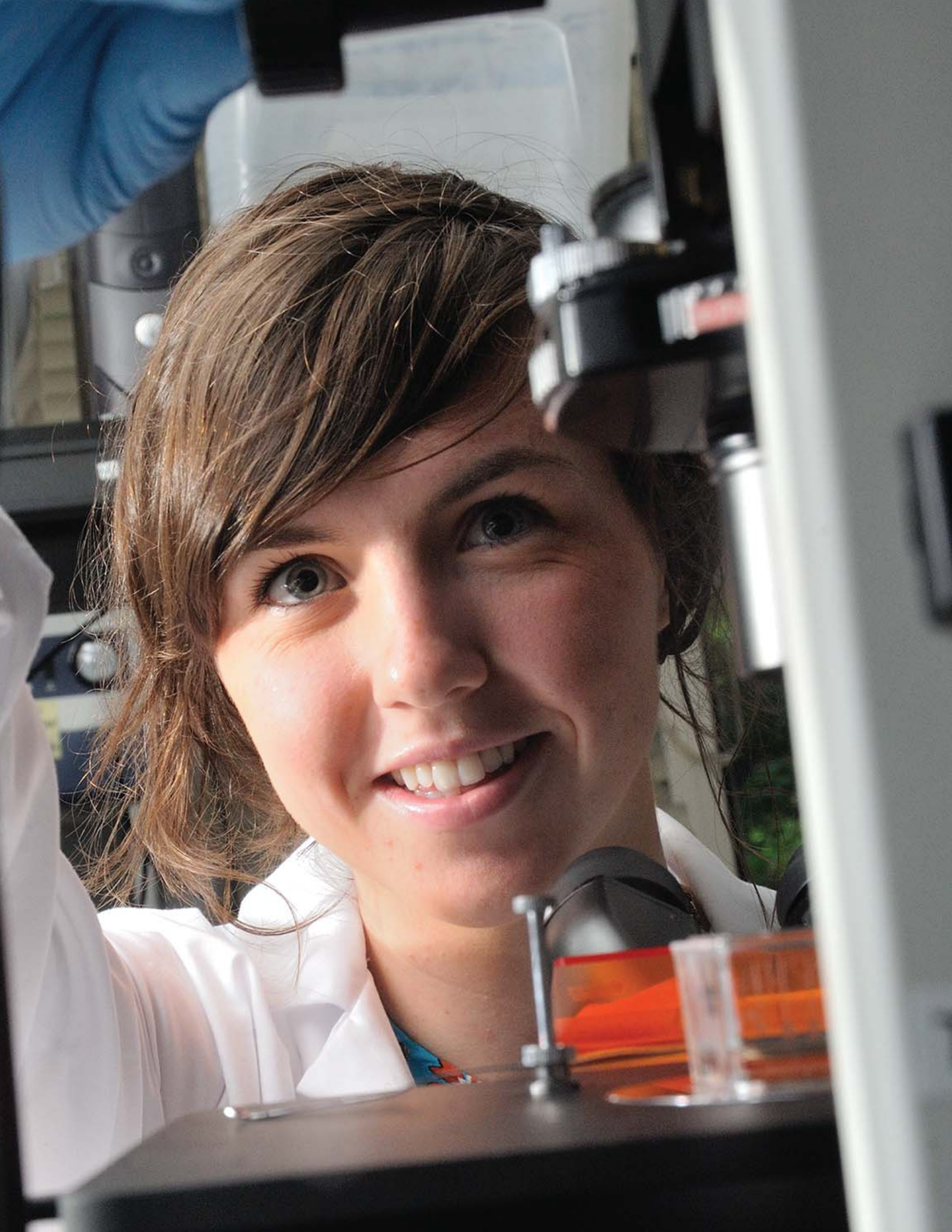


A close-up photograph of a young man with dark hair, wearing a white lab coat over a light blue shirt. He is looking down with a focused expression at a piece of scientific equipment, likely a microscope. The background is dark with some blue light streaks, suggesting a laboratory environment.

# *Leadership Program for Veterinary Students*

**2013 ANNUAL REPORT**







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*Somewhere, something incredible  
is waiting to be known.*

*~ Dr. Carl Sagan*

# A Commitment to Excellence

The mission of the annual Cornell Leadership Program for Veterinary Students is to provide students with learning experiences that clarify and reinforce their commitment to careers in science. The Program is distinguished by a tradition of excellence that spans 24 years. During this time, 562 alumni have participated. These individuals came from 67 veterinary colleges in all parts of the world and many, as we had hoped, have become scientific leaders within the veterinary profession. We are happy to report that 22 outstanding

scholars participated in this year's program. Already some of these scholars have committed to a career that will involve research. It is too early to know where they will take their careers; however, based on the outstanding achievements of past participants we expect great things from them.

Research is the major focus of the Leadership Program. Program scholars pursue individual research projects under the mentorship of Cornell faculty members who are all highly successful scientists and experienced mentors. The University's world-class research facilities and unsurpassed intellectual environment support the scholars' research investigations. In addition to laboratory-based research projects, program scholars



*John Parker, BVMS, PhD  
Program Director*

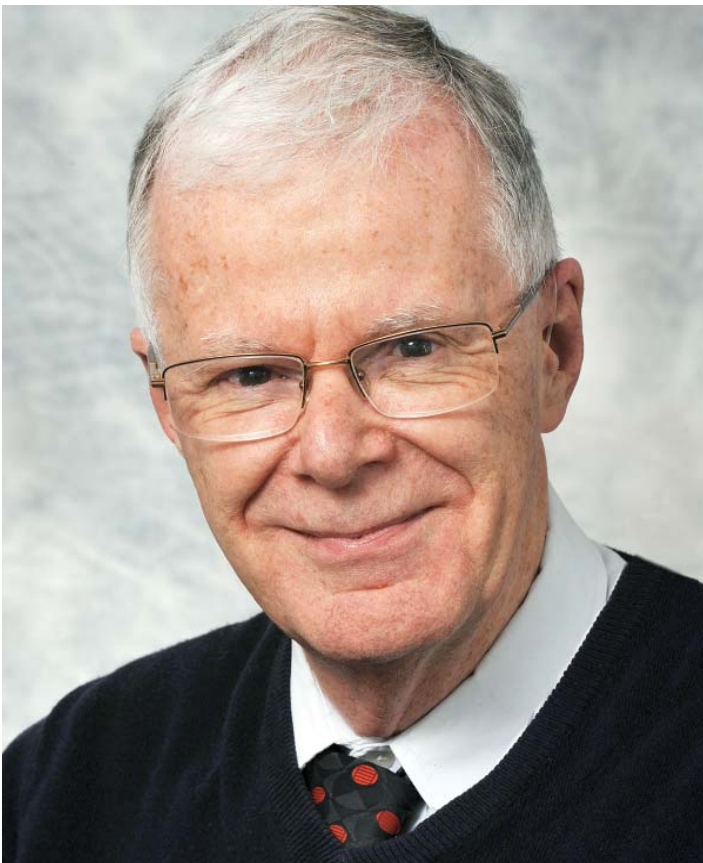


participate in modules and workshops that are designed to highlight employment and leadership opportunities for veterinary graduates in academia, government, and industry.

Biomedical research focuses on the mechanisms underlying disease and uses this information to devise new therapies. It is critical for the long-term success of the veterinary profession that veterinarians engage in biomedical research and yet there is currently a shortage of veterinarians entering such careers. Veterinary students often have a detailed understanding of what a career in clinical medicine will entail, but are much less informed about careers in biomedical research, public health, or in the pharmaceutical industry. Most

students enter veterinary school with a clinical practice career in mind. Our goal is to show the most talented of our veterinary students the attractions of biomedical research and to provide them with detailed practical career guidance on how to succeed and prosper as veterinary research scientists.

One of the pleasures of organizing this program is hearing about the career achievements of our alumni. Their experiences provide valuable insight into problems facing veterinarians in research careers. Issues such as student debt and shrinking budgets for research are important factors that influence career choices. As new challenges arise, we expect to provide practical guidance to scholars as they choose their careers.



*David H. Fraser, BVSc, PhD  
Co-Director*

## Acknowledgements

The Leadership Program for Veterinary Students is made possible through awards from federal agencies, corporations, foundations, and other private sector sponsors. For their generous support this year, the program organizers thank:

Albert C. Bostwick Foundation  
Boeringer-Ingelheim Co.  
Cornell Feline Health Center  
Deutscher Akademischer Austauschdienst  
Wellcome Trust  
Zoetis Inc.

The program organizers also thank the facilitators, counselors, and mentors who took part in the 2013 program. Thank you to Ms. Emily Zerishnek, the Program Coordinator, Ms. Jennifer Best, Ms. Alexis Wenski-Roberts, and Mr. David Frank for their assistance. Finally, the organizers congratulate the participating scholars. Their academic achievements, coupled with their dedication to discovery and service, mark these individuals as future leaders of the veterinary profession

## Publications

From time-to-time, the program organizers and their associates have described elements of the program, strategies for their implementation, and outcomes of this initiative. Recent publications include:

- Promoting Science-Based Careers Through Student-Directed Learning. McGregor, D.D. and Fraser, D.R. J. Vet. Med. Educ. 33; 294, 2006.
- Counseling Veterinary Students Who Aspire to Careers in Science. McGregor, D.D. and Fraser, D.R. JAVMA 229:668, 2006.
- Acquainting Veterinary Students With Careers in the Pharmaceutical Industry. McGregor, D.D., Fraser, D.R., Haven, M.L. and Hickey, Gerard. J Vet. Med. Educ. 34:139, 2007.
- Career Paths of Alumni of the Cornell Leadership Program for Veterinary Students. Fraser, D.R., McGregor, D.D. and Gröhn, Y.T. Vet. Record 163:750, 2008.

Interested parties also are invited to visit the program website at <http://www.vet.cornell.edu/oge/leadership>





# 2013 Leadership Program Agenda

Monday, June 3	Opening Meeting and Ethics Discussion Biological & Chemical Safety Training Welcome BBQ
Tuesday, June 4	Library Orientation Laboratory Orientation
Saturday, June 8	Career Discussion
Monday, June 10	Leadership Module Reception & Dinner
Thursday, June 13	National Institutes of Health
Friday, June 14	Walter Reed Army Institute of Research & Naval Medical Research Center
Wednesday, June 19	Reunion Dinner
Tuesday, June 25	Research Project Previews
Thursday, June 27	Hypothesis Development Workshop Pre-Meeting
Tuesday, July 2	Drug Design and Development Workshop
Monday, July 8	Infectious Diseases Workshop
Monday, July 15	Research Training
Tuesday, July 16	Leadership in Action
Thursday, July 18	Hypothesis Development Workshop
Monday, July 22	Careers in Industry Workshop
Thursday, July 25	Translational Science
Monday, July 29	Career Planning
Wednesday, July 31	Wine and Cheese Event
Wednesday, August 7	Research Presentations
Thursday, August 8	Research Presentations Farewell Dinner
Friday, August 9	Exit Breakfast





Name	University	Mentor(s)	Department	Sponsor
Helena Brewer	University of Edinburgh	Avery August	Microbiology/Immunology	Wellcome Trust
Casey Cazer	Cornell University	Yrjö Gröhn	VM Administration	Zoetis
Frances Chen	Cornell University	Natasza Kurpios	Molecular Medicine	Zoetis & Bostwick
Iva Cvitaš	University of Zagreb	Scott Coonrod	Baker Institute	Zoetis & Bostwick
Hannah Eastwood	University of Bristol	Brian Kirby	Mechanical & Aerospace Engineering	Wellcome Trust
Carrie Fischer	University of Calgary	Douglas Antczak	Baker Institute	Zoetis
Angus Fisk	University of Queensland	Nozomi Nishimura	Biomedical Engineering	Zoetis
Krystana-Elisa Föh	Freie Universität Berlin	Brian Rudd	Microbiology/Immunology	Bostwick
Lucy Hardwick	University of Liverpool	Yrjö Gröhn	VM Administration	Wellcome Trust
Lauren Healy	Cornell University	Matt DeLisa	Chemical Biology	Zoetis
Aimée Heinz	Freie Universität Berlin	David Lin	Biomedical Sciences	Bostwick
Silvia Janska	Royal Veterinary College	Gerlinde Van de Walle	Baker Institute	Wellcome Trust
Nandita Kataria	University of Sydney	Robert Weiss	Biomedical Sciences	Zoetis & Bostwick
Wilfred Leung	University of Queensland	Holger Sondermann	Molecular Medicine	Zoetis & Bostwick
Jenny Munhofen	University of Georgia	Ted Clark	Microbiology/Immunology	Zoetis
Tessa Procter	Bristol University	Douglas Antczak	Baker Institute	Wellcome Trust
Marieke Ravenek	Utrecht University	Kenny Simpson	Clinical Sciences	Zoetis
Hendrik Sake	TiHO Hannover	Gary Whittaker	Microbiology/Immunology	DAAD, Boehringer-Ingelheim & Feline Health Center
Neharika Saxena	Rajasthan University	Craig Altier	Population Medicine/ Diagnostic Sciences	Zoetis & Bostwick
Svenja Wiechert	TiHO Hannover	Tracy Stokol	Population Medicine/ Diagnostic Sciences	DAAD, Boehringer-Ingelheim & Bostwick
Stefanie Witte	TiHO Hannover	Rick Cerione/Marc Antonyak	Molecular Medicine	DAAD, Boehringer-Ingelheim & Bostwick
Bosco Yeung	Royal Veterinary College	Nozomi Nishimura	Biomedical Engineering	Wellcome Trust



