Penn Vet's Ralph Brinster receives the National Medal of Science

Research at Penn Vet
The University of Pennsylvania School of Veterinary Medicine gained national attention once again for achievements in research. President Barack Obama awarded Penn Vet's Ralph Brinster with the National Medal of Science. A two-day symposium in honor of Dr. Brinster is planned for August 24-25, 2012. Faculty and veterinary students continue to make progress in a broad range of studies from veterinary therapies for companion animals to translational medicine advancing animal and human health. Penn Vet's chief of surgery, David Holt (page 6) collaborates with Sunil Singhal in the School of Medicine by testing an imaging system on dogs with soft tissue tumors, breast cancer and lung cancer. Charles Vite (page 6), Penn Vet neurologist, investigates a new drug in the treatment of Niemann-Pick type C in children. Research and discovery at Penn Vet continues to benefit not only the animals served, but also extends into the field of human medicine.

On Friday, October 21, 2011, President Barack Obama presented the National Medal of Science to Ralph Brinster, V.M.D., Ph.D., the Richard King Mellon Professor of Reproductive Physiology in the Department of Animal Biology at Penn’s School of Veterinary Medicine. The ceremony, held in the East Room of the White House in Washington DC, celebrated seven eminent winners of the nation's highest honor for inventions and innovation in science and engineering. Dr. Brinster won the medal for his fundamental contributions to the development and use of transgenic mice. His research has provided experimental foundations and inspiration for broad progress in germ line genetic modification in a range of species, revolutionizing biology, medicine and agriculture. Dr. Brinster is the first veterinarian and the eighth Penn faculty member to be honored with this award since its inception almost 50 years ago.
WELCOME WISTAR INVESTIGATORS

In early 2012 researchers from the Wistar Institute will move into laboratory space in Hill Pavilion and Rosenthal Building while renovations of their facilities are completed. Some Wistar core facilities, such as the flow cytometry, histotechnology, protein expression, and genomics cores, already moved into Rosenthal Building in the fall of 2011. Many of the Wistar faculty have collaborated with their counterparts at Penn Vet over the years.

Drs. Andrew Caton, José Conejo-Garcia, Jan Erikson, Gundi Ertl, Scott Hensley, and Hui Hu are preparing for their move in to Hill Pavilion. Wistar is renowned for their work in the development of vaccines for rabies, rubella, and rotavirus, the identification of genes associated with breast, lung, and prostate cancer, and the development of monoclonal antibodies and other significant research technologies and tools.

Andrew J. Caton, Ph.D., a Professor, Immunology Program, aims to illuminate the mechanisms that govern the ability of the immune system to react against various pathogens. In striving to define how these key mechanisms are regulated, the Caton laboratory also seeks to understand the failure of these underlying mechanisms in autoimmune diseases such as rheumatoid arthritis and lupus.

The goal of the Caton laboratory is to define how B cells and T cells, lymphocytes that recognize and eliminate infecting microorganisms while remaining neutral toward the host, are regulated, and to understand the changes in immune response that can lead to autoimmune diseases such as rheumatoid arthritis and lupus, and can also play an important role in cancer.

José R. Conejo-Garcia, M.D., Ph.D., an Associate Professor in the Wistar Immunology Program, is primarily focused on understanding how certain white blood cells are co-opted by ovarian tumors to aid in their survival. These “vascular leukocytes,” defined by Conejo-Garcia and his colleagues in 2005, stimulate growth of blood vessels and also serve to regulate the immune system. Although vascular leukocytes can promote tumor progression by increasing nutrient flow and inducing tolerance to the tumor, under the right set of activating signals, the same cells can be transformed to drive anti-tumor immunity. Conejo-Garcia and his team are devising strategies to create new therapies that will utilize the patient’s own immune systems to elicit protective anti-tumor immunity against – and prevent recurrence of – ovarian cancer.

Jan Erikson, Ph.D., a Professor in the Wistar Immunology Program is interested in the signals that guide the trajectory of immune cells along distinct developmental paths that result in either short-term or long-lasting immune response formation. Her research is critically important to a better understanding of autoimmune and infectious disease, and vaccine development.

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Dr. Erikson is investigating the interplay among different types of immune cells that result in immune system activation or suppression.

