

Spring 2013www.vet.upenn.edu/research/programs/vmstp*In This Issue*

1. *Letter from the Program Director*
2. *Admissions Update*
3. *The Year of the Training Grant*
4. *Phi Zeta Day 2013*
5. *Graduating Students*
6. *Alumni Updates*
7. *Student Publications and Awards*



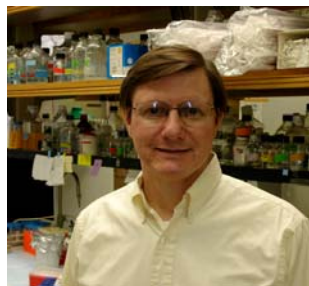
Dear VMD-PhD Alumni,

This has been an amazing year for the VMD-PhD program at Penn. We had a record number of applicants to the program (47), interviewed nine students, and offered admission to four. All four accepted our offer. You will receive more information about this outstanding crop of incoming students in the Fall newsletter. In addition to celebrating the National Medal of Science Award to Ralph Brinster by hosting an international symposium last August, I officially decree this the year of the training grant. As previously mentioned, program coordinator Yong No and I submitted the competitive renewals of three massive training grants. First our NIH T35 grant that supports the summer research program, second the MSTP grant competitive renewal, and third our T32 that supports VMD-PhD training in infectious disease-related research. These grants received NIH priority scores of 17, 12, and 10, respectively. That's right, a perfect 10! I have never received a perfect NIH score in my life, but this one comes at a good time! The NIH study section clearly recognized the quality of our students, our program, and our alumni. In addition we applied for funds from Merial and the Armour-Lewis Foundation and received awards from both. We continue to seek ways to fund and expand our program as the NIH funds only cover a small portion of total program costs.

In March we celebrated the Vet Student Research Day with a keynote speaker, talks by VMD-PhD and VMD students, and numerous posters. Winners are listed inside this newsletter. The day culminated with Phi Zeta Honor Society inductions and a reception. We also have an impressive list of accomplishments by our alumni to report, and we present an update on current student publications and awards.

We are very proud of our alumni and current students, and hope that many of you will visit Penn during the coming year.

Wishing you the best in 2013,
Michael Atchison, Ph.D.
Director, VMD-PhD Program



Alumni are Online!

Check out:

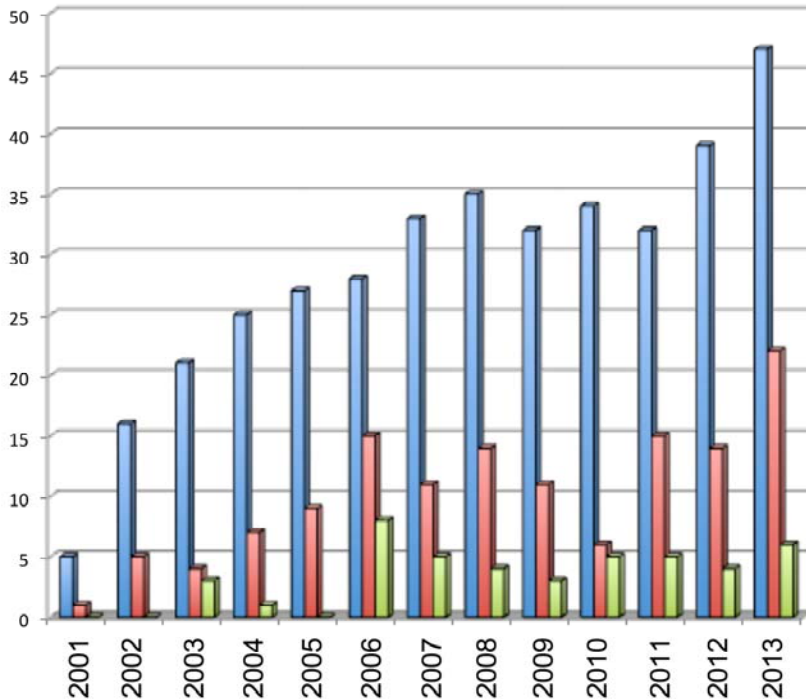
www.vet.upenn.edu/Research/ResearchTrainingOpportunities/VMDPhDProgram/OurAlumni/

Find your profile, and send us feedback!