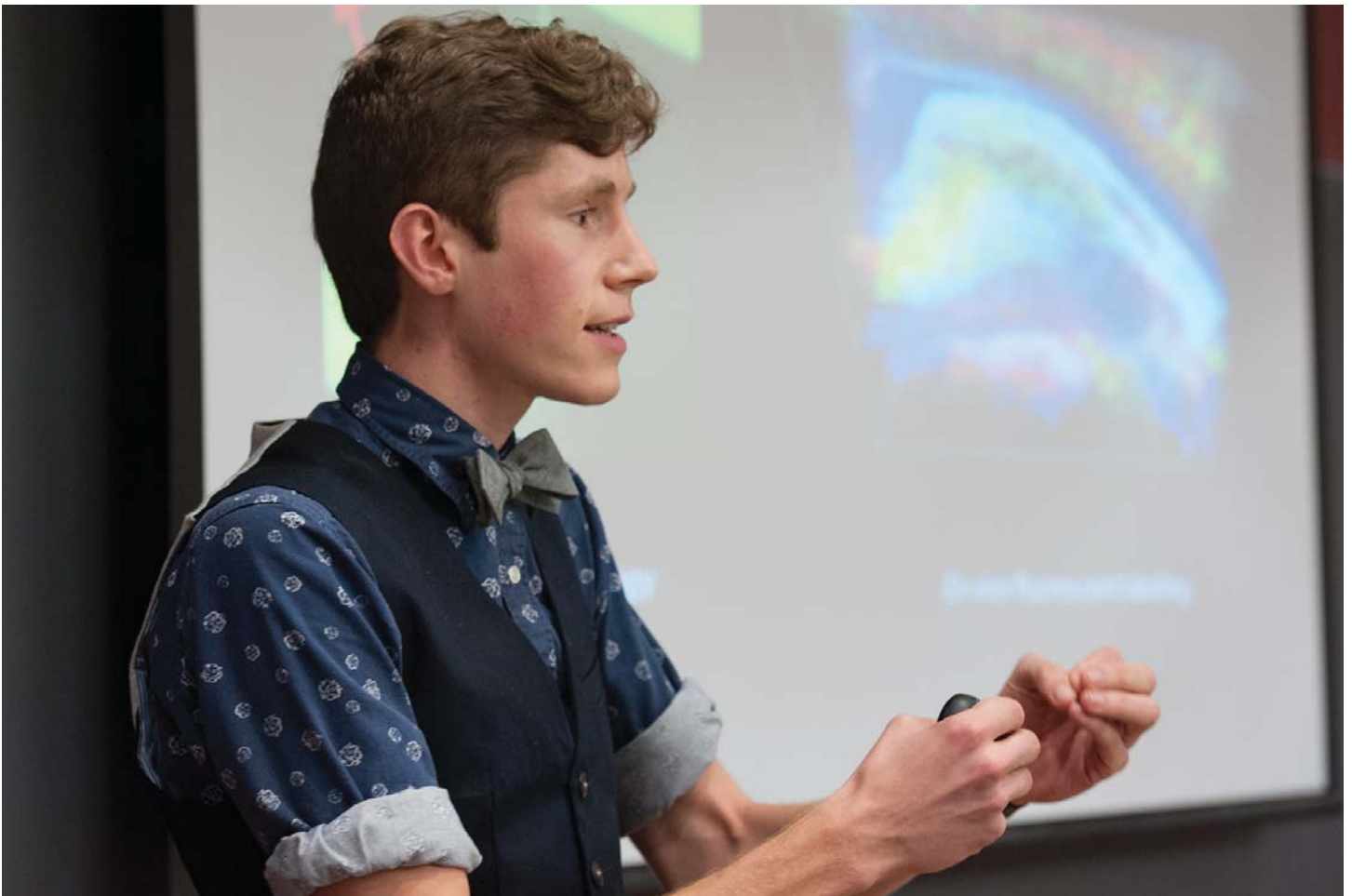


# Activities 2013

The Leadership Program combines faculty-guided research with student-directed learning through participation in modules, workshops, and group discussions. The activities encourage responsible leadership, critical thinking, and the development of teamwork skills. The program also highlights graduate training opportunities calculated to promote the professional development of program alumni as independent scientists and public health professionals.

## Research

Each Leadership Program scholar is assigned a project and a faculty mentor to guide his or her research. The projects enable the students to gain practical experience by exploring problems of interest to them. Simultaneously, students hone their communication skills through engagement in group discussions and by presenting their research findings in a public forum at the conclusion of the program.





## Leadership

Leadership and its attendant responsibilities are central considerations in the Leadership Program. Critical thinking and decision-making are featured in a scenario-based module that explores public health, economic, political, and social issues. Students and facilitators are assigned roles that oblige them to articulate, defend, or modify their views as the scenario unfolds. At the conclusion of the module, the facilitators comment on the exercise and discuss leadership principles they have adopted in their own careers. This year, Professor David Fraser moderated the discussion with assistance from Professor Gerhard Breves, Professor Douglas McGregor, Vice Provost Judith Appleton, and Associate Dean Susan Tornquist.





## Leadership in Action

The film entitled, “A Few Good Men” illustrates strengths and deficiencies of individuals cast in the role of leaders. The students discussed leadership characteristics illustrated by the film. Professors David Fraser, Douglas McGregor, and Drew Noden offered points to consider as well as feedback for the students to ponder.





## Infectious Diseases

A workshop moderated by Professors Terence Dermody, Philip Carter, John Parker, Alfonso Torres, and Robin Yates featured discussions of antibiotic resistance and diseases which are emerging or re-emerging in nature or which pose a bioterrorist threat to people or the Nation's agricultural assets. Program scholars selected the diseases on which they wanted to focus on. Then they conducted library research on the topics, and employed Socratic methods to engage their peers and facilitators in lively and informative discussions. Later in the day, the facilitators commented on related issues and the need for veterinary scientists who contemplate careers in infectious disease research or veterinary public health.





## Drug Design

Dr. Michelle Haven, a senior executive of Zoetis Inc., designed and moderated a competition between mock companies formed by the students. The competition encouraged creativity and the development of teamwork skills through activities connected with the discovery, development and marketing of veterinary pharmaceuticals. Drs. Sallie Cosgrove and Christopher Maitland assisted Dr. Haven in this module. Later in the evening, the three facilitators answered questions regarding the range of employment opportunities for veterinarians at Zoetis Inc. and the advanced training required to be competitive for such positions.





## Careers in Industry

Drs. Gerard Hickey, Emily Hickey, and Peggy McCann conducted mock interviews for three positions in the pharmaceutical industry and at Merck & Co. in particular. The students prepared for the interviews by reviewing the resumes of prospective applicants and by submitting application letters for the positions. On the day of the meeting, the facilitators commented on the letters and posed questions to the students that explored their personal interests and qualifications for employment.



## Hypothesis Development

Veterinary students have a strong desire to work on problems of importance to human and animal disease. To encourage students to actively think about how hypothesis-driven research might benefit animals, the students prepared 'blue-sky' hypothesis-driven research proposals focused on the problem of multidrug-resistant tuberculosis. Facilitators, Drs. David Russell and Brian VanderVen, then reviewed the proposals and made suggestions before the students presented their ideas to the group and heard feedback from the facilitators.





## Career Explorations

Career planning is featured prominently in the Leadership Program. Three meetings were convened to consider opportunities for veterinary graduates to broadly influence the veterinary profession through careers in the academy, government or industry.

Professor David Fraser and Dr. Jenny Sones reviewed career options available to veterinary graduates who aspire to careers in science. The two counselors emphasized the importance of selecting a superior environment for graduate research training and a mentor who has a successful training record.

A companion meeting addressed issues related to graduate research training. Professors Robert Weiss and Douglas McGregor identified aspects of training that one should weigh in selecting an institution for graduate study; the subject of one's thesis research and an individual to guide one's graduate studies.

In a separate meeting, a case study illustrated "translational science." The ensuing discussion led by Professor Kenneth Simpson revealed how an individual trained to a high level of proficiency as both a clinical specialist and research scientist can extend the frontiers of knowledge through his or her capacity to define disease mechanisms at the cell or molecular level.







## Cornell's Partnership with the National Institutes of Health

The National Institutes of Health and the Cornell University College of Veterinary Medicine have forged a partnership that offers program scholars an opportunity to learn about research conducted at the nation's premier biomedical research institution. This year's participants gathered on the main campus of the NIH for a full day of scientific presentations and discussions. Speakers included distinguished scientists and administrators drawn from the agency's intramural research program







## Agenda

### Welcome and Introduction

**Dr. Richard Wyatt, M.D.**

**Executive Director, Office of Intramural Research**

### “Ovarian Cancer Susceptibility Genes in Zebrafish”

**Dr. Heather Shive, D.V.M., Ph.D.**

**Staff Scientist, Experimental Transplantation & Immunology Branch, NCI**

### “Dynamics of immunity to infection and tissue injury”

**Dr. Dorian McGavern, Ph.D.**

**Senior Investigator, Viral Immunology & Intravital Imaging Section, NINDS**

### “Preclinical Animal Studies Review at FDA Center for Devices”

**Dr. Victoria Hampshire, V.M.D.**

**Director of Device Review, FDA**

### “The Road Less Traveled – Veterinary Scientists Engaging in Research”

**Dr. Franziska Grieder, D.V.M., Ph.D.**

**Associate Director, Division of Comparative Medicine, NIH**

### “Research Training Opportunities at NIH and Comparative Melanoma in Dogs and Humans:

### Validating a Naturally Occurring Preclinical Model”

**Dr. Mark Simpson, D.V.M., Ph.D.**

**Head, Molecular Pathology Unit, Director, NIH Comparative Biomedical Scientist Training Program, Lab of Cancer Biology and Genetics, NCI**

### “Base Pairs to Body Plan: How Bad Genes in Good Dogs Aid Human Health”

**Dr. Elaine Ostrander, Ph.D.**

**Senior Investigator, Cancer Genetics Branch, NHGRI**

### “Exploring the Mechanism and Significance of Cell Type-Dependent Neutralization of Flaviviruses”

**Dr. Ted Pierson, Ph.D.**

**Senior Investigator, Chief, Viral Pathogenesis Section, Laboratory of Viral Diseases, NIAID**

### “Examining the Immune Mechanisms of Adenovector-based Vaccine-induced Ebola Protection”

**Dr. Annie Kilby, Ph.D.**

**Research Fellow, Sullivan Lab, Biodefense Research Section, Vaccine Research Center, NIAID**

### Closing Remarks

**Dr. John S. L. Parker**

# Walter Reed

## Army Institute of Research/ Naval Medical Research Center

### Armed Services & Infectious Disease

Leadership Program scholars had the privilege this year of visiting the combined facilities of the Walter Reed Army Institute of Research (WRAIR) and the Naval Medical Research Center (NMRC). The visit was organized and coordinated by Dr. (LTC) Ken Despain, Director, Veterinary Services Division. Senior members of the combined center staff described the remarkable progress being made at the facility in addressing still unresolved problems of infectious diseases, which are of special concern to the uniformed services. The scientific program was followed by a short tour of the superb research facilities at WRAIR/NMRC.