Most recently, Erikson’s laboratory has begun research on the immune response to influenza virus with the ultimate aim of developing a vaccine. Among her current studies is an investigation into how the B cell response to influenza virus is induced and regulated with the goal of identifying critical interactions responsible for effective immunity.

**Hildegund C.J. Ertl, M.D.,** the Caspar Wistar Professor in Vaccine Research

Professor and Program Leader of the Immunology Program centers her work on developing vaccines for an array of diseases and conditions—including AIDS and some forms of cancer—not typically considered to be treated using this approach. These vaccines aim to protect against future infections and look to create new therapies for diseases already affecting people. Dr. Ertl’s projects fall into six broad categories: HIV vaccines, human papilloma virus vaccines, rabies vaccine models, universal influenza vaccine, vaccines to Epstein-Barr virus, and immune response associated with gene therapy using adeno-associated viral vectors.

**Scott E. Hensley, Ph.D.,** is an Assistant Professor in Wistar’s Immunology Program. Dr. Hensley’s goal is to combat seasonal influenza, which contributes to many annual deaths across the world. His group uses basic virology and immunology techniques to understand how seasonal influenza eludes our immune system, making an annual influenza vaccine necessary. Hensley and his colleagues at The Wistar Institute Vaccine Center are also in pursuit of a “universal vaccine” for seasonal influenza, a single vaccine that will enable people to forgo an annual flu shot. In particular, the laboratory is interested in how seasonal influenza changes from year-to-year, as proteins on the surface of the virus accumulate mutations, a phenomena known as antigenic drift. Since antigenic drift is often unpredictable, a universal flu vaccine designed to target viral coat proteins in places that cannot be easily mutated.
Dr. Michael Atchison, director of the combined degree (VMD/PhD) program at Penn Vet announced that the Merial/National Institutes of Health Summer Program has been funded for 2012. The NIH/Merial Summer Research Program at Penn Vet has been in existence since 1990. The program is designed to expose students in their first or second year of veterinary school to all phases of biomedical research. This includes the development of research ideas, the preparation of research proposals, the performance of biomedical research, and the presentation of research results in written and oral formats. Students in the program perform full time biomedical research during the months of June, July, and August, participate in weekly seminars, and present their work in oral, poster, and written presentations. Students also have the opportunity to attend the National Merial Scholars Conference.

Since its inception, the program has funded 331 awards to 300 different students to perform biomedical research in the laboratories of 131 different faculty members at the University of Pennsylvania. For more information about the NIH/Merial Scholars Program at Penn go to http://www.vet.upenn.edu/Research/ResearchTrainingOpportunities/MerialVeterinaryScholarsOtherPrograms/tabid/339/Default.aspx

Research Spotlight

Dr. Roselyn Eisenberg’s article “Antibody-Induced Conformational Changes in Herpes Simplex Virus Glyco-protein gD Reveal New Targets for Virus Neutralization” has been selected by the editors of the Journal of Virology for inclusion in “Spotlight,” a feature that highlights research articles of significant interest from the current issue. Journal of Virology (JVI) explores the nature of the viruses of animals, archaea, bacteria, fungi, plants, and protozoa. Dr. Eisenberg is a professor in the Department of Pathobiology in Penn’s School of Veterinary Medicine.

Recent Papers


Hui Hu, Ph.D. is an Assistant Professor in the Wistar Immunology Program. His research focuses on transcriptional regulation of cell development and function in the immune system. One goal of his laboratory is to identify novel regulatory genes/networks of T cell quiescence and determine their roles in T cell homeostasis, tolerance, and immune responses. Knowledge obtained from these studies will help design new therapeutic strategies that would manipulate T cell quiescence/activation for the treatment of autoimmune and infectious diseases and cancer. Another direction of the research in the Hu laboratory is to understand the hierarchical regulatory networks of key transcription factors that are engaged in hematopoiesis/lymphopoiesis.

Drs. Andrew Caton, José Conejo-Garcia, Jan Erikson, Gundi Ertl, Scott Hensley, and Hui Hu will move into the fourth floor of Hill Pavilion in January 2012.

