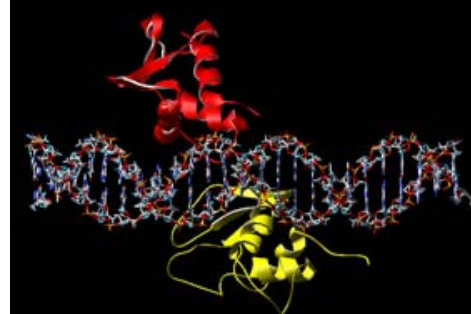


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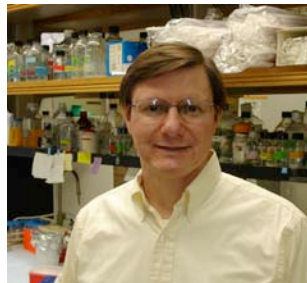
Dear VMD-PhD Alumni,

Hello for the Spring of 2012! This newsletter is running a little behind schedule this year because much has been happening at Penn. We've submitted our MSTP grant competitive renewal and are preparing for a June NIH site-visit. We've also submitted the competitive renewal of our NIH T35 grant that supports the summer research program and will submit in September the NIH T32 grant that supports VMD-PhD training in infectious disease-related research. We've gone through another admissions season and have two outstanding new students coming into the program in the Fall. Incoming students will be highlighted in the Fall newsletter. Significantly, we are also preparing for hosting an International Symposium to honor Dr. Ralph Brinster as we celebrate his 50 years of ground-breaking research at Penn-Vet, and his recent award of the National Medal of Science. This symposium has an amazing line-up of speakers. You will learn more about the Symposium, how to register, and the speaker list in this newsletter.

We also celebrated the Vet Student Research Day in March with talks and posters by our students. Winners are listed below. We also have an impressive list of accomplishments by our alumni to report, and we present an update on current student publications. Importantly, a \$500,000 match has been identified for the Mindy Heyer VMD-PhD Endowment so the fund now stands at \$1 million. This is a tremendous accomplishment that marks the beginning of gaining new funding sources that are of great importance. The economic downturn has greatly impacted the School of Veterinary Medicine and new funds are desperately needed to maintain the VMD-PhD program in terms of excellence and numbers.

We are proud of our alumni and current students, and hope that we will be able to see many of you at the Brinster Symposium in late August.

Wishing you the best in 2012,
Michael Atchison, Ph.D.
Director, VMD-PhD Program

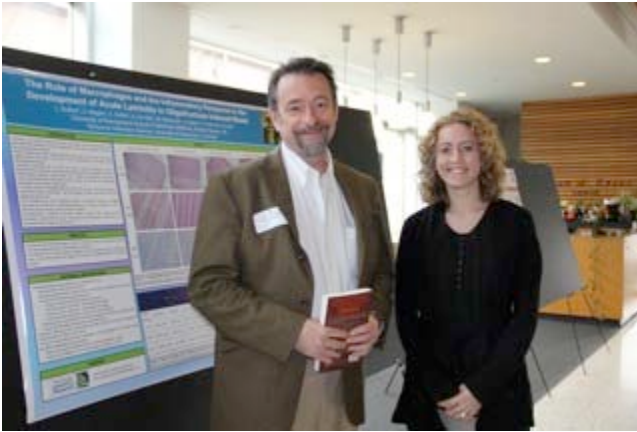
**Alumni are Online!**

Check out:

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

Find your profile, and send us feedback!

The 2012 Phi Zeta Student Research Day, March 22, 2012



Keynote Speaker: Paul McKellips

“Animal Rights Extremism and Public Opinion About Lab Animal Research”

Paul McKellips is from the National Association for Biomedical Research/Foundation for Biomedical Research. Mr. McKellips presented a lively talk on animal rights extremism. His presentation, though somewhat polarizing, led to lively discussion.

VMD-PhD students submitted abstracts of their research and were selected for either oral or poster presentations. A panel of judges evaluated the talks and posters for prizes

This years' VMD-PhD student presentation winners were:



First Place VMD-PhD Award: Jeffrey Carey

Advisor: Mark Goulian, Department of Biology and Dept of Physics and Astronomy, University of Pennsylvania.

Title: Suppression of PhoQ/PhoP-Mediated Bacterial Cell Filamentation by the Membrane Peptide MgrB

Second Place VMD-PhD Award: Richard Jimenez

Advisor: Richard M. Schultz, Ph.D., Associate Dean for the Natural Sciences, University of Pennsylvania.