### Agenda

#### Welcome and Overview

**CAPT John Sanders, Commanding Officer NMRC**

**COL Shanda Zugner, Executive Officer WRAIR**

**Blast Overpressure Medical Countermeasures**

**Dr. Joseph Long, Chief of Blast Induced Neurotrauma Branch**

**Discussion/Questions/Blast Tube Demonstration**

**Undersea Medicine Research at NMRC**

**Dr. Aaron Hall, Undersea Medicine**

**Lt Ryan Sheppard, Undersea Medicine**

**Discussion/Questions/Tour of Dive Chambers**

**Malaria Treatment and Prevention**

**LTC Lisa Read, Experimental Therapeutics**

**Discussion/Questions/Tour of Insectary**







# Presentations & Prizes

Leadership Program scholars discussed their research in a series of presentations over two days at the conclusion of the program. A book prize was awarded to Helena Brewer for the best overall research achievement as judged by her underlying hypothesis, investigative protocol, results, and presentation. Additional prizes were awarded to Carrie Fischer, Aimée Heinz, and Stefanie Witte, for exceptional achievements in integrative biology, cell biology, and molecular biology, respectively. Wilfred Leung was awarded a prize for the highest-ranking presentation by a scholar from the United Kingdom or Australia. The Selection Committee for the 2013 Leadership Program salutes these individuals and congratulates the entire group for their commitment to research and the excellence of their presentations.



## **Integrative Biology Prize**

*Carrie Fischer*

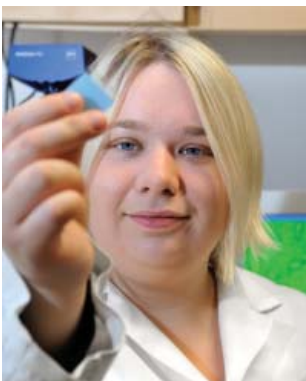
*Investigating the demise of the endometrial cups*



## **Molecular Biology Prize**

*Stefanie Witte*

*Microvesicles: A new form of Stem Cell Communication*



## **Program Prize**

*Helena Brewer*

*Exploring the role of CD8 cells in Hypersensitivity Pneumonitis*



## **UK & Australia Prize**

*Wilfred Leung*

*Investigating biofilm formation in bacteria*



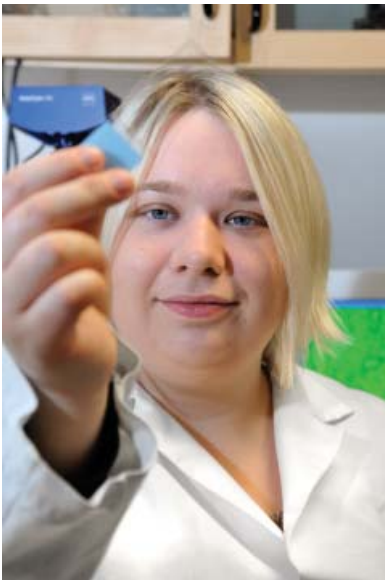
## **Cell Biology Prize**

*Aimée Heinz*

*Protocadherin19 and its function in Epilepsy with Mental Retardation limited to Females*



# Program Scholars & their Research



**Helena Brewer**, University of Edinburgh, Immunology

Exploring the role of CD8 cells in Hypersensitivity Pneumonitis

During my intercalated degree year I was exposed to the world of veterinary research. The experience was enjoyable and encouraged me to learn more about research career opportunities for veterinarians. Prior to the program, I hadn't considered working with laboratory animals so I was interested to learn that I would be conducting research on a murine model of a pulmonary disease, under the mentorship of Professor Avery August. My project aimed to determine how CD8 lymphocytes influence the disease process in hypersensitivity pneumonitis – a Th17 mediated disease.

I had the opportunity to learn more about mouse models by completing lab animal training and performing experiments on genetically-manipulated Vertex mice. The latter lend themselves to measurement of interleukin 10, an inflammatory lymphokine. I became familiar with laboratory techniques such as flow cytometry in order to measure intracytoplasmic cytokine levels in cells obtained by lung lavage. In addition, I ascertained the severity of disease by conventional microscopy.

My experimental results indicate that mice deficient in CD8 cells have a higher proportion of CD4 cells that express IL-10. Histopathology revealed the area of granulomatous inflammation was reduced in CD8-depleted mice. Experiments still to be done will further define the role of CD8 cells in this disease.

I would like to thank the members of August lab, especially Sonia Mohinta, for all their assistance this summer and the Wellcome Trust for their funding through the program.

*Imagination is the highest  
form of research.*  
~ Albert Einstein



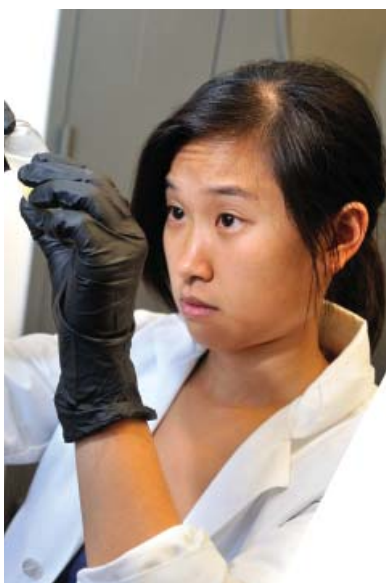
**Casey Cazer**, Cornell University, Population Medicine and Epidemiology  
Assessing antimicrobial pressure on enteric commensal bacteria of beef cattle fed chlortetracycline for growth promotion, metaphylaxis, or disease treatment

When I first dreamed of becoming a veterinarian, I envisioned myself directly helping animals of all kinds—diagnosing their ills and treating them. But my research experience in veterinary school shifted my trajectory towards pursuing research. I applied for the Leadership Program hoping for insight into my potential career directions.

In the Leadership Program I researched the effects of antimicrobial usage on antimicrobial-resistant *E. coli* in feedlot cattle. These bacteria can enter the food chain and transfer resistance genes to human enteric commensal and pathogenic bacteria. I built a systems dynamics model to determine the concentration of chlortetracycline, a common antimicrobial used on feedlots, in the large intestine where *E. coli* live. We found that with growth-promoting doses of chlortetracycline, the large intestine concentration is below the *E. coli* minimal inhibitory concentration (MIC), but there could still be selective pressure on enteric bacteria through sub-MIC effects. However, the disease-treatment dose created above-

MIC selective pressure. Hence, a decreased use of antimicrobials for growth promotion may increase the selective pressure on enteric bacteria by increasing the incidence of animal disease. My pharmacokinetic model will be used to investigate the changes in genotype of tetracycline-resistant *E. coli* in feedlot steers treated with chlortetracycline.

I found that the Leadership Program provided me with important information regarding career opportunities for veterinarians in research fields, which will help me make informed decisions to shape my career. I would especially like to thank Dr. Gröhn for his mentorship and support of my research, Dr. Parker for his advice and insights and Zoetis Inc. for providing financial support.



**Frances Chen**, Cornell University College of Veterinary Medicine, Genomics, Genetics, and Development

Chromatin level regulation of organ morphogenesis: differential methylation at the evolutionarily conserved *Pitx2* locus may drive asymmetric *Pitx2* expression essential to organogenesis

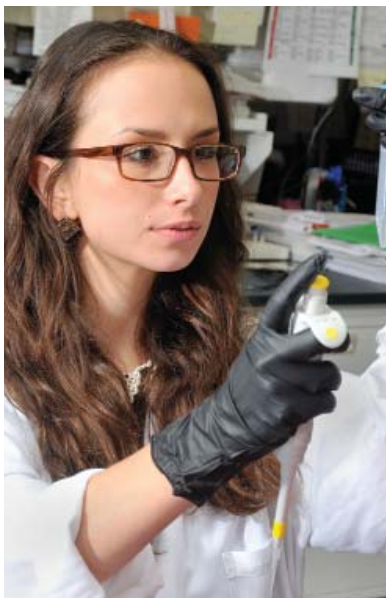
In the developing embryo, the establishment of left-right (L-R) asymmetry by the transcription factor *Pitx2* is crucial for proper organ form and function in the adult. Differential expression of *Pitx2* across the L-R axis provides directionality in heart looping, gut rotation, and other aspects of asymmetric organogenesis. I spent this summer continuing my work in the Kurpios Lab studying how the regulatory mechanisms of the genome inherent in chromatin structure can orchestrate cellular identity and behavior by precisely directing spatiotemporal gene transcription.

My project aimed to ask how differential methylation at the *Pitx2* locus could be playing a role in asymmetric *Pitx2* expression and therefore in left-right asymmetric organogenesis. DNA methylation is a key epigenetic mechanism for regulating gene transcription and is vital for a number of developmental processes. From

previous data that I helped to generate, we proposed a model in which genomic regulatory elements interact to differentially organize chromatin in left vs right nuclei, ultimately driving the binary, asymmetric expression of *Pitx2* during L-R organogenesis. By performing bisulfite sequencing on microdissected samples of left and right embryonic chicken tissue, I gathered preliminary data that suggests differential methylation patterns may exist between the left vs. right cells of the developing chicken gut. Ultimately, this work will provide further evidence that the organization of the *Pitx2* genomic locus is integral in regulating differential *Pitx2* expression in L-R organogenesis.

I would like to thank Zoetis Inc. and the Bostwick Foundation for supporting me during the program.





**Iva Cvitaš**, University of Zagreb, Croatia, Molecular Biology

Peptidylarginine deiminase-2 overexpression in transgenic mice leads to an increase in premalignant skin lesions

From the age of five I have been obsessed with the idea of helping animals and humans. That is why in 2009 I began my studies of veterinary medicine at the University of Zagreb. My curiosity and enthusiasm coupled with my experience working with an inspirational professor kindled my interest in biomedical research. I applied to the Cornell Leadership Program in the expectation of gaining experience in research, expanding my knowledge of cancer biology, and exploring different career possibilities.

This summer I had the pleasure of working in the Coonrod lab which focuses on the role of Peptidylarginine deiminase (PAD) enzymes in cancer biology, and especially PAD2 in mammary tumor progression. My project involved an investigation in transgenic mice that overexpress PAD2. More than 20% of such mice develop precancerous skin lesions. My task was to determine the tissue distribution of PAD2. In the course of the summer, I found that PAD2 expression is high not only in the mammary tissue of such mice, but also in the uterus, colon and salivary glands.

I am truly grateful to the organizers of the Program for selecting me, and to the Coonrod lab for providing excellent mentorship and a very interesting project. I am especially grateful to Sachi Horibata for being a great teacher and an amazing friend. Finally, I want to thank Zoetis Inc. and the Bostwick Foundation for funding my program scholarship.



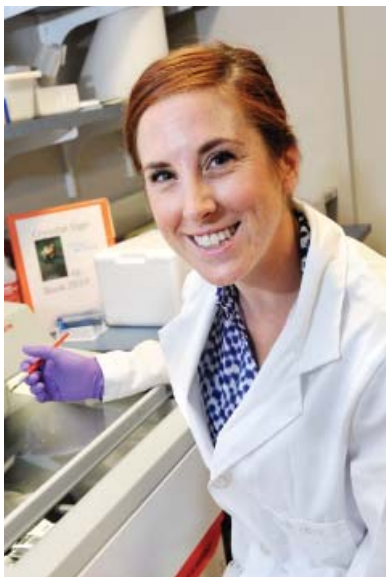
**Hannah Eastwood**, University of Bristol, Biomedical Engineering

Novel investigations into ex- vivo Culture of Circulating Tumour Cells

When initially presented with the Cornell Veterinary Leadership Program, I could see this was an opportunity not to be missed in gaining first-hand experience to explore research career options. The ten week experience has far exceeded my expectations, exposing me not only to a variety of career paths, but also introducing me to a truly supportive network of colleagues.

I had the opportunity to work in Brian Kirby's Micro/Nanofluidics Laboratory, in the Sibley School of Mechanical and Aerospace Engineering. I worked upon a proof of concept – that culturing cells in alginate (a polysaccharide) would allow the ex vivo growth of neoplastic cells. I also looked into the hypothesis that micro-vesicles shed from other neoplastic cells would accelerate and alter a secondary cancerous growth. The results of my research showed that micro-vesicles appear to be successful in promoting cell growth but growing cells in alginate proved to be a problem. Although the cells remained alive in alginate, they failed to replicate. This is the next step to be solved by the Kirby Laboratory.

This summer at Cornell has been unforgettable. I would like to thank the Wellcome Trust for funding this amazing opportunity, I am truly grateful for the insight to laboratory work and research skills that Dr. Kirby and his laboratory members gave me. I am especially grateful to my supervising PhD student, Steven Santanna, who guided me throughout the program. Finally, I am indebted to the program facilitators for selecting me and enlightening my career opportunities in the midst such dynamic and inspirational colleagues. They will be powerful allies in whatever I do in my future career.