SELECTED PUBLICATIONS BY WISTAR INVESTIGATORS


Cubillos-Ruiz JR, Martinez D, Scarlett UK, Rutkowski MR, Nesbeth YC, Camposeco-Jacobs AL, Conejo-J.


Immunohistology of lungs from an Influenza-infected BLIMP-1-YFP mouse (d38 p.i.) depict the location of B220+ B cell clusters (red) and YFP+ plasma cells (yellow). J Erikson Lab
RECENT AWARDS

**Thomas Parsons**
PA Soybean Promotion Board
Improving Swine Production and Profitability via Regional Control of the PRRS Virus
7/1/2011-6/30/2012
$10,000

**Thomas Parsons**
PA Soybean Promotion Board
Insuring Long-term Viability of Swine Farming with Husbandry Systems Designed to Meet the Changing Demands of Society
7/1/2011-6/30/2012
$10,000

**Chris Lengner**
W.W. Smith Charitable Trust
Control of stem cell–driven tumorigenesis by Musashi RNA binding proteins
1/1/2012-12/31/2012
$100,000

**Brett Kaufman**
W.W. Smith Charitable Trust
Mitochondrial DNA Damage and the Progression Toward Heart Failure
1/1/2012-12/31/2012
$100,000

**David Holt**
AKC: Pre- and intra-operative detection and resection of cutaneous and subcutaneous sarcomas in dogs using an integrated spectroscopy and imaging system
11/1/2011-12/31/2013
$129,960

**David Artis**
R01 AI095466
Regulation and function of innate lymphoid cells in the gut. 7/1/2011-6/30/2015
$100,000

**Shelley Rankin**
FDA 1-U18 FD 004301 Evaluation of Salmonella in Symptomatic and Asymptomatic Pets: Study for the Vet LRN Program
9/16/2011-9/15/2012
$37,500

**Karina Guziewicz** (Aguirre Lab) Sponsor: Foundation Fighting Blindness Title: Therapeutic intervention for BEST1 disorders
7/1/2011-6/30/2013
$140,000

**Gustavo Aguirre**
Macula Vision Research FDN. Gene replacement therapy in bestrophin 1 model: implications for recessive and dominant human BEST1-Disorders
5/1/2012-4/30/15
$300,000

IMAGING SYSTEM

Penn Vet’s **David Holt**, chief of surgery, Department of Clinical Studies (PHL), has been collaborating with Dr. Sunil Singhal, thoracic surgeon, Penn’s School of Medicine, on a new technology in fighting cancer. Dr. Holt has been testing an intraoperative cancer imaging system, developed by Dr. Singhal, on dogs with soft tissue tumors, breast and lung cancer. The system camera locates the cancer with a very good degree of accuracy in dogs and it is hoped that the technology will be an effective tool with humans.

INVESTIGATIONAL DRUG

The collaborative group planning a cyclodextrin clinical trial at the National Institutes of Health (NIH) for the treatment of Niemann-Pick type C (NPC) disease met with the Food and Drug Administration (FDA) on November 15 and December 13, 2011. Representatives from the Therapeutics for Rare and Neglected Diseases (TRND) group at the NIH, as well as several NPC researchers, including two veterinarians, Drs. **Charles Vite**, Penn Vet Department of Clinical Studies (PHL), and Steven Walkley, Johnson & Johnson, and consultants from RRD International, LLC, participated in this meeting. Overall, the feedback from FDA was very positive and their comments and guidance will assist researchers in the generation of an IND application that is agreeable to FDA, thus allowing the initiative to move forward with the initial clinical trial in children as soon as possible. In addition, **Dr. Vite** spoke at a FDA Pharmacology/Toxicology Seminar on November 17 on "Canine epilepsy as a model of human epilepsy".