Title: *The Importance and Contribution of Translationally Recruited Maternal Transcripts Encoding Epigenetic Factors to Gene Expression Reprogramming in the Oocyte to Embryo Transition in Mice*



Third Place VMD-PhD Award: Brittany Gregory

Advisor: Vivian G. Cheung, Departments of Pediatrics & Genetics, University of Pennsylvania School of Medicine, and Howard Hughes Medical Institute

Title: *Polymorphic Regulation of Gene Expression by the Histone Demethylase KDM4C*

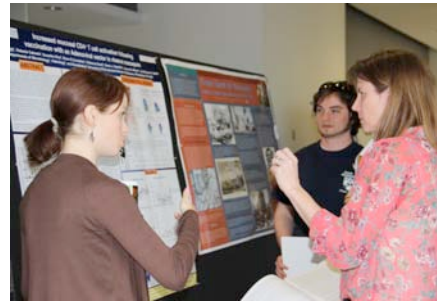


Poster Winners

Second Place: Irene Bukh

Advisor: Michael Betts, Department of Microbiology, Perelman School of Medicine.

Title: *Increased mucosal CD4+ T Cell Activation Following Vaccination with an Adenovirus Vector in Rhesus Macaques*



Third Place: Catherine Brinkley

Advisor: Eugenie Birch

Title: *From Farm to Nuisance: Animal Agriculture in Colonial American Cities*

Brinster Symposium

Symposium to Honor Dr. Ralph Brinster

August 24-25, 2012

This year marks over 50 years of Dr. Ralph Brinster's association with the University of Pennsylvania, starting as an instructor in 1960, and as faculty member since 1965. As you know, Dr. Brinster was the first Director of the VMD-PhD Program, initiating the program in 1969 and serving as Director for 14 years. Ralph's contributions to the field of reproductive biology, transgenesis and stem cell biology are monumental and unique. Over the past 50 years he has consistently led the field making many pivotal contributions. He has won many National and International awards including the March of Dimes Prize in Developmental Biology, The Bower Award and Prize of Achievement, Pioneer in Reproduction Research Award from NICHD, Ernst W. Bertner Award from the University of Texas, the Wolfe Prize in Medicine, the Gairdner Foundation International Award, and recently, the National Medal of Science. He is the first Veterinarian to win this highly coveted award.



As a fitting tribute to Ralph's scientific accomplishments and leadership, his colleagues, former students and post-doctoral fellows, are organizing a two-day symposium to be held this summer, August 24-25, 2012. A number of national and international leaders, and Ralph's former students and post-doctoral trainees who are leading scientists in various academic institutions, will speak. Speakers include members of the National Academy of Sciences (including our own alumnus, Jamie Thomson) as well as a Nobel Laureate (Penn alumnus Michael S. Brown). The symposium will be held in the Hill Pavilion at the Penn School of Veterinary Medicine.

Although the Symposium is free, registration is required. The registration page can be found at the link below: <http://www.vet.upenn.edu/CalendarandEvents/BrinsterSymposium/tabid/2384/Default.aspx>
I hope to see many VMD-PhD alumni at this historic event. The preliminary schedule for the Symposium is below.

Preliminary Symposium Schedule
Friday, August 24, 2012

Session I (Morning)
Richard Palmiter
Richard Behringer

Session II (Morning)
Rudolph Jaenisch
Hans Scholer

Session III (Afternoon)
John Gurdon
Robert Hammer

Session IV (Afternoon)
Ina Dobrinski
Ken Zaret

Keynote Address
Michael S. Brown, Keynote Address
Vice Provost for Research, Steve Fluharty
Dean, Joan Hendricks
Ralph Brinster

End of Day Reception

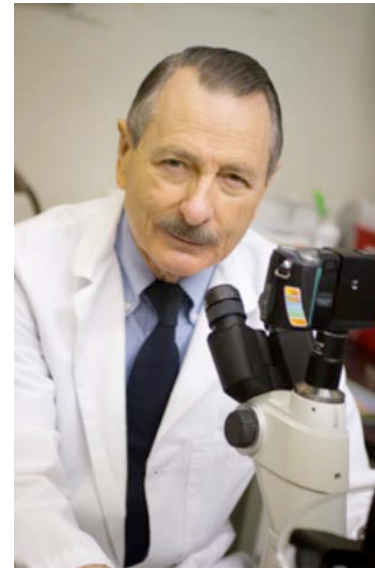
Saturday, August 25, 2012

Session I (Morning)
Jamie Thomson
Kathy High

Session II (Morning)
Richard Schultz
Alan Bradley

Afternoon Session III (Afternoon)
Takashi Shinohara
Janet Rossant

Concluding Remarks
Ralph Brinster



The Brinster Family: Clayton, Kristen, Ralph, Elaine, Lauren, and Derek at the White House Medal of Science Gala.