Admissions Update

We had a spectacular admissions season this year. We had a record number of 47 applications to the program, and invited 9 students for interviews. Choosing the best out of this impressive group was challenging, but we ultimately made four offers. All four students have accepted giving us the largest incoming class in five years. Below is a graph of our applicant pool over the past 12 years. The trend is clearly upward and hopefully is partly due to our continuous work at advertising the program and emphasizing the benefits of VMD-PhD training.

VMD-PhD Applicant Numbers



VMD-PhD application numbers over the past 12 years. Blue bars are total applicant numbers, red bars are infectious disease-related applicants, and yellow bars are underrepresented minority applicants (defined by NIH).

The quality of our applicant pool is outstanding. Applicant averages for the past five years are GPA of 3.65 and GRE scores of 575 (V) and 700 (Q). During the same time our matriculating students averaged GPA of 3.75 and GRE scores of 631 (V) and 750 (Q). Only 9% of applicants have received offers.

Incoming Students for Fall 2013

We are very pleased with our incoming crew of students. Their names and undergraduate institutions are below. We will provide more information about them in our Fall newsletter.

Name	Graduate Group	Undergraduate Institution
Bailey Baumann	Neuroscience	Bryn Mawr College
Amanda Samuels	Cell and Molecular Biology	Colgate University
Gregory Sousa	Neuroscience	Bates College
Sherry Xie	Epidemiology/Biostats	University of Chicago

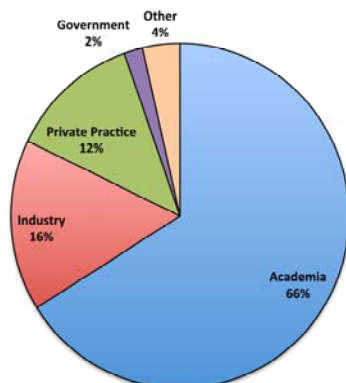
The Year of the Training Grant

As mentioned above in the cover letter, this has been an intense year of training grant writing. Amazingly we've had all three NIH training grants renewed with spectacular scores! Submitting these huge training grants to NIH was an exhausting process for coordinator Yong No and myself. We are especially proud of the score on our T32 for VMD-PhD training in infectious disease related research. A bit of bragging: the study section summary is below.

RESUME AND SUMMARY OF DISCUSSION: This exceptional renewal application for a Ruth L. Kirschstein National Research Service Award (NRSA) Institutional Research Training Grant (T32) entitled "VMD-PhD training in infectious disease-related research" was submitted by University Of Pennsylvania, Philadelphia, PA, Dr. Michael Atchison, PD. The application requested support for years 6 through 10. The program proposed to support predoctoral VMD (*Veterinariae Medicinae Doctoris*) /PhD trainees, with PhD training through Biomedical Graduate Groups for Microbiology, Virology, and Parasitology; Immunology; or Epidemiology and Biostatistics. As they discussed the application, reviewers highlighted principal strengths. Reviewers noted the program as one of the strongest in the nation and highlighted the exceptional need for veterinarian researchers. Reviewers noted the high retention of trainees in research and the program, as well as their high productivity, which demonstrated the program's strong selection criteria. They also discussed the exceptionally strong feeder programs with a very large number of extremely qualified applicants. Trainers were noted for the exceptional quality of their research and mentoring records. A high level of value was added for the trainees through didactic courses, retreats, and visits to outside research facilities. The institutional commitment to veterinary training was seen as exceptional, and reviewers noted veterinary students are supported similarly to the institution's medical students when pursuing research. The high number of underrepresented minority trainers compared to the national average was considered helpful to foster training of all students. Reviewers saw administrative forethought and pragmatism in the PD's decision not to propose to increase the number of trainees. Weaknesses were considered essentially absent and included the relatively low number of trainers with DVM/VMD degrees and the lack of sufficient narrative about plans for trainers with expiring funding, which was allayed by the large pool of trainers. There were also concerns about the training environment given that females comprised 85% of trainees but only 24% of trainers, but this was allayed due to the program's inclusion of females on the steering committee. Based upon the evaluation of scientific and technical merit, this application was received an Overall Impact/Priority score of 10. The committee recommended supporting 4 positions for VMD-PhD predoctoral trainees for each of five years.