**Carrie Fischer**, University of Calgary, Immunology  
Investigating the demise of the endometrial cups

I have always had a passion for research. Prior to starting my DVM, I completed a PhD in the field of mucosal inflammation and innate immunity. Participating in the Cornell Leadership Program introduced me to numerous veterinary career options, exciting areas of research, and gave me the opportunity to work alongside inspirational scientists and highly motivated students. Most importantly, this program solidified my desire to pursue a research-based career in veterinary medicine.

It was simply a privilege to work in Dr. Doug Antczak's laboratory. My project focused on investigating the lifespan of endometrial cups and determining whether trophoblasts succumb to an apoptotic death. Given the limited number of apoptosis-related studies in the horse, I first optimized fluorometric and colorimetric assays and antibodies in equine in vitro and ex vivo cellular preparations. I then looked for characteristic features of apoptosis in frozen endometrial cup tissue and biopsies of chorionic girdle trophoblasts that had been transplanted into SCID mice. DNA fragmentation, active Caspase-3, and

PARP cleavage could not be detected in trophoblasts at days 54, 64, 74, 84, and 149 post-ovulation. Findings from this study suggest that the demise of the endometrial cups may be due to another mechanism that has yet to be elucidated.

Many thanks Dr. Antczak for being a wonderful, thought-provoking mentor, as well as all the members of the Antczak lab and Baker colleagues. I am particularly grateful for having worked alongside Becky Harman, and thank her immensely for her assistance and encouragement this summer. I would also like to thank Zoetis Inc. for funding my summer research project.



**Angus Fisk**, University of Queensland, Biomedical Engineering  
Lighting up signaling in the brain: optical recording of neural activity

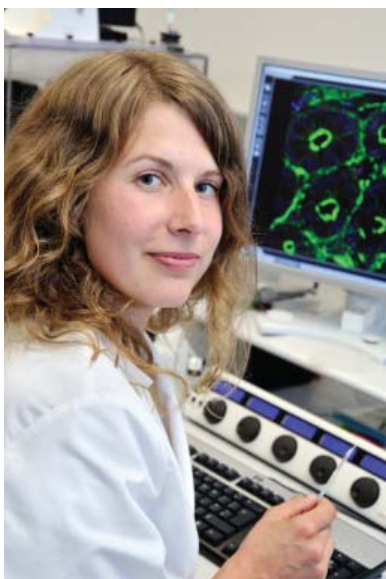
I am grateful for this fantastic experience to reach out from my clinical studies to participate in basic science, learning about how we advance science and knowledge.

Single neurons firing are well studied; however we know less about how neuronal populations firing in synchronized patterns generate motion, sensation, and behavior. My project explored methods for imaging neural firing via transient changes in intracellular calcium concentrations, hoping to interpret patterns in large neuronal populations. The ultimate aim is to develop novel optical methods of recording neural activity for brain-machine interfaces that could be used to control prosthetics such as artificial limbs. We imaged in vivo neural activity in rodent brains with multi-photon microscopy, using calcium sensitive-dyes that alter their fluorescence when action potentials increase intracellular calcium. We recorded single cells in the somatosensory cortex of anaesthetized animals. To interpret neural activity for brain-machine interfaces, we need to link activity to its effects; therefore we imaged the motor cortex in awake, behaving mice. Importantly

for future human use, we transfected neurons in adult mice with a fluorescent calcium sensitive protein (GCaMP) using an adeno-associated virus. These advances open avenues for using other calcium detectors, such as the bioluminescent molecule aequorin that do not require specialized laser excitation equipment.

I enjoyed the invaluable guidance of Professor Nishimura during my time at the Leadership Program. I also enjoyed working closely with Nicholas Horton from Professor Chris Xu's lab, and Raymond Xu. Drs. Parker, McGregor, and Fraser have provided excellent modules and plenty of insightful discussion. Credit is due to Zoetis Inc. for facilitating my time here.





**Krystana Föh**, Freie Universität Berlin, Immunology

Chemokine expression in neonatal mice infected with murine cytomegalovirus

During my time at Cornell I gained a lot of research experience, but I also enjoyed meeting the wonderful and interesting people who participated in the program from throughout the world. Thanks to the program's influence I can now say that a career in research is what I intend to pursue. I spent this summer in Dr. Brian Rudd's Lab in the Department of Immunology and Microbiology participating in a research project focused on the role of CD8 T-cells in controlling cytomegalovirus infection. Human cytomegalovirus (HCMV) infection is a major public health concern. HCMV can cause brain damage with severe neurological sequelae in congenitally infected children and is the leading cause of birth defects and childhood disorders in children in the United States.

The Rudd lab had previously shown that the chemokine CCL25, which is involved in homing of T-cells to the gut, also plays a role in homing of CD8 T-cells to the brain of mice infected with murine cytomegalovirus (MCMV). My project this summer focused on the visual verification of the chemokine CCL25 and its receptor CCR9 in the brains of MCMV infected neonatal mice. After developing the protocol, I used

immunofluorescence confocal microscopy to image brain tissue of mice at different stages of infection. I found that cells in a specific region of the brain express CCL25 and its receptor CCR9 at a particular stage of MCMV infection. I would like to thank Dr. Brian Rudd and Charles Wisler for guiding me through my first research experience as well as our facilitators, program directors, program coordinators and my fellow students for making this summer so inspiring and valuable. I would also like to thank the DAAD for financial support.



**Lucy Hardwick**, University of Liverpool, Virology

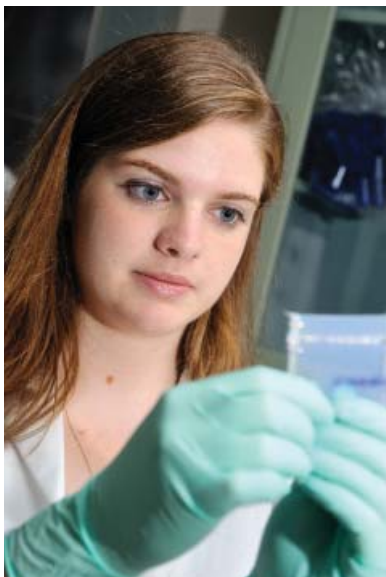
The localization of cellular translation proteins in cells infected with mammalian orthoreovirus.

One of the things that surprised me when I started vet school was just how much is 'not really known' in veterinary medicine and this was what originally sparked my interest in research. Now as I am about to enter my 3rd year I have been lucky enough to partake in the Cornell Leadership Program and have had the opportunity to carry out some research.

My research project this summer compared the localization of cellular translation proteins in cells infected with two strains of mammalian orthoreoviruses. Previously the Parker lab had shown that infection with one reovirus strain, Type 3 Dearing (T3D), redirects translation to the cytosolic sites of viral replication known as viral factories. Although, cellular translation factors are redirected to the T3D viral factories, infection with T3D has minimal effect on cellular translation. In contrast, infection with the Type 3 Abney (T3A) strain of reovirus strongly inhibits cellular translation. In order to assess the role of translational compartmentalization in shut down, I compared the distribution of cellular proteins associated translation in the

viral factories of cells infected with T3D and T3A. I found that the distributions of these proteins were similar in cells infected with T3D and T3A.

I would like to thank the entire Parker Lab for all their help in introducing me to the world of research, but in particular Dr. Emily Desmet for her never faltering patience and guidance when teaching me new techniques. In addition I would like to thank Drs. Parker, McGregor and Fraser for such a fantastic program and the Wellcome Trust for their funding which enabled me to participate in this wonderful opportunity.



**Lauren Healy**, Cornell University, Chemical Engineering

**TatA and Amphipathic Proteins: A new design for studying membrane bound proteins**

Less than 1% of known protein structures are membrane proteins. The DeLisa lab in Olin Hall is attempting to find a new way to study these elusive proteins. The goal is to create a “nanobelt” of an amphipathic protein for the membrane protein to sit inside. This enables the protein to be placed in an aqueous medium and studied using x-ray crystallography. I worked on applying this technique to the A subunit of the twin arginine translocation pathway protein from *E. coli*. The TatA protein was expressed either one, two, or three times in a row preceded by a soluble signal sequence, and followed by either PSAM or ApoA1 - two nanobelt proteins.

We created constitutively active, membrane bound versions of TatA to show that our TatA construct does form pores. It is postulated that the amphipathic domain of TatA flips up to create these pores. To test this we created a TatA-Fos-B-lactamase construct, where the Fos-B-lactamase is located in the cytoplasm, and the Jun-B-lactamase construct is in the periplasm. When the B-lactamase subunits combine, it creates ampicillin resistance. The Tat system is used by a multitude of pathogens,

and understanding how it fully functions is crucial towards attempting to use it as a target for new therapeutics.

I would like to thank Dr. Matthew DeLisa and Dr. Dario Mizrahi for all of their guidance and time, and Drs. Fraser, Parker, and McGregor for all the time they spent to put together this wonderful program. This project was supported by funding from Zoetis Inc.



**Aimée Heinz**, Freie University of Berlin, Neurobiology

**Protocadherin19 and its function in Epilepsy with Mental Retardation limited to Females**

The Leadership Program has given me the opportunity to experience research and learn about the variety of career pathways available for veterinarians.

Epilepsy with Mental Retardation limited to Females (EFMR) is an X-linked dominant disorder characterized by early onset febrile seizures and varying degrees of cognitive impairment. Mutations in the Protocadherin19 (*Pcdh19*) gene are the sole cause of EFMR, yet how *Pcdh19* causes such a dramatic phenotype is unknown. *Pcdh19* is a member of the cadherin superfamily, a group of axon guidance cue molecules characterized by calcium-dependent cell-cell adhesion. Due to its weak adhesive properties, *Pcdh19* was primarily thought to play a role in intracellular signaling. This summer, I showed for the first time, that *Pcdh19* is an important player in axon guidance and neurite outgrowth. By co-immunoprecipitation experiments, I found that Neural-Cadherin (NCad), a classical cadherin that is known to play an important role in axon guidance, interacts with *Pcdh19*. In addition, I demonstrated that this interaction can produce distinct phenotypes on

neurite outgrowth. These results suggest that nonfunctional mutants of *Pcdh19* might disrupt critical interactions with Ncdh and other molecules and therefore represent an important factor in axon guidance and neurologic diseases.

I would like to thank Prof. Lin for his excellent mentorship and guidance, Sierra Palumbos and Ayaka Sugiura for their patient help, enthusiastic support and amazing friendship. I would also like to thank Drs. Parker, Frazer and McGregor for enabling my participation in this extraordinary program. Funding support was generously supplied the Bostwick Foundation.





**Silvia Janská**, The Royal Veterinary College, London, Virology

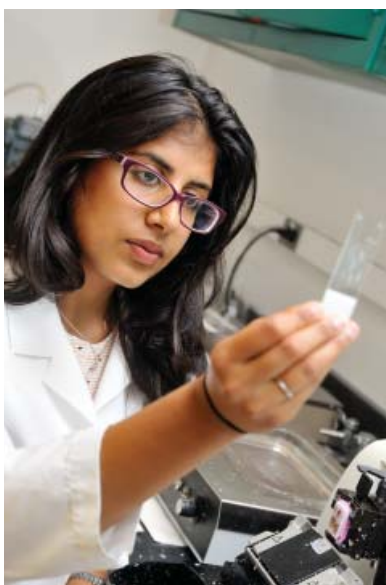
The Role of Mesenchymal Stem Cells (MSC) during Equine Herpes Virus Type 1 (EHV-1) Infection

Although initially interested in becoming an equine specialist, my career aspirations are shifting towards combining essential clinical knowledge with scientific training to allow me to contribute to progress in human and veterinary medicine in my chosen field of research. As a final year veterinary medicine student, the Leadership Program presented itself as an ideal opportunity to further develop my basic science research skills and to explore the different professional opportunities available to veterinarians.

During the program, I worked in Dr. Gerlinde Van der Walle's Lab at the Baker Institute, where I investigated the role of Mesenchymal Stem Cells during Equine Herpesvirus type 1 (EHV-1) infection. Given the increased prevalence of equine herpes myeloencephalopathy caused by EHV-1, the lack of an effective vaccine, and a debate as to which cell type carries EHV-1 during viremia, my aims were (i) to evaluate the replication properties of neurological and non-neurological biovariants of EHV-1 in equine MSCs in vitro, (ii) to isolate and grow MSC from blood samples of

horses before and after infection with EHV-1 and (iii) to investigate the presence of EHV-1 in MSC in vivo. While I was successful in isolating equine MSCs, the rest of the data are still pending.