UNIVERSITY RESEARCH FOUNDATION MARCH 30 DEADLINE--The University Research Foundation (URF) is an intramural resource to support research for faculty for a variety of purposes, including: helping junior faculty with pilot projects that may lead to extramural funding; helping faculty at all levels to pioneer new ideas; or to fund the purchase of equipment & instrumentation. University faculty may find the guidelines at this website: [HTTP://WWW.UPENN.EDU/RESEARCH/]
Other ways to find funding for your laboratory

By Roselyn Eisenberg, Ph.D., Professor, Department of Pathobiology

Most of us who do basic research rely on government funded grants or contracts. What else can you do? **Look in your freezers or mouse cages!!** Companies might be interested in licensing reagents you have developed and this is allowed by the National Institutes of Health (NIH). For instance, we have licensed polyclonal and monoclonal IgGs, purified proteins, and cell lines and companies may also be interested in plasmids and unique mouse strains. Penn's Center for Technology Transfer (CTT) can license the research tools and distribute income to your laboratories in accordance with the Penn Patent Policy. And you can license the same thing to more than one company, increasing the benefit. Since it is unrestricted, the money can bridge a gap in funding, cover events for invited seminar speakers, or fund equipment purchases for the laboratory. We have even used such funds to pay for exploratory experiments unlikely to be initially funded by NIH. CTT and the University have licensing guidelines and CTT will be happy to discuss revenue models with you. You may have to do some legwork to find companies interested in your product, but CTT will work with you to identify appropriate licensing partners. CTT has launched a new tool on their website showcasing reagents available for licensing, so please let them know of any reagents you would like to make available. Look in your freezers—you may find some buried treasure that can help keep your lab afloat!!

**Center for Technology Transfer** CTT serves as a bridge between Penn faculty and researchers and the business community. Through technology transfer, innovations may be incorporated into products and services that directly benefit society, as well as research and education at Penn.

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**TWO PENN VET FACULTY AWARDED WW SMITH GRANTS**

The Trustees of the **WW Smith Charitable Trust** have granted **Brett A. Kaufman**, Ph.D., assistant professor in the Department of Animal Biology, $100,000 for his research project entitled "Mitochondrial DNA damage and the progression toward heart failure". Project period: 1/1/2012-12/31/2012

The Trustees of the **WW Smith Charitable Trust** have granted **Christopher Lengner**, Ph.D., assistant professor in the Department of Animal Biology, $100,000 for his research project entitled "Control of stem cell-driven tumorigenesis by Musashi RNA binding proteins". Project period: 1/1/2012-12/31/2012

The **W. W. Smith Charitable Trust** is a private foundation established by William Wikoff Smith. The Trust is specifically focused on areas involving basic needs for food, clothing and shelter; supplementing higher education scholarship programs; and basic medical research primarily in heart disease, cancer and AIDS.
NIH NEWS.....Not funded on the first try? Now what?

Option 1: Revise and Resubmit—To the same study section - If reviewers were enthusiastic about your idea and you can readily answer their concerns, then revise and request the same study section. This option will allow you to keep most of your original application intact. While reviewers can determine how effectively you have addressed the concerns of previous reviewers, be aware that your application may still face some new reviewers who may raise new issues.

To a different study section. If the reviewers clearly did not appreciate your proposal, your study section may be a poor fit. While you presumably examined the study section roster and talked to colleagues and mentors PRIOR to your first submission, you may want to re-evaluate. Be aware however, that this option guarantees you will have new reviewers, and only one more shot at funding. If you DO decide to request a new study section, frame your request in positive terms by indicating how their expertise is necessary to review your application in your cover letter. But don't request reviewers by name or they will be disqualified!

Although you will want to resubmit your grant as quickly as possible, rushing can be a bad idea. You have only one chance to resubmit, so wait until you can submit the strongest application possible. When resubmitting, you must write an introduction that addresses all the Reviewer’s concerns. In addition, briefly describe new preliminary data and indicate where you have strengthened the application—even in areas your reviewers did not question.

Option 2: Create a "New" Application—If your original application had substantial problems—either because it was not deemed significant or you cannot address the reviewers’ scientific concerns—it may behoove you to create a new application rather than resubmitting. Since an unscored proposal presumably will need extensive revisions, a new submission will negate the “first strike”, giving you two more shots at funding. Consequently, submitting a new proposal may provide funding more quickly— if successful, you can be funded in as little as 8 months. In contrast, if your resubmission is not funded and you then have to write a new grant, it will likely take 16 months or more to obtain funding.