OK, I know that was bragging. But we were really bragging a lot about our applicant pool, current students, faculty trainers and our alumni. Below is a graph of where our alumni go after completing the VMD-PhD program. About 88% are in research careers. I think that data is as good as any in the nation. Thus, our alumni (ie, you) are the biggest selling point for renewing these T32 grants. Thanks for all your work! You really make it an easy sale for training grant renewals.

All VMD-PhD Alumni After Post-Graduate Training



Current positions of VMD-PhD alumni (excluding those in postgraduate residency and postdoctoral positions).

The 2013 Phi Zeta Student Research Day, March 25, 2013

The Phi Zeta Student Research day as usual included a keynote speaker, talks by VMD-PhD students, talks by VMD students, and student posters. Speakers were chosen from a large pool of abstracts and winners amongst our current VMD-PhD students are listed below.



KEYNOTE ADDRESS

Speaker: Dr. Mark Haskins, VMD, PhD, Professor of Pathology, School of Veterinary Medicine, University of Pennsylvania

“Genetic Disease: Translational Medicine—Yesterday, Today, Tomorrow”



VMD-PhD student presentation winners were:

First Place: Abigail Shearin

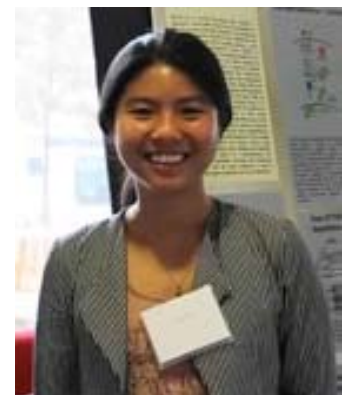
Advisor: Morris J. Birnbaum, MD., PhD Willard and Rhoda Ware Professor of Diabetes and Metabolic Diseases, Department of Medicine, Perelman School of Medicine, University of Pennsylvania.

Title: *Metabolic changes in mice with adipocyte specific deletion of Akt.*

Second Place: Feini (Sylvia) Qu

Advisor: Robert Mauck, Ph.D., Department of Orthopedic Surgery, Perelman School of Medicine, University of Pennsylvania.

Title: *Improved meniscus integration via controlled degradation of the interface.*





Third Place: Robyn Allen

Advisor: Brett Kaufman, PhD, Department of Animal Biology, School of Veterinary Medicine, University of Pennsylvania.

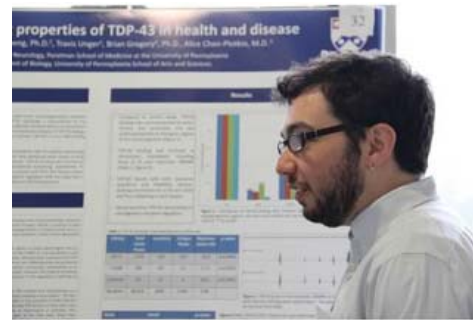
Title: *Determining the influence of mtDNA content on cardiomyocyte survival during ischemia reperfusion injury.*

Poster Winners

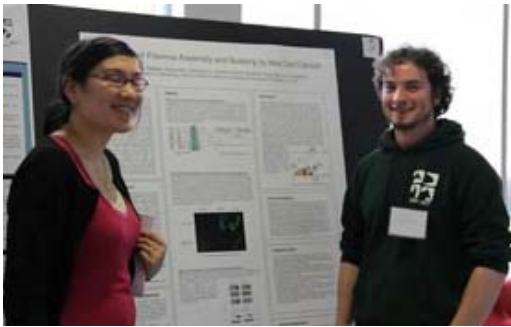
Second Place: Pierce Nathanson

Advisor: Alice Chen-Plotkin, MD, Department of Neurology, Perelman School of Medicine, University of Pennsylvania.