A special thanks goes to my mentor Dr. Gerlinde Van de Walle as well as the other laboratory members for supervision, guidance and the wonderful time I had this summer. I would also like to thank the program facilitators and my fellow Leadership students for an unforgettable experience. I am also grateful for the funding support from the Wellcome Trust that allowed me to participate in this program.



**Nandita Kataria**, University of Sydney, Cancer Biology

Investigating the acute responses of testicular germ cell tumors to cisplatin

Whilst I somewhat naively decided to 'become a vet' at a young age, I was drawn to the discipline of cancer biology within the very first few weeks of my veterinary degree. The Leadership Program has helped me realize that I must ultimately marry these clinical and bench-top aspirations, in order to most successfully tread the fine line that is translational oncology.

Human testicular germ cell tumors (TGCTs) are highly responsive to DNA damaging chemotherapies such as cisplatin, and a better understanding of this phenotype could yield more efficacious treatments for chemoresistant cancers. Previous studies by the Weiss lab showed that the suspected cancer stem cells (CSCs) of their novel TGCT model appeared diminished after long-term treatment with cisplatin. Based on this observation, we hypothesized that these CSCs are extremely sensitive to cisplatin, and that cisplatin treatment induces DNA damage responses (DDRs) which lead to apoptosis or senescence. We treated TGCT bearing mice with cisplatin, culled them acutely post treatment and then used immunohistochemistry to elucidate which DDR pathways had been activated. We

found that many of the CSCs undergo a wave of apoptosis within 24 hours of treatment, whilst the remaining CSCs repair the cisplatin-induced damage and resume proliferation.

I would like to thank the members of the Weiss lab, especially Tim Pierpont, for being incredibly supportive and helpful throughout the project. I'd also like to thank the coordinators of the Leadership Program, Drs Fraser, McGregor and Parker, for providing us with such an eye-opening, educational and all-round exhilarating summer at Cornell University. Last I would like to thank Zoetis Inc. and the Bostwick Foundation for providing the funding for my participation in the program.



**Wilfred Leung**, University of Queensland, Structural Biology  
Investigating biofilm formation in bacteria

The potential to head into a research based Veterinary sciences career has always been on my mind since starting vet school, however it was only after I started the Cornell Veterinary Leadership Program did I realize the limitless opportunities out there for someone with a veterinary degree. The program has also helped me to narrow my focus to the careers I am interested in and to evaluate the best way to reach my career goals.

My research project involved looking at biofilm formation in bacteria using a structural protein biochemistry approach. Biofilm is a protective physical matrix formed by bacteria to prevent their removal making it a huge problem especially in persistent nosocomial infections. Research in our laboratory currently focuses on a pathway used by bacteria to detect environmental levels of phosphate and through a signaling network, either promote or inhibit the formation of biofilms. My project involved investigating the LapG and LapA interaction role in biofilm dispersion in *Pseudomonas fluorescens*. Using a novel crosslinking method, I was able to show the residues on LapG which are important for the interaction with

LapA. This crosslinking method can be used to find interacting partners in other, more pathogenic bacteria such as *Pseudomonas aeruginosa* and *Legionella pneumophila*.

I would like to thank my mentor Dr. Holger Sonderman and Dr. Rick Cooley for providing me with great guidance and the program coordinators, Drs. Parker, McGregor and Frazer. I would like to thank Zoetis Inc. and the Bostwick Foundation for funding my Leadership Program and the University of Queensland for award of the UQ Advantage Grant.



**Jenny Munhofen**, University of Georgia, Molecular Biology  
Analysis of Mitochondrial Targeting Sequences using GFP Vector in *Tetrahymena thermophila*

As a rising second year veterinary student with a Master's degree in vertebrate field research, I chose the Cornell program for the chance to gain exposure to lab research. The Leadership Program granted more than just lab work, but truly afforded me a unique opportunity through seminars and modules to the varied career paths in veterinary research. I hope to earn a position in the US Army Veterinary Corp and pursue postgraduate research and a residency in pathology.

The Clark lab focuses on the biology of host-pathogen interactions, and, more broadly, the control of infectious disease using *Tetrahymena thermophila*, a protozoan, as the model organism. The Clark lab recently discovered when these single cell eukaryotes undergo stress, they will jettison whole, intact mitochondria without cell lysis, but the active release of entire mitochondria has never been documented in live cells. My summer project has been to insert four different mitochondrial-targeting genes into a GFP vector, shoot the vector into *Tetrahymena* in order to determine which leader sequence was most effective using fluorescent

and confocal microscopy in live cells. Our results showed that all four leader sequences are able to target the mitochondria and goal is to capture this phenomenon in real time.

I would like to thank Dr. Ted Clark and Dr. Donna Cassidy-Hanley for their mentorship and the blessed opportunity to join the most outstanding lab for my summer experience! The camaraderie, positive attitudes, and fun atmosphere, set this lab apart from all others and I am so grateful to have met such amazing people! Last I would like to thank Zoetis Inc. for funding my summer program.





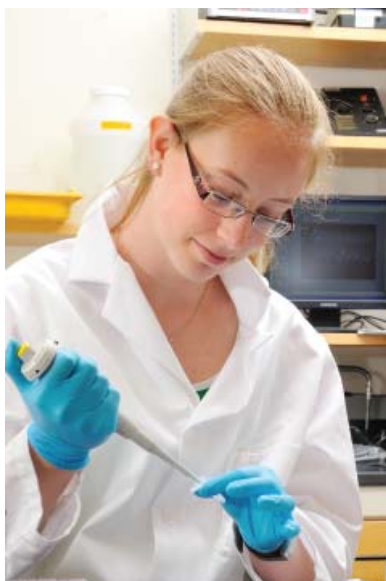
**Tessa Procter**, University of Bristol, Immunology

Characterising an IL-22 Binding monoclonal antibody in a biological context

I applied to the Cornell Veterinary Leadership Program hoping to gain insight into careers I could undertake with my veterinary degree as well as gain more research experience. The Leadership Program has lived up to expectations and provided me with a myriad of options. The research experience I have gained has further cemented my plans to pursue a research-orientated career.

This summer I spent time in Dr. Doug Antczak's laboratory, where research focuses on equine reproductive immunology and genetics. Initially, my project was aimed at providing evidence for the production of an IL-22 binding protein (IL-22BP) in equine peripheral blood mononuclear cells (PBMCs). Very little is known about IL-22BP making it extremely exciting to investigate. The lab has produced monoclonal antibodies to IL-22BP that I used to identify the presence of this protein in equine PBMCs using flow cytometry. Upon starting the project we found that the antibodies made required further characterization. Therefore, my project was extended to include this aspect of research. I am grateful to have been given this opportunity to learn new skills, which I will be able use throughout my career.

I would like to thank Dr. Antczak, Becky Harman, Don Miller and Peggy Brosnahan for their guidance and support throughout the summer. Many thanks also go to Drs. Parker, Fraser and McGregor for a brilliant program, as well as my fellow participants for making this a memorable summer. I would also like to thank the Wellcome Trust for financially supporting me during the program.



**Marieke Ravenek**, Utrecht University, Gastroenterology

Identification of Genes in Adherent and Invasive Escherichia Coli (AIEC) Required for Epithelial Cell Invasion by Signature-Tagged Mutagenesis

When I started veterinary school, I was planning to go into private practice. Over the years my interest has been raised to pursue a career as a specialist and researcher. This program has provided me with more research training and a better understanding of career opportunities outside of private practice.

Adherent and invasive E. coli (AIEC) are a novel pathotype of E. coli implicated in the development of ileal Crohn's disease (CD). AIEC can invade epithelial cells, persist and replicate in macrophages and exploit genetic defects associated with CD. The bacterial factors encoding virulence are unclear. Signature-tagged mutagenesis has identified mutants in AIEC NC101 that are less able to invade Caco-2 intestinal epithelial cells. The genes affected by these insertions have been identified and my work was focused on creating plasmids containing candidate genes that were used to complement these less invasive mutants. After complementation, I worked on comparing the motility and the ability of wild type, transposon-disrupted, and complemented strains to invade Caco-2 intestinal

epithelial cells.

I want to thank Dr. Kenneth Simpson and Dr. Belgin Dogan enormously for their supervision and support this summer and I want to thank all the other members of the Simpson lab for all the good times. Special thanks to Drs. Parker, McGregor and Fraser for their support and trust. I would also like to thank Zoetis Inc. for funding the Leadership Program.



**Hendrik Sake**, Tierärztliche Hochschule Hannover, Virology

The Role of Matrix-Metalloproteinases in Feline Infectious Peritonitis virus (FIPV) infection.

The Cornell Leadership Program was an excellent way to broaden my horizon in many ways. Getting in contact with so many different people, cultures and career opportunities was something I really enjoyed. Before I came to Cornell I had not been exposed to research at all, but this program gave me the unique opportunity to explore different veterinary career paths that differ from the traditional clinical pathway.

Feline infectious peritonitis (FIP) is a deadly infectious disease of cats. It is caused by a feline coronavirus called FIPV that derives from a benign feline enteric coronavirus (FECV) by mutation. The clinical presentation of the disease is divided into a wet and a dry form. In the wet form of the disease fluid accumulates in body cavities as a consequence of increased vascular permeability caused by virus infection.

My research project this summer focused on the role of matrix metalloproteinases (MMPs) in the disease progression of FIP. We hypothesized that MMPs play an important role as an activator for virus-entry into monocytes and whose activation causes a proteolytic cascade that ultimately leads to increased vascular permeability. Using PCR and qPCR I was able to find evidence that the production of MMP2 and MMP9 in monocytes is up regulated following FIPV infection.

I would like to thank Dr. Gary Whittaker, my fellow lab members, and in particular Dr. Beth Licitra for their help and support this summer. Furthermore I want to thank the Cornell Feline Health Center, the Bostwick Foundation, the DAAD and Boehringer Ingelheim for their financial support.



**Neharika Saxena**, RAJUVAS, Bikaner, India, Molecular Biology

Cloning of *Brucella canis* gene for production of an immunodominant antigen for diagnostic use

When I began the Leadership Program I had very little experience in research. During this summer I learned to be organized and I learned the basics of molecular biology and molecular cloning.

A previous Leadership Program student had begun this project last year and she had identified 12 genes that coded for immunodominant proteins in *B. canis*. My project was to clone several of these genes into a protein expression vector and then to purify the proteins for use as an antigen to prepare antibodies against *B. canis*. To accomplish this, my plan was to use an expression vector system that produces an inducible histidine-tagged construct so that the resulting product may be purified by affinity chromatography. I used PCR to amplify the genes of interest using *B. canis* genomic DNA as the template and primers derived from the sequence of the genes of interest. These genes were to be cloned into pQE60 (Qiagen Inc.) to create a fusion protein carrying six additional histidine moieties at the carboxyl terminus of each fusion protein.

Although I was able to successfully PCR amplify several of the genes of interest from *B. canis* genomic DNA. I was unable to clone these PCR products into the vector because of problems with the ligation reactions. After troubleshooting, I found that one of the restriction enzymes I used did not work. Although I was able to use appropriate controls to identify the problem due to time constraints, I was unable to complete the project. However, the lessons learned during this study will form the basis of more fruitful work in the future. My special thanks go to Dr. Craig Altier for the opportunity to work in his lab and for having enormous patience with me, Prof. David Fraser for encouraging me, Iva, Carrie and Steffie for guiding me and Emily, Jenny, Hannah and Helena for being so sweet to me. I also thank Zoetis Inc. and the Bostwick Foundation for providing a scholarship that allowed me to attend.





**Svenja Wiechert**, Tierärztliche Hochschule Hannover, Pathology  
Platelets as a potential transportation for EHV-1

The Cornell Leadership Program gave me a one-time opportunity to gain an insight into research before graduation, and enhanced my scientific education. It also provided an inspiring atmosphere of teamwork, ambition and science that I will never forget.

Equine Herpesvirus-1 (EHV-1) can cause myeloencephalopathy in horses by inducing vasculitis and thrombosis in the meninges. This then causes ischemic necrosis of the spinal cord. A key question is how does the virus access the meninges after aerosol infection. Although leucocytes have been implicated as 'transporters' for the virus, initial experiments in the Stokol laboratory indicated that EHV-1 can infect and activate platelets, which are key players in thrombosis.

