 2014. An In vitro Model System to Generate Breast Cancer MDSCs and Study Immune Cell Interactions in Immunocompetent C57bl/6 Mice in J. Cancer Biology & Research 2 (1): 1017, Special Issue on Breast Cancer Therapeutics.

Peine KJ, Guerau-de-Arellano M, Lee P, Kanthamneni N, Severin M, Probst GD, Peng H, Yang Y, Vangundy Z, Papenfuss TL, Lovett-Racke AE, Bachelder EM, Ainslie KM. Treatment of Experimental Autoimmune Encephalomyelitis by Codelivery of Disease Associated Peptide and Dexamethasone in Acetalated Dextran Microparticles. Mol Pharm. 2014 Feb 4. [Epub ahead of print] PubMed PMID: 24433027.

Oghumu S, Gupta G, Snider HM, Varikuti S, Terrazas CA, Papenfuss TL, Kaplan MH, Satoskar AR. 2014. STAT4 is critical for immunity but not for antileishmanial activity of antimonials in experimental visceral leishmaniasis. Eur J Immunol. 44(2):450-9.

Yasmeen R, Meyers JM, Alvarez CE, Thomas JL, Bonnegarde-Bernard A, Alder H, Papenfuss TL, Benson DM Jr, Boyaka PN, Ziouzenkova O. 2013. Aldehyde dehydrogenase-1a1 induces oncogene suppressor genes in B cell populations. Biochim Biophys Acta. Dec;1833(12):3218-27.

Peine KJ, Gupta G, Brackman DJ, Papenfuss TL, Ainslie KM, Satoskar AR, Bachelder EM. 2014. Liposomal resiquimod for the treatment of Leishmania donovani infection. J Antimicrob Chemother. 69(1):168-75.

Julian MW, Shao G, Vangundy ZC, Papenfuss TL, Crouser ED. 2013. Mitochondrial transcription factor A, an endogenous danger signal, promotes TNFα release via RAGE- and TLR9-responsive plasmacytoid dendritic cells. PLoS One. 8 (8):e72354.

Markowitz J, Wesolowski R, Papenfuss T, Brooks TR, Carson WE 3rd. 2013. Myeloid-derived suppressor cells in breast cancer. Breast Cancer Res Treat. 140(1):13-21.

St. Gelais C, de Silva S, Hach JC, White TE, Diaz-Griffero F, Yount JS, Wu L. Identification of cellular proteins interacting with the retroviral restriction factor SAMHD1. J Virol. 2014; 88. ePub March 12. PMID: 24623419

Ren XX, Ma L, Liu QW, Li C, Huang Z, Wu L, Xiong SD, Wang JH, Wang HB. The molecule of DC-SIGN captures enterovirus 71 and confers dendritic cell-mediated viral trans-infection. Virol J. 2014;11(1):47. PMID: 24620896

Pieczarka EM1, Russell DS, Santangelo KS, Aeffner F, Burkhard MJ. Osseous metaplasia within a canine insulinoma. Vet Clin Pathol. 2013 Mar;43(1):89-93. doi: 10.1111/vcp.12117. Epub 2014 Jan 21.

Bonnegarde-Bernard A, Jee J, Fial MJ, Aeffner F, Cormet-Boyaka E, Davis IC, Lin M, Tomé D, Karin M, Sun Y, Boyaka PN.
IKKβ in intestinal epithelial cells regulates allergen-specific IgA and allergic inflammation at distant mucosal sites. Mucosal Immunol. 2014 Mar;7(2):257-67.

Bonnegarde-Bernard A, Jee J, Fial MJ, Steiner H, DiBartola S, Davis IC, Cormet-Boyaka E, Tomé D, Boyaka PN. Routes of allergic sensitization and myeloid cell IKKβ differentially regulate antibody responses and allergic airway inflammation in male and female mice. PLoS One. 2014 Mar 25;9(3):e92307