Title: *The DNA-binding properties of TDP-43 in health and disease.*



At the Posters:



Erika Lin-Hendel and Jonathan Madara



Richard Jimenez



Elinor Willis



Samra Zelman

Graduating VMD-PHD Students



Natalie Miller
CAMB Microbiology, Virology, and Parasitology
Mentor: Dr. David Roos

Natalie's thesis is entitled "Toxoplasma gondii Diversity: from seroprevalence in (multiple) host species to genotypic analysis of field isolates."

Natalie will be getting married in June and will stay in Philadelphia one more year while her fiancé, Brian, finishes his PhD. Her long term goals are to work in public health and food animal health perhaps in a university setting.



Spencer Shelly
CAMB Microbiology, Virology, and Parasitology
Mentors: Drs. Roslyn Eisenberg and Gary Cohen

Spencer's thesis is titled "Functional analysis of the Herpes Simplex Virus glycoprotein B membrane proximal domain." After graduation, Spencer plans to gain clinical experience in general or emergency practice. In the future, he is interested in pursuing a career in public health aspects of infectious disease and plans to work at a government agency such as the Centers for Disease Control.

Alumni Awards, Accomplishments, and Honors

Congratulations go out to all of our alumni listed below



Duncan Ferguson, VMD, PhD, (1982) DACVIM, DACVCP, Professor and Head, Department of Comparative Biosciences, College of Veterinary Medicine at Illinois.

Dr. Ferguson received a Fulbright Teaching/Research Fellowship to go on sabbatical to Hannover, Germany in Fall, 2013.

Stephanie J. Murphy, VMD, PhD, (1996) DACLAM, Associate Professor, Director, APOM Core Animal Laboratories and Training, Associate Director, OHSU Research Center for Gender Based Medicine, Oregon Health & Science University.

Dr. Murphy was awarded the American Society of Laboratory Animal Practitioners (ASLAP) Excellence in Research Award for 2013. She will be giving a lecture on her work at the 2013 AVMA meeting in July.



Katherine (Masek) Hammerman, VMD, PhD, (2006) Principal Scientist and Pathologist, Pfizer Inc., Cambridge, MA

Kate and her husband added a baby girl to their family on Dec 22, 2012! Allison Olivia is their second child, with three year old big brother Nathan being the first.

John L. Robertson, VMD, PhD, (1977) Professor, Department of Basic Science, Virginia Tech School of Medicine and Research Institute.

Dr. Robertson retired on January 31, 2013 from VMRCVM and began work on February 1, 2013 (career#3!) as a Professor of Biomedical Engineering in the Virginia Tech-Wake Forest School of Biomedical Engineering and Science.





Jessica Bertout, VMD, PhD, (2010) Postdoctoral Fellow, Fred Hutchinson Cancer Research Center

Dr. Bertout was awarded the 2013 Marsha Rivkin Center for Ovarian Cancer Research Gilman Family Scientific Scholar Award for a project entitled: “*High-Resolution Detection of Somatic Ovarian Cancer Mutations in Bodily Fluids*”. The award is for one year and \$60,000.

Bruce Smith VMD, PhD (1993) Professor of Pathology and Scientist, Scott-Ritchey Research Center, College of Veterinary Medicine, Auburn University

Dr. Smith just published a new book chapter: Canine breast cancer and lymphoma as models in cancer research, Lutful Kabir, F, O’Neill, AM, Smith, BF, Bird, RC, in *Animal Models of Cancer Research*, SA Murray ed., March 2013, pp. 69-86. In addition, he was awarded a two year \$118,848 American Kennel Club-Canine Health Foundation grant on conditionally replicative adenovirus therapy for canine osteosarcoma.