We hypothesised that the virus uses platelets as an additional mode of transportation to the meninges. Equine carotid artery endothelial cells (CAECs) were grown in microfluidic channels to simulate a capillary. We then infected platelets with EHV-1 and watched for interactions with endothelial cells under physiological conditions of blood flow rate. We found evidence that activated platelets rolled on and bound to the endothelial cells more frequently compared to the control. Investigating the possible routes of transmission of EHV-1 within the horse's body will lead to a better understanding of the pathogenesis of this important infectious disease of horses.

I would like to thank Professor Stokol for the opportunity to experience research in her laboratory and for her great mentorship. I would also like to thank all the lab members especially Dr. Yeo for their support and encouragement. I am grateful to be funded by Boehringer Ingelheim, the DAAD and the Bostwick Foundation. Last but not least I give thanks to Drs Parker, McGregor and Fraser for organizing this great program.

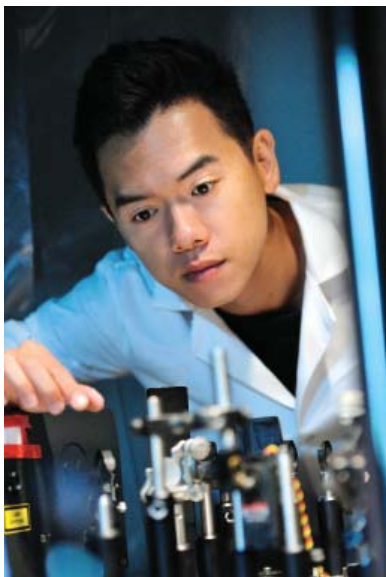


**Stefanie Witte**, Tierärztliche Hochschule Hannover, Molecular Biology  
Microvesicles: A new form of Stem Cell Communication

Since entering veterinary school in 2010, I have been interested in research. This summer the Cornell Leadership Program gave me the opportunity to work in a basic research laboratory, as well as to learn about different career paths.

My research project for the summer was focused on an unusual form of cell-to-cell communication that involves microvesicles (MVs). These large membrane-enclosed packets of proteins, RNA transcripts and micro-RNAs are shed from the surfaces of cells and can be transferred to other cells where they alter the behavior of the recipient cell. For example, the Cerione lab has shown that aggressive forms of human cancer cells produce MVs that can transiently transform a normal (non-transformed) recipient cell. However, these findings raise the important question whether normal cell types also generate MVs and what their function is.

This summer I found that totipotent embryonic stem (ES) cells also generate MVs. Moreover, cardiomyocytes and neurons derived from ES cells continue to produce MVs. I then went on to show that MVs from ES cells and cardiomyocytes were able to promote the survival of the recipient fibroblasts. Thus, these findings suggest that MVs represent a common form of cell-to-cell communication and that they may have important consequences in development and regenerative medicine. I would like to thank the members of the Cerione lab for their support and guidance, especially Laura Desrochers and Marc Antonyak. I would also like to thank Drs. Parker, McGregor, and Fraser who gave me the opportunity to have this valuable experience at Cornell and to get to know several amazing people. Last I would like to thank Boehringer Ingelheim, the DAAD and the Bostwick Foundation for their support.



**Bosco Yeung**, Royal Veterinary College, Biomedical Engineering  
 In vivo Two-Photon Microscopy Imaging of Atherosclerotic Plaque in Rodent Carotid Artery

Having worked as a clinical pharmacist for two years before entering veterinary school, my career interest in translational science combining a research and clinical component has always been my career goal. The Leadership Program provided an excellent grounding in decision-making and critical thinking, and also equipped me with hands-on research skills that I will need to pursue my long term academic research plan.

My research project under the mentorship of Professor Nishimura focused on in vivo two-photon microscopy imaging of the rodent carotid artery. Our aim is to understand the in vivo dynamics of atherosclerosis in a rodent model, focusing on the formation and rupture of atherosclerotic plaques and the role of inflammation in the disease. In order to develop this novel in vivo imaging technique, I used a rodent model of atherosclerosis. I then surgically placed a GRIN (gradient-index) lens into the common carotid artery and used two-photon excited fluorescence microscopy to look at the internal structure of the carotid artery. I was able to see

autofluorescence from the internal aspect of the carotid artery. Future application of this technology would focus on monitoring the cellular pathophysiology of atherosclerosis by looking at plaque formation, and the leukocyte and monocyte response in the native plaque environment.

I would like to extend my heartfelt thanks to Professor Nishimura and the Schaffer-Nishimura lab for their tremendous support and motivation throughout this summer. I want to express my gratitude to Drs. McGregor, Fraser and Parker for their wholehearted support throughout the program and to the Wellcome Trust for their financial support. Additionally, I would like to wish all my peers the best in their future pursuits.

*Research is to see what  
 everybody else has seen, and  
 to think what nobody else  
 has thought.*

*~ Albert Szent-Gyorgyi  
 Hungarian Biochemist  
 1937 Nobel Prize for Medicine*







# Facilitators & Counselors



**Dr. Judith Appleton**, Facilitator  
Vice Provost and Alfred H.  
Caspary Professor of  
Immunology, Microbiology  
and Immunology  
Cornell University



**Dr. Gerhard Breves**, Facilitator  
Professor, Physiology  
Tierärztliche Hochschule  
Hannover



**Dr. Philip Carter**, Facilitator  
Professor Emeritus  
Microbiology, North Carolina  
State University



**Dr. Sallie Cosgrove**, Facilitator  
Associate Director  
Veterinary Medicine R&D  
Zoetis Inc.



**Dr. Terrence Dermody**  
Facilitator  
Professor, Virology  
Vanderbilt University School  
of Medicine



**Dr. David Fraser**  
Facilitator & Counselor  
Professor Emeritus  
Animal Science  
University of Sydney



**Dr. Michelle Haven**, Facilitator  
Senior Vice President  
Corporate Development  
Alliances and Solutions  
Zoetis Inc.



**Dr. Emily Hickey**, Facilitator  
Executive Director  
External Pharmacology  
Merck & Co.



**Dr. Gerard Hickey**  
Facilitator, Director  
Global Regulatory Affairs  
Merck & Co.



**Dr. Christopher Maitland**  
Facilitator  
Senior Director,  
Global strategic Planning  
Zoetis Inc.



**Dr. Peggy McCann**  
Facilitator  
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Global Regulatory Affairs  
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**Dr. Douglas McGregor**  
Facilitator & Counselor  
Professor Emeritus  
Immunology  
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**Dr. Drew Noden**  
Facilitator  
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Biomedical Sciences  
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**Dr. John Parker**  
Facilitator  
Associate Professor, Virology  
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**Dr. David Russell**, Facilitator  
Professor, Microbiology and  
Immunology  
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**Dr. Kenneth Simpson**  
Facilitator  
Professor, Clinical Sciences  
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**Dr. Jenny Sones**, Facilitator  
Graduate Research Fellow  
Biomedical Sciences  
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**Dr. Susan Tornquist**  
Facilitator  
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and Academic Affairs and  
Professor, Clinical Pathology  
Oregon State University



**Dr. Alfonso Torres**, Facilitator  
Associate Dean for Public  
Policy, Cornell University



**Dr. Brian VanderVen**  
Facilitator  
Research Scientist  
Microbiology and Immunology  
Cornell University



**Dr. Robert Weiss**, Facilitator  
Associate Professor  
Biomedical Sciences  
Cornell University



**Dr. Robin Yates**, Facilitator  
Associate Professor  
Comparative Biology and  
Experimental Medicine  
University of Calgary

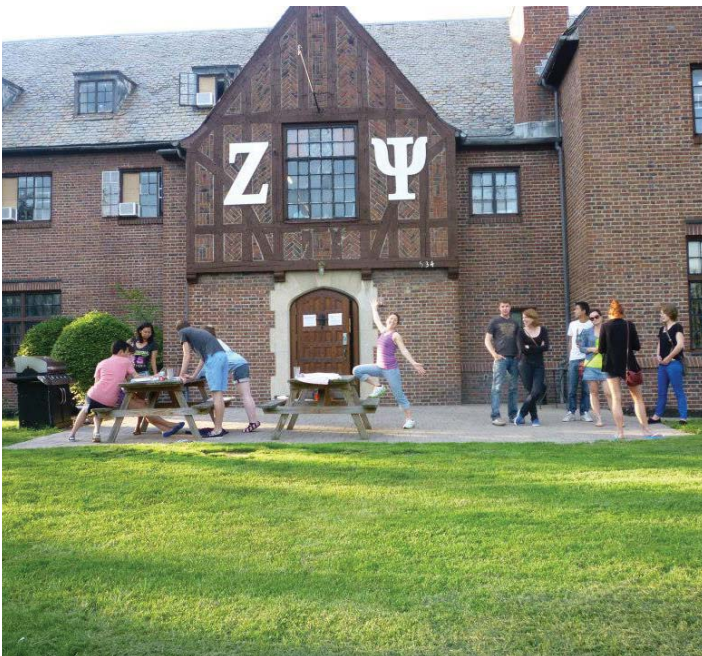
*The task of the leader is to get  
his people from where they are to  
where they have not been.*  
~ Henry Kissinger





# Housing

Participants in the Leadership Program were housed in the Zeta Psi fraternity house on the Cornell campus. They had exclusive use of the building for the ten-week period that the program was in session. Several events were scheduled there, typically in the evening in conjunction with a catered meal. The living arrangements enabled the scholars to socialize and relax in a convenient and pleasant campus environment.





# Time Out

Apart from their intensive schedule, program scholars found time for many personal pleasures. They capitalized on local Ithaca amenities and visited natural sites of beauty and cultural centers within striking distance of Ithaca.





# Program Dinner

The Leadership Program scholars hosted a dinner for their mentors, module facilitators, counselors, and other guests at Willard Straight Hall on the Cornell University campus.







# Program Alumni

Contact with Leadership Program graduates is maintained in order to strengthen the professional network forged at Cornell and to uphold the program's tradition of excellence for the benefit of future scholars. Alumni are encouraged to make informed decisions about the advanced training needed to realize their professional goals. The accompanying table lists degrees awarded to program graduates and degrees they are expected to receive after completing the academic programs in which they are presently registered. Not included in the table are individuals who have not yet graduated with the DVM or its equivalent and program alumni who were awarded advanced degrees in science prior to their enrollment or to their enrollment in a veterinary degree program.

## Academic Qualifications of DVM alumni of the Leadership Program (1990-2012)

DEGREE	No.	% NORTH AMERICAN ALUMNI	No.	% OTHER COUNTRIES ALUMNI	No.	% TOTAL ALUMNI
PhD	47	17.8%	121	48.6%	168	32.7%
Dr. Med. Vet.	NA	NA	18	7.2%	18	3.5%
MPH	11	4.2%	3	1.2%	14	2.7%
MS	9	3.4%	11	4.4%	20	3.9%

NA = Not applicable

The following table indicates that a substantial number of program alumni obtained residency training in the course of their graduate studies. One hundred and one of these individuals were graduates of veterinary schools in North America while fifty-two were alumni of schools located elsewhere in the world. It is tempting to speculate that the difference between the two groups reflects greater opportunities for residency training in North America although other, less obvious reasons may contribute to the observed difference.

## Residency Training of DVM Alumni of the Leadership Program (1990-2012)

No.	% NORTH AMERICAN ALUMNI	No.	% OTHER ALUMNI	% TOTAL ALUMNI
101	38.3%	52	20.9%	29.8%



# Where Are They Now?

Listed below are the positions currently occupied by program alumni whom have completed their veterinary education and are pursuing careers in science or public health.