Be aware that NIH is quite strict about the “newness” of the proposal—software scanning for assessing similar content, and Program and Scientific Review Officers checking for scientific “newness”. Grants that fail this scrutiny are subject to administrative triage. While you may keep preliminary data and some parts of the old application, you must substantially change your direction and scope. Changing only the Significance or Innovation sections or modifying the Approach section while keeping the same Specific Aims are NOT sufficient. You do not need to address previous reviewers’ comments in a new submission (or provide a Progress Report if it is based on a previously funded grant). In your cover letter or in the application itself, state that you have previously submitted some of the same ideas, and explain how the new application is different. Talk with your program officer for more advice.

Option 3: Repurpose the Application—Normally you can apply to do the same research only once, but there are exceptions. You can submit an investigator-initiated application after responding unsuccessfully to an RFA and vice versa. You can also submit an unsuccessful application as a different activity code (e.g., R01, R03, R21) or include it in a multi-project grant. In such cases, submit as a new application and follow the requirements of the new funding agency. You can also simultaneously send an application to NIH and to some other organization, including the Department of Defense, the National Science Foundation, and other outside foundations. However, be aware that the application cannot be submitted to organizations within the U.S. Public Health Service (e.g., FDA, CDC, AHRQ), and you will be able to accept only one award. This information was condensed from the NIAID website http://www.niaid.nih.gov/researchfunding/grantstrategy.
Modern Eye supports Penn Vet research

On November 15, 2011, Modern Eye of University City gave a designer eyewear trunk show to benefit Penn Vet’s canine cancer research efforts. Dr. Christopher Anastasiou, a longtime supporter of Penn Vet, and his staff arranged an afternoon to early evening event featuring two eyewear designers, Bevel and Orgreen, for the trunk show. Elegant hors d’oeuvres were served along with fine wines from Moore Bros., who discounted the purchase of wine for the fundraiser. Modern Eye generously gave 20% of their sales as a donation to Penn Vet and offered special rates on the designer glasses. The excellent staff, including Dale Gaumer, Kate Goughary, Nikki Sillá, Andrea McIntyre and artist Mitch Gillette, were indefatigable in helping people select frames and serving hors d’oeuvres. Guests were lined up for their eye examinations performed by Dr. Anastasiou. Modern Eye, at 34th and Walnut, was alive with activity!

People who attended the affair and placed orders were automatically entered into a drawing for a free frame, or free Zeiss digital lenses. Prior to the event, Modern Eye staff members also gathered door prizes for the raffle from: La Colombe Torrefaction; the 12th Street Gym; Fork Restaurant; Spread Bagelry; Capogiro; Chic Petique; Greens-grow Farms; Audrey Claire; Twenty Manning; Allegheny Art Company; Sampan Restaurant; Smith and Wollensky; Good Dog Bar & Restaurant; Spot’s Spot; Lola Bean Café; Atlantis the Lost Bar; Rev’it; Plume Salon; Commonwealth Proper; and McFadden’s Pub.

The genuine care and kindness of Modern Eye staff made for an atmosphere of conviviality and positive support for the School of Veterinary Medicine at the University of Pennsylvania. [http://www.modern-eye.com/](http://www.modern-eye.com/)

Clinician Scientist Training Workshop--
A workshop was held on October 15-16, 2011 at the School of Veterinary Medicine, University of Wisconsin, Madison. Residents and interns from Penn Vet enrolled for the workshop video-conferenced to Penn. The goals of this workshop were to enhance interest and applicable skills in applied research among veterinary residents to promote collaborations among veterinary schools for bench-to-bedside research. Those enrolled from Penn Vet were: Heather Akridge, Joseph Amory, Anusha Balakrishnan, Julie Callahan Clark, Danna Clarke, Rachael Gaeta, Guidal Inal, Dorothy Jackson, Michael Jennings, Meredith Maczuzak, Keiko Miyadera, Matthew Paek, Kendra Pope, Chap Pratt, Alex Proulx, Natalia Samaj Kunze, Maria Soltero-Rivera, Jantra Suran, Vince Thawley, Melissa Tollett, Mandy Wallace, and Pam White. The faculty facilitator was John Lewis, VMD, Assistant Professor, Dentistry and Oral Surgery in the Department of Clinical Studies PHL. He also serves as Residency Director, Dentistry and Oral Surgery, and is the associate director of the Mari Lowe Center for Comparative Oncology.
Wishes for a productive & successful 2012

TO:

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