Todd Stochlic, VMD, PhD Postdoctoral Associate, Fox Chase Cancer Center VMD/PhD (2008)

Dr. Stochlic has a new publication:
Hartman, T.R., **Stochlic, T.I.**, Ji, Y., Zinshteyn, D., and O’Reilly, A.M. (2013) Diet controls Drosophila follicle stem cell proliferation via Hedgehog sequestration and release. □ *J. Cell Biol.* (2013, in press). □ □



Sarah L. Ralston, VMD, PhD, (1982) Professor, Department of Animal Sciences, Rutgers University.

Dr. Ralston has loads of new stuff!
First, she was promoted to Professor at Rutgers University!
Second she was awarded a 3 month Fulbright Scholars without Borders award for Spring 2014 to spend at the Universidade Federal de Minas Gerais, in Belo Horizonte, Minas Gerais, Brazil to teach Equine nutrition and to carry out research.
Third, she has LOADS of new publications and invited talks following on the next page.

Sarah Ralston, continuedBook Chapters:

1. **Ralston SL**, Harris P. Old horses, including those with pituitary dysfunction. In: *Equine Applied and Clinical Nutrition*, Geor R, Harris P, Coenen M (eds), Elsevier Press, pp. 2013.
2. Tennant-Brown BS, Epstein KL, **Ralston SL**. Nutrition. In: Southwood I (ed) *Practical Guide to Equine Colic*, First Edition. John Wiley & Sons, Inc. Published 2013 by John Wiley & Sons, Inc., pp. 301-316, 2012

Refereed Publications:

1. Pappalardo L, Pelczer I, **Ralston SL**. Detection of metabolic differences between draft-cross and Mustang horses by metabonomic analyses. *J. Equine Vet Sci. In Press, 2013*
2. **Ralston SL**. Rutgers Young Horse Teaching and Research Program: Undergraduate Student outcomes. *J. Anim Sci.* 90:4671-4676 (2012) PMID: 22767090.
<http://jas.fass.org/content/early/2012/07/05/jas.2012-5460.long>.
3. **Ralston SL**, Molnar A. Rutgers Young Horse Teaching and Research Program: sustainability of taking a risk with "at risk" horses. *J. Anim Sci.* 90:4777-4670 (2012) PMID: 22767092.
<http://jas.fass.org/content/early/2012/07/05/jas.2012-5459.long>
4. **Ralston SL**, Stives, M. Supplementation of ascorbic acid in weanling horses following prolonged transportation. *Animals* 2, 184-194 (Special issue: Monogastric Animal Nutrition and Metabolism)
<http://www.mdpi.com/2076-2615/2/2/184/>, 2012.
5. Otto J, **Ralston SL**. Disseminating equine research and teaching videos through the institutional repository: a collaboration. *Journal of Agricultural and Food Information* 13(1):64-77, 2012.
<http://www.tandfonline.com/doi/abs/10.1080/10496505.2012.638247>

Invited presentations at conferences:

1. ***Ralston SL**. Forage-based Total Mixed Rations: An economic alternative? Proc American College of Veterinary Internal Medicine Forum, New Orleans, LA, Paper #196, pp 117-118, 2012.
2. ***Ralston SL**, Pappalardo L, Pelczer I, Spears PF, Chen Y. Metabonomic Studies: Potential for Identification and Prevention of OCD in foals. Proc American College of Veterinary Internal Medicine Forum, New Orleans, LA, June, 2012. Paper #195, pp 114-1116, 2012.
3. ***Ralston, SL**. Feeding the Post Colic Horse. Proc. California Animal Nutrition Conference. May, 2012, Fresno, CA, pp 141-144.

We want to know....

New position, promotion, patent, publication, life event, etc.? Please share your news! vmstp@vet.upenn.edu

Student Publications, Honors, Awards

Awards

Jeffrey Carey received the Ed Hiestand Memorial Veterinary Student Scholarship from the National Wildlife Rehabilitators Association this year and presented a talk ("Etiologies of Nodular Skin Lesions in Passerines") at the NWRA Symposium in Portland, OR. The associated paper will appear in the conference proceedings.