Graduating VMD-PHD Students



Catrina King
CAMB Cancer Biology
Mentor: Dr. Anil Rustgi

Catrina's thesis entitled "LIN28B, let-7, and the molecular pathogenesis of colon cancer" explored the role of proteins that regulate microRNAs in colon tumors, and suggests that these factors may serve as prognostic markers for humans diagnosed with colon cancer. After graduation, Catrina will begin a residency in laboratory animal medicine at Columbia University on July 1, 2012. In addition to becoming a laboratory animal veterinarian, Catrina aspires to perform research in bioethics while continuing to develop herself as a writer.

Gregory Rak
CAMB Cell Biology and Physiology
Mentor: Dr. Jordan Orange

Gregory Rak completed his thesis work "Distribution of actin and access of lytic granules at the natural killer cell immunological synapse" with Jordan Orange at the Children's Hospital of Philadelphia. He will complete his clinical year in September and plans to begin an immunology focused postdoctoral fellowship at the University of Pennsylvania School of Medicine in the Fall. At this time he is open to research careers in both academia and industry.



Spencer Shelly
CAMB Microbiology, Virology, and Parasitology
Mentor: 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



Kim Blackwell Professor, George Mason University VMD/PhD (1988)

A new publication:

Oliveira, R.F., Kim, M., **Blackwell, K.T.** Subcellular Location of PKA Controls Striatal Plasticity: Stochastic Simulations in Spiny Dendrites. PLoS Comput Biol. 2012 Feb;8(2):e1002383. Epub 2012 Feb 9.



Michelle Cook Sanger VMD/PhD (2011)

Dr. Cook Sanger is now at the Fred Hutchinson Cancer Research Center as a Postdoctoral Research Fellow as of August 2011. Dr. Cook Sanger is involved in translational research that seeks to identify novel therapies for pediatric brain tumors. One of her projects is being performed in collaboration with veterinary oncologists at Washington State University. They will be testing a new medical device in canine lymphoma patients before entering into human phase I trials. She was formerly a resident in veterinary clinical pharmacology at the University of Illinois Urbana-Champaign.

Robert Kieval VMD/PhD (1991) Executive Vice President and Chief Technology Officer, CVRx, Inc

Dr. Kieval was recently awarded his 43rd US patent.



Doug Sheffield Vice President, Clinical Research, NeuroVista Corporation VMD/PhD (1977)



Dr. Sheffield has begun work on the U01 translational research grant entitled “Neurophysiologically Based Responsive Pharmacotherapy for Epilepsy” utilizing a canine model of epilepsy which includes NeuroVista, U Penn, Mayo Clinic Rochester, and U MN. NeuroVista will be developing algorithms that predict when seizures are likely to occur (or not), provide and maintain preclinical devices for the study, provide clinical engineering support for implant surgery, and annotate the EEG records for seizure events.

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

As of Jan 1 2012, Dr. Smith has been appointed Director of the Auburn University Research Initiative in Cancer (AURIC). This new program is aimed at accelerating cancer innovation from the laboratory to the clinic. AURIC embodies “One Medicine” – the concept that sees human and animal health as a single field where discoveries in one species advances health in both species. A \$1 million appropriation from the state of Alabama will be used to help support cancer research by Auburn University faculty in a wide range of cancer-related areas.





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

A new publication:

Identification of neuronal substrates implicates Pak5 in synaptic vesicle trafficking. **Strochlic, T.I.**, Concilio, S., Viaud, J., Eberwine, R.A., Wong, L.E., Minden, A., Turk, B.E., Plomann, M., Peterson, J.R. Proc Natl Acad Sci U S A. 2012 Mar 13;109(11):4116-21. Epub 2012 Feb 27

We want to know....