## 1990

**John Angelos**, Associate Professor, Comparative Pathology, University of California at Davis, CA

**William Carr**, Instructor, Ragon Institute, MGH, Harvard University, Cambridge, MA

**Laura Gumprecht**, Associate Director, Safety Assessment, Merck Research Laboratory, West Point, PA

**Elizabeth Lyon-Hannah**, Research Faculty, Boise State University, Boise, ID

**Richard Haworth**, Senior Pathologist, GlaxoSmithKline, Middlesex, UK

**Melissa Mazan**, Associate Professor and Director, Sports Medicine, Tufts University, North Grafton, MA

**Rebecca Papendick**, Diagnostic Pathologist/Senior Scientist, Zoological Society of San Diego, San Diego, CA

**Susan Schaefer**, Clinical Associate Professor, Surgery, University of Wisconsin, Madison, WI

**A. W. (Dan) Tucker**, Senior Lecturer, Veterinary Public Health, University of Cambridge, UK

**Thomas Vahlenkamp**, Head, Institute of Virology, School of Veterinary Medicine, Leipzig, Germany

## 1991

**Prema Arasu**, CEO/Vice Provost, Kansas State University, Olathe, KS

**David Bainbridge**, Clinical Veterinary Anatomist, University of Cambridge, UK

**Linda Berent**, Clinical Associate Professor, University of Missouri, Columbia, MO

**Ian Davis**, Associate Professor, Veterinary Biosciences, The Ohio State University, Columbus, OH

**Dianne Hellwig**, Associate Professor, Agriculture and Natural Resources, Berea College, KY

**Judy Hickman-Davis**, Director, Laboratory Animal Training Program/Associate Professor, Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, OH

**Alison Moore**, Equine Medical Consultant, IDEXX, Cambridge, Ontario, CA

**Alan Radford**, Senior Lecturer, Small Animal Studies, University of Liverpool, UK

## 1992

**Tomasz Betkowski**, Business Manager, Quintiles, Warszawa, Poland

**Stephen Davies**, Associate Professor, Parasitology, Uniformed Services University, Bethesda, MD

**Mathew Gerard**, Associate Professor, Anatomy/Surgery, North Carolina State University, Raleigh, NC

**Jacqueline Phillips**, Professor, Molecular Neuroscience, Macquarie University, Sydney, AU

**Cristina Rodriguez-Sanchez**, Senior Research Associate, Universidad Nacional Autónoma de México, Mexico

**Louise Southwood**, Associate Professor, Large Animal Emergency and Critical Care, University of Pennsylvania, New Bolton Center, Philadelphia, PA

**Reinhard Straubinger**, Professor and Section Head, Bacteriology and Mycology, Ludwig Maximilian University, Munich, Germany

## 1993

**Virginia Fajt**, Associate Professor, Pharmacology, Texas A&M University, College Station, TX

**Christopher Laing**, Director, Science and Technology University City Science Center, Philadelphia, PA

**Emma Massey O'Neill**, Lecturer, Small Animal Medicine, University College, Dublin, Ireland

**Ashley Reynolds**, Supervisory Public Health Veterinarian, Food Inspection and Safety Service, USDA, Philadelphia, PA

**Susannah Ryan**, Director Scientific Services, ApotheCom ScopeMedical Europe, London, UK

**Veiko Saluste**, Chief Executive Officer, Interchemie Worken, Adelaar AS, Estonia

**Melinda Stewart-Gabor**, Pathologist, Elizabeth MacArthur Research Laboratory, Sydney, AU

**Lynn Wachtman**, Clinical Veterinarian and Instructor, New England Primate Center, Harvard Medical School, Southborough, MA

## 1994

**Melissa Beall**, Research Scientist, Medical Affairs, IDEXX Inc., Portland, ME

**Larissa Bowman**, Director, Mountain Veterinary Pathology, Asheville, NC

**Leslie Gabor**, Manager, Pre-Clinical Safety, Novartis Animal Health, Sydney, AU

**Maria Lara-Tejero**, Senior Research Associate, Department of Microbiology, Yale University, New Haven, CT

**Christopher Mariani**, Associate Professor, Neurology, North Carolina State University, Raleigh, NC

**Sonia Mumford**, Veterinary Medical Officer, Olympia Fish Health Center, U.S. Fish & Wildlife Service, Olympia, WA

**Jeffrey Phillips**, Assistant Professor, Oncology and Medical Genetics, University of Tennessee, Knoxville, TN

**Julie Pomerantz**, Associate Research Scientist, Wildlife Trust, Palisades, NY

**Stacy Pritt**, Director and General Manager, Biological Test Center, B. Braun Medical, Irvine, CA

Mary Thompson, Lecturer Small Animal Medicine, University of Queensland, AU

**Oliver Turner**, Senior Pathologist, Novartis Institute for Biomedical Research, East Hanover, NJ

## 1995

**Gertraud Altreuther**, Project Manager, Parasitology, Bayer Animal Health, Leverkusen, Germany

**Philippa Beard**, Lecturer, Pathology and Virology, University of Edinburgh, UK

**Kate Creevy**, Assistant Professor, Small Animal Medicine, University of Georgia, Athens, GA

**Rachael Gray**, Senior Lecturer, Veterinary Anatomy, University of Sydney, AU

**Wendy Harrison**, Research Scientist, GlaxoSmithKline, Medicines Research Center, Stevenage, UK

Andrew Moorhead, Assistant Research Scientist, Infectious Diseases, University of Georgia, Athens, GA

**Tony Mutsaers**, Professor, Clinical Studies, Ontario Veterinary College, Guelph, Ontario, CA

## 1996

**Mark Doherty**, Technical Service Manager, Ancare, Kirrawee, NSW, AU

**Michelle Dries-Kellaway**, Senior Regional Coordinator, Department Premier and Cabinet, NSW, AU

**Patricia Gearhart**, Adjunct Assistant Professor, Ophthalmology, Michigan State University, East Lansing, MI

Tamara Gull, Assistant Professor, Pathobiology, Oklahoma State, Stillwater, OK

**Antonia Jameson-Jordan**, Lecturer, Department of Biomedical Sciences, Cornell University, Ithaca, NY

Ralph Senften-Rupp, Head, Information Technology, Provect AG, Berne, Switzerland

John Stein, Resident, Diagnostic Imaging and Radiology, University of Wisconsin, Madison, WI

Allison Stewart, Associate Professor, Equine Internal Medicine, Auburn U., AL

**Edwin van Duijnhoven**, Research Scientist, NOTOX, the Netherlands

**Constantin Von der Heyden**, Director, Pegasys Strategy and Development RSA, South Africa

## 1997

**Peter Bracken**, Technical Services Veterinarian, Boehringer Ingelheim, AU

Jonathan Happold, Senior Veterinary Officer, Epidemiology, AGDAFF, AU

**Tanya LeRoith**, Clinical Assistant Professor, Pathology, Virginia Tech, Blacksburg, VA

**Lucy Neave**, Lecturer, Creative Writing, Australian National University, Canberra, AU

**Patricia Pesavento**, Associate Professor, Pathology, University of California, Davis, CA

**Paul Plummer**, Assistant Professor, Microbiology, Iowa State University, Ames, IA

**Jonathan Werner**, Principal Pathologist, Amgen, Inc., Thousand Oaks, CA

**Esther Wissink-Antonis**, Research Manager/Faculty, Virology, University of Utrecht, the Netherlands

**Rachel Walker**, PhD candidate, Pathology, University of Sydney, AU

**Rebecca Wilcox**, Animal Welfare Officer, RMIT University, Melbourne, AU

## 1998

**Max Bastian**, Senior Scientist, Paul Ehrlich Institute, Langen, Germany

**Steven Fleisher**, Biologist, Center for Biologics Evaluation and Research, FDA, Bethesda, MD

**Karsten Huffer**, Associate Professor, Microbiology, Institute of Arctic Biology, University of Alaska, Fairbanks, AK

**Mary Klinck**, PhD candidate, Pharmacology, University of Montreal, Montreal, CA

**Karen Liljebjelke**, Assistant Professor, Microbiology, University of Calgary, Alberta, CA

**Larissa Minicucci**, Director, D.V.M./M.P.H. Program, University of Minnesota, Minneapolis, MN

**Amanda de Mestre**, Lecturer, Veterinary Basic Sciences, Royal Veterinary College, London, UK







**Erin Phipps-Crotty**, Public Health Specialist, New Mexico Dept. of Health, Albuquerque, NM

**Anne-Marije Sparnaaij**, Senior Policy Advisor, Ministry of Agriculture, the Netherlands

## 1999

**Erica Behling-Kelly**, Assistant Professor, Clinical Pathology, Cornell University, Ithaca, NY

Nadine Bowden, Postdoctoral Fellow, Cardiology, NIH, Washington DC

**Christine Broster**, Veterinary Clinical Training Advisor, The Brooke, UK

Robert Dickens, Training Specialist, U.S. Department of Agriculture, Raleigh, NC

**Joshua Fine**, Program Manager, SAIC, Animal Disease Center, Plum Island, NY

**Peter Florian**, Director of Pharmacology R&D, Sanofi, Frankfurt, Germany

Carl Holmgren, Research Scientist, Université de la Méditerranée, Marseille, France

**Emily Meseck**, Senior Pathologist, Wyeth Research Laboratories, Chazy, NY

**Rachel Peters**, Senior Scientist, Millennium Pharmaceuticals, Boston, MA

**Mary Nabity**, Clinical Assistant Professor, Texas A&M University, College Station, TX

**Kimberly Newkirk**, Assistant Professor, Anatomical Pathology, University of Tennessee, Knoxville, TN

**Christopher Premanandan**, Assistant Professor, Veterinary Biosciences, The Ohio State University, Columbus, OH

**Rachael Tarlinton**, Lecturer, Microbiology, University of Nottingham, UK

**Holger Volk**, Head, Queen Mother Hospital for Animals, Royal Veterinary College, London, UK

## 2000

**Stephen Daley**, Postdoctoral Fellow, Immunology, Australian National University, Canberra, AU

**Katharine Evans**, PhD Candidate, Epidemiology, University of Nottingham, Nottingham, UK

**Toby Floyd**, Epidemiologist, Veterinary Laboratories Agency, Addlestone, UK

**Rachel Geisel-Allavena**, Senior Lecturer, Pathology, University of Queensland, Brisbane, AU

**Samuel Hamilton**, Senior Veterinary Officer, Biosecurity Services, DAFF, Canberra, AU

**Birgit Hingerl-Viertlboeck**, Postdoctoral Fellow, Immunology, University of Munich, Germany



**Natali Krekeler**, Lecturer, Veterinary Reproduction, University of Melbourne, Melbourne, AU

**Jamie Lovaglio**, Clinical Veterinarian, Pacific Northwest National Laboratory, Richland, WA

**Richard Luce**, Epidemiologist, US Centers for Disease Control and Prevention, Atlanta, GA

**Fiona Norris-Sansom**, Postdoctoral Fellow, Microbiology, University of Melbourne, AU

**Knut Stieger**, Research Leader, Faculty of Medicine, Ophthalmology, Justus – Liebig University, Giessen, Germany

**Joost Uilenreef**, ECVA Residency Supervisor, University of Utrecht, the Netherlands

**Kevin Woolard**, Assistant Professor, Pathology, University of California, Davis, CA

## 2001

**Julie Chevette**, Head, Animal Environment, Montreal Heart Institute, Montreal, PQ

**Karin Hölzer**, ORISE Fellow, US Food and Drug Administration, College Park, MD

**Katherine Hughes**, Lecturer, Veterinary Pathology, University of Cambridge, UK

**Stephanie Janeczko**, Medical Director, New York City Animal Care and Control, New York, NY

**Charles Johnson**, Postdoctoral Fellow, Comparative Pathology, University of Minnesota, Minneapolis, MN

**Robert Klopffleisch**, Assistant Professor, Pathology, Freie Universität, Berlin, Germany

**David Loch**, Postdoctoral Fellow, Queensland University of Technology, Brisbane, AU

**Maeve May**, AAAS Policy Fellow, National Cancer Institute, NIH, Bethesda, MD



**Timothy Myshrall**, Assistant Director, Veterinary Services, Cleveland Clinic, Cleveland, OH

**Judith Phillips**, Postdoctoral Associate, Neurovirology, University of Pennsylvania, Philadelphia, PA

**Kis Robertson**, Preventative Medicine Fellow, Dept. Health and Mental Hygiene, Laurel, MD

**Simon Starkey**, Education Veterinarian, Pet Smart Inc., Phoenix, AZ

**Jason Stayt**, Clinical Pathologist, Axiom Laboratories, Newton Abbot, UK

**Amy Warren-Yates**, PhD Candidate, Neurobiology, Associate Professor, University of Calgary, Calgary, Alberta, CA

**Rachel Windsor Ballantyne**, Veterinary Technical Manager, Merial Pharmaceutical, Stevenage, UK

**Robin Yates**, Associate Professor, Comparative Biology, University of Calgary, Calgary, Alberta, CA

**Bevin Zimmerman**, Assistant Director, Pathology, WIL Research Laboratories, Ashland, OH

## 2002

**Christine Bayley Trezise**, Veterinary Pathologist, Gribbles Pathology, Melbourne, AU

**Karin Darpel**, Postdoctoral Scientist, Virology, Pirbright, UK

**Karyn Havas**, Veterinary Epidemiologist, U.S. Army, Surveillance Center, Silver Spring, MD

**Patrick Kenny**, Lecturer, Neurology and Neurosurgery, Royal Veterinary College, London, UK

**Steven Laing**, Resident, Pathology, University of California, Davis, CA

**Susannah Lillis**, Clinical Assistant, Professor, Radiology, University of Liverpool, UK

**Anne Lo**, Strategic Projects eCommerce, Worldpay, London, UK

**Michael Mienaltowski**, Postdoctoral Fellow, Molecular Biology, University of South Florida, Tampa, FL

**Andrew Miller**, Head Diagnostic Services, New England Primate Research Center, Harvard Medical School, Southborough, MA