Samra Zelman won a Keystone Symposia Scholarship (Office of AIDS Research, National Institutes of Health Scholarship), which is a merit-based scholarship that awards funding for travel to Keystone Symposia. Katie presented a poster on HIV Vaccines X2 and her abstract was entitled *In vitro Correlates of Attenuation for an SIVmac239 Variant Containing A Mutation of Tyr-Dependent Trafficking Signal in the Env Cytoplasmic Tail*.

Irene Bukh is engaged to be married! Proof is supplied below with a photo of Dave, her fiancé, proposing.



Publications (2012-2013)

Artim, S.C., Mendrola, J.M., and Lemmon, M.A. Assessing the range of kinase autoinhibition mechanism in the insulin receptor family. *Biochem. J.* 448:213-220 (2012)

Vonderheide, R.H., Bajor, D.L., Winograd, R., **Evans, R.A.**, Bayne, L.J., and Beatty, G.L. CD40 immunotherapy for pancreatic cancer. *Cancer Immunol. Immunother.* 62:949-954 (2013). doi: 10.1007/s00262-013-1427-5.

Qu, F., Lin, J.M., Esterhai, J.L., Fisher, M.B., and Mauck, R.L. Biomaterial-mediated delivery of degradative enzymes to improve meniscus integration and repair. *Acta Biomater.* 9:6393-6402 (2013) doi: 10.1016/j.actbio.2013.01.016. Epub 2013 Jan 29.

Shearin, A.L., Hedan, B., Cadieu, E., Erich, S.A., Schmidt, E.V., Faden, D.L., Cullen, J., Abadie, J., Kwon, E.M., Gröne, A., Devauchelle, P., Rimbault, M., Karyadi, D.M., Lynch, M., Galibert, F., Breen, M., Rutteman, G.R., André, C., Parker, H.G., and Ostrander, E.A. The MTAP-CDKN2A locus confers susceptibility to a naturally occurring canine cancer. *Cancer Epidemiol Biomarkers Prev.* 21:1019-1027 (2012) doi: 10.1158/1055-9965.EPI-12-0190-T. Epub 2012 May 23.

Brinkley, C. 2013 Avenues into the food system: a review of scholarly food system research. *International Planning Studies*.

Brinkley, C. Decoupled: successful planning policies in countries that have reduced per capita GHG emissions with continued economic growth. *Environment and Planning: C*. (In press)

Brinkley, C. (2012) "Evaluating the Benefits of Peri-urban Agriculture." *Journal of Planning Literature*. 0885412211435172, first published on February 10, 2012

Nakamoto, M., Moy R.H., Xu J., Bambina S., Yasunaga A., **Shelly S.S.**, Gold B., Cherry S. Virus Recognition by Toll-7 Activates Antiviral Autophagy in *Drosophila*. *Immunity* 36:658-667 (2012).

Redding, L., Chetri, D.K., Lamichhane, D.K., Chay, Y., Aldinger, L., Ferguson, J. Animal production systems of small farms in the Kaski district of Nepal. *Tropical Animal Health and Production* 44:1605-1613 (2012) Online First™, 6 March 2012, DOI:10.1007/s11250-012-0114-4. PMID: 22392548

Perkins, G.A., den Bakker, H.C. Burton, A.J, Erb, H.N., McDonough S.P., McDonough, P.L., Parker, J., **Rosenthal, R.L.**, Wiedmann, M., Dowd, S.E., Simpson, K.W. (2012). Equine stomachs harbor an abundant and diverse mucosal microbiota. *Appl Environ Microbiol*, 78(8):2522-2532.

Upcoming Events

Trip to NIH: June 13

Merial-NIH Veterinary Scholars Symposium: August 1-4

Trip to Philadelphia Science Center: TBD

Welcome Night Out for Incoming Students: TBD

Contact Us

Michael Atchison, Ph.D.
Director, VMD/PhD Program
215-898-6428
atchison@vet.upenn.edu

Yong No
Coordinator, VMD/PhD Program
215-898-3800
yongno@vet.upenn.edu