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

Student Publications

2011-2012

King, C., Wang, L., Winograd, R., Madison, B., Mongroo, P., Johnstone, C. and Rustgi, A.K. LIN28B fosters colon cancer migration, invasion, and transformation through let-7 dependent and independent mechanisms. Oncogene. 2011 30:4185-419 (2011) doi: 10.1038/onc.2011.131. PMID: 21625210

King, C.E., Cuatrecasas, M., Castells, A., Sepulveda, A.R., Lee, J.S. and Rustgi, A.K. LIN28B promotes colon cancer progression and metastasis. Cancer Res. 71:4260-4268 (2011) PMID: 21512136

Mongroo, P.S., Noubissi, F.K., Cuatrecasas, M., Kalabis, J., **King, C.E.**, Johnstone, C.N., Bowser, M.J., Castells, A., Spiegelman, V.S. and Rustgi, A.K. IMP-1 Displays Cross-Talk with K-Ras and Modulates Colon Cancer Cell Survival through the Novel Proapoptotic Protein CYFIP2. Cancer Res. 71:2172-2182 (2011) PMID: 21252116

Rak, G.D., Mace E.M., Banerjee, P.P., Svitkina, T., and Orange, J.S. Natural killer lytic granule secretion occurs through a pervasive actin network at the immune synapse PLoS Biol., 9(9): e1001151 (2011)

Orange, J.S., Roy-Ghanta, S., Mace, E.M., Maru, S., **Rak, G.D.**, Sanborn, K.B., Fasth, A., Saltzman, R., Paisley, A., Monaco-Shawver, L., Banerjee, P.P. and Pandey, R. IL-2 induces a WAVE2-dependent pathway for actin reorganization that enables WASp-independent human NK cell function. J. Clin. Invest. 2011 121:1535-1548 (2011) doi: 10.1172/JCI44862. PMID: 21383498

Sanborn, K.B., Mace, E.M., **Rak, G.D.**, Difeo, A., Martignetti, J.A., Pecci, A., Bussel, J.B., Favier, R., Orange, J.S. Phosphorylation of the myosin IIA tailpiece regulates single myosin IIA molecule association with lytic granules to promote NK-cell cytotoxicity. Blood 118:5862-5871 (2011) PMID 22123909.

Crawford, L.K., Craige, C.P., and Beck, S.G. Glutamatergic input is selectively increased in dorsal raphe subfield 5-HT neurons: role of morphology, topography and selective innervation. European Journal of Neuroscience 4:1794-806 (2011). PMID: 22098248

Yadav, P.N., Abbas, A.I., Farrell, M.S., Setola, V., Sciaky, N., Huang, X.-P., Kroeze, W.K., **Crawford, L.K.**, Piel, D.A., Keiser, M.J., Irwin, J.J., Shoichet, B.K., Deneris, E.S., Gingrich, J., Beck, S.G., and Roth, B.L. The www.vet.upenn.edu/research/programs/vmstp

Presynaptic Component of the Serotonergic System is Required for Clozapine's Efficacy. *Neuropsychopharmacology* 36(3):638-51 (2011)

Brisson, D., **Brinkley, C.**, Humphrey, P.T., Kemps, B.D., Ostfeld, R.S., It Takes a Community to Raise the Prevalence of a Zoonotic Pathogen. *Interdiscip. Perspect. Infect. Dis.* 2011; 2011: 741406. Published online 2011 November 21. doi: 10.1155/2011/741406 PMID:PMC3228346

Brinkley, C. Sustainability unpacked: Food, energy and water for resilient environments and societies. *J. Plan. Ed. Res.* 31:473-475 (2011).

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).

Khan, A.*, **Miller, N.***, Roos, D.S., Dubey, J.P., Ajzenberg, D., Dardé, M.L., Ajioka, J.W., Rosenthal, B., Sibley, L.D. 2011, "A monomorphic haplotype of chromosome Ia is associated with widespread success in clonal and nonclonal populations of *Toxoplasma gondii*," *MBio*, Nov 8;2(6):e00228-11. doi: 10.1128/mBio.00228-11. (* indicates co-first authors)

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, Online First™*, 6 March 2012, DOI:10.1007/s11250-012-0114-4

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

NIH MSTP Grant Site Visit: June 12, 2012
Trip to NIH: June 20
Trip to Philadelphia Science Center: July 25
Meril-NIH Veterinary Scholars Symposium: August 2-5
Brinster Symposium: August 24-25, 2012
NIH T32 grant due: September 25, 2012
Welcome Night Out for Incoming Students: TBD

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