**Simon Priestnall**, Lecturer, Pathology, Royal Veterinary College, London, UK

**Lisa Rose**, Resident Radiology, Ohio State University, Columbus, OH

**Kelly Still-Brooks**, Major, Brigade Veterinary Surgeon, US Army, Fort Bragg, NC

**Barbara Täennler Werhli**, Marketing and Technical Manager, Zoetis Inc., Zürich, Switzerland

## 2003

**Rosie Allister**, PhD Candidate, Epidemiology, University of Edinburgh, UK

**Mieke Baan**, PhD Candidate, Endocrinology, University of Wisconsin, Madison, WI

**John Baker**, Associate Consultant, Bain & Co., London, UK

**Belinda Black**, Resident, Large Animal Medicine, Ontario Veterinary College, Guelph, Ontario, CA

**Patrick Carney**, PhD Candidate, Epidemiology, Boston University, Boston, MA

**David Gardiner**, Pathologist, IDEXX Laboratories, Sacramento, CA

**Erika Gruber**, Resident, Clinical Pathology, Cornell University, Ithaca, NY

**Carol Haak**, Resident Critical Care, University of Missouri/Animal Emergency Center, Milwaukee, WI

**Lindsay Hamilton**, Research Veterinarian, Jurox Ltd, Rutherford, AU

**Michael Krahn**, Assistant Professor, Cellular & Molecular Anatomy, University of Regensburg, Germany

**Heather Martin**, Laboratory Animal Veterinarian, Hoffman-LaRoche, Nutley, NJ

**Siobhan Mor**, Lecturer, Food Safety, University of Sydney, Sydney, AU

**Mayank Seth**, Acting Head, Small Animal Medicine, Animal Health Trust, Cambridge, UK

**Kate Patterson**, Senior Science Writer, Garvin Institute, University of New South Wales, AU

**Karla Stucker**, Postdoctoral Fellow, J.Craig Venter Institute, Rockville, MD

**Lyn Wancket**, PhD candidate, Molecular Virology, The Ohio State University, Columbus, OH

**Christiane Wrann**, Research Fellow, Medicine, Beth Israel Deaconess Medical Center, Harvard University, Cambridge, MA







## 2004

**Anton Asare**, USDA Public Health Veterinarian, University of South Carolina, SC

**Carolin Block**, Clinical Trials Manager, Roche Pharma AG, Basel, Switzerland

**Matthew Breed**, PhD candidate, Immunology, Tulane University, Covington, LA

**Andrew Broadbent**, Postdoctoral Fellow, Virology, NIAID, NIH, Bethesda, MD

**Karla Dreckmann**, Research Scientist, Vaccine Development, Boehringer Ingelheim, Germany

**Annika Krenzel**, Veterinarian, Wilhelma Zoo, Stuttgart, Germany

**Robert Ossiboff**, Pathology Fellow, Bronx Zoo, New York, NY

**Sylvia Maliye**, Senior Clinical Scholar, Surgery, University of Glasgow, UK

**Allison Rogala**, Resident, Laboratory Animal Medicine, University of North Carolina, Chapel Hill, NC

**Duncan Russell**, Clinical Assistant Professor, Pathology, The Ohio State University, Columbus, OH

**Baukje Schouten-Schotanus**, Postdoctoral Fellow, Cell Biology, University of Utrecht, the Netherlands

**Katherine Scollan**, Assistant Professor, Cardiology, Oregon State University, OR

**Ivana Sekis Calice**, Scientist, Baxter Innovations GmbH, Vienna, AT

**Katy Townsend**, Clinical Instructor, Surgery, The Ohio State University, Columbus, OH

**Claire Underwood**, Academic Clinician, University of Queensland, Brisbane, AU

## 2005

**Krystal Allen**, Resident, Laboratory Animal Medicine, University of Pennsylvania, Philadelphia, PA

**Melanie Ammersbach**, PhD candidate, Ontario Veterinary College, Guelph, Ontario, CA

**Hannah Bender**, Lecturer, Veterinary Pathology, Murdoch University, Perth, AU

**Hille Fieten**, PhD Candidate, Genetics, University of Utrecht, the Netherlands

**Amanda Kreuder**, PhD candidate, Iowa State University, Ames, IA

**Rebecca Mitchell**, Postdoctoral Fellow, Cornell University, Ithaca, NY

**Marieke Opsteegh**, Postdoctoral Fellow, Marie Curie Fellow, Moredun Research Institute, University of Edinburgh, UK

**Emily Orchard-Mills**, PhD Candidate, Psychology, University of Sydney, AU

**Trisha Oura**, Academic Tutor, North Carolina State University, Raleigh, NC

**Johanna Rigas**, Instructor, Clinical Pathology, Washington State University, Pullman, WA

**Klara Saville**, Service Officer, The Brooke, London, UK

**Catherine Trickett**, PhD Candidate, Animal Behavior, Bristol University, UK

**Nina Weishaupt**, PhD candidate, Neuroscience, University of Alberta, Edmonton, Alberta, CA

## 2006

**Onno Burfeind**, Research Assistant, Clinic for Animal Reproduction, Freie Universität, Berlin, Germany

**Bronwyn Clayton**, Postdoctoral Fellow, Virology, CSIRO, Geelong, AU

**Alexander Corbishley**, PhD candidate, Immunology, Roslin Institute, University of Edinburgh, UK

**Janny de Grauw**, Postdoctoral Fellow, Faculty of Medicine, Utrecht University, the Netherlands

**Louise Fitzgerald**, Resident, Pathology, University of Pennsylvania, Philadelphia, PA

**Anne Gordon-Schneider**, PhD candidate, Cornell University, Ithaca, NY

**Annika Haagsman**, Resident, Small Animal Surgery, University of Utrecht, the Netherlands

**Eva-Marie Laabs**, PhD candidate, Parasitology, Tierärztliche Hochschule, Hannover, Germany

**Jane Leadbeater**, Medical Student, Griffith University, Brisbane, AU

**Gelja Maiwald**, Head, Companion Animal Products, IDT Biologika, Dessau, Germany

**Richard Meeson**, Lecture, Surgery, Royal Veterinary College, UK

**Ashley Neary Hartley**, PhD Candidate, University of Georgia, Athens, GA

**Joseph Neary**, PhD Candidate, Epidemiology, Colorado State University, Fort Collins, CO

**John Parker**, PhD Candidate, Neurology, University of Cambridge, UK

**Tiffany Reed**, PhD Candidate, Cancer Biology, NIH, Bethesda, MD

**William Sander**, AAAS Science and Technology Fellow, Office of Human Health and Risk Assessment, Washington DC

**Justine Shotton**, MS Candidate, Wildlife Medicine, Royal Veterinary College, London, UK

**Laura Spoor**, PhD candidate, Bacteriology, Roslin Institute, University of Edinburgh, UK.

## 2007

**Patrick Ayscue**, Fellow, Science and Technology Policy, National Academy of Sciences, Washington D.C.

**Sonja Bröer**, PhD Candidate, Pharmacology, Tierärztliche Hochschule, Hannover, Germany

**Stephen Burr**, PhD Candidate, Immunology, Cambridge University, UK

**Rosemary Brungs**, Medical Student, University of Sydney, AU

**Sarah Caddy**, PhD Candidate, Virology, Imperial College, London, UK

**Elva Cha**, Principal Biometrician, Novartis, East Hanover, NJ

**Boran Choi**, MS candidate, Immunology, Seoul National University, Seoul, South Korea

**Amy Fulton**, Resident, Dentistry and Oral Surgery, University of California, Davis, CA

**Ludwig Groebler**, Veterinary Medical Educator, European Surgical Institute, Hamburg, Germany

**Laura Grogan**, PhD Candidate, Conservation Biology, James Cook University, AU

**Kate Johnson**, PhD Candidate, Clinical Science, Royal Veterinary College, London, UK

**Kristin Lewis**, Resident, Pathology, The Ohio State University, Columbus, OH

**Ryan Traslavina**, Postdoctoral Fellow, National Institute of Neurological Diseases and Stroke, NIH, Bethesda, MD

**Maria Volkmann**, PhD Candidate, Freie Universität, Berlin, Germany

**Annemarie Voorbij**, PhD Candidate and Resident, Medicine, University of Utrecht, the Netherlands

**Shen Yang**, Postdoctoral Fellow, Cell Biology, Eidgenössische Technische Hochschule, Zürich, Switzerland

## 2008

**Rachel Acciacca**, Branch Chief, Veterinary Services, Camp Lejeune, Marine Base, NC

**Hannes Bergmann**, PhD Candidate, Australian National University, Canberra, AU

**Jennifer Bernard**, Resident, Pathology, University of Tennessee, Knoxville, TN

**Jennell Bigrigg**, Resident, Comparative Pathology, Johns Hopkins University, Baltimore, MD

**Anna Byron**, M.S. Candidate, University of Sydney, Sydney, AU

**Lucie Chevallier**, Resident, Pathology, Ecole Nationale, d'Alfort, Paris, France

**Katharina Dinger**, PhD Candidate, University Hospital, Cologne, Germany

**Johanna Dups**, PhD Candidate, Virology, CSIRO, Geelong, AU

**Anna Heymer**, Dr. Med. Vet. candidate, Nutrition, Tierärztliche Hochschule, Hannover, Germany

**Lisa Holz**, PhD Candidate, Cardiology, University of Tübingen, Germany

**Sally Ann Iverson**, ORISE Research Fellow, Plum Island Animal Disease Center, NY

**Prabhpreet Kaur (nee Singh)**, Government Veterinarian, AVA, Singapore

**Joshua Leach**, MSc Candidate, Beatson Institute for Cancer Research, Glasgow, UK

**Ming Lui**, Intern, Emergency and Critical Care, Advanced Critical Care, Los Angeles, CA

**Katherine McKelvey**, Resident, Theriogenology, North Carolina State University, Raleigh, NC

**Joanna Mleczko**, PhD Candidate, Cornell University, Ithaca, NY

**Dallas New**, MSc Candidate, University of Saskatchewan, Saskatoon, SK, CA

**Annelies Nijdam**, Research Scientist, Hematology, University of Utrecht, the Netherlands

**Jessica Privett**, MPH Candidate, University of Sydney, Sydney, AU

**Kimberley Schiller**, Management Consultant, Accenture, London, UK

**James Swann**, Resident, Small Animal Medicine, Royal Veterinary College, London, UK

## 2009

**Floryne Buishand**, PhD candidate and Resident, Small Animal Surgery, Cell Biology, University of Utrecht, the Netherlands

**Nancy Erickson**, PhD Candidate, Pathology, Freie Universität, Berlin, Germany

**Laura Gey**, PhD Candidate, Pharmacology, Tierärztliche Hochschule, Hannover, Germany

**Sonja Heinrich**, Dr. Med. Vet Candidate, Institute for Zoo and Wildlife, Berlin, Germany

**Alan Humphreys**, Resident, Laboratory Animal Medicine, Baylor College of Medicine, Houston, TX

**Shuhei Ito**, PhD Candidate, Cellular Biochemistry, University of Tokyo, Japan

**Beth Licitra**, PhD Candidate, Cornell University, Ithaca, NY

**Greta Schmoyer**, Veterinary Medical Officer, USDA APHIS VS, Indianapolis, IN



**Meredith Sherrill**, Resident, Small Animal Medicine, University of Missouri, Columbia, MO

**Elizabeth Slack**, PhD Candidate, Pathology, Royal Veterinary College, London, UK

**Katrina Stewart**, Resident Medicine, Purdue University, Lafayette, IN

**Jakob Trimpert**, PhD Candidate, Virology, Freie Universität, Berlin, Germany

**Sarah van Rijn**, Intern, Resident in Small Animal Surgery, Utrecht University, the Netherlands.

**Hans Winkler**, PhD Candidate, Pharmacology, University of Zurich, Switzerland

**Bing Yun Zhu**, Resident, Small Animal Medicine, University of California, Davis, CA

## 2010

**Mirjam Brackhan**, PhD Candidate, Pharmacology, Tierärztliche Hochschule, Hannover, Germany

**Heike Breuer**, PhD Candidate, Pharmacology, Tierärztliche Hochschule, Hannover, Germany

**Zachary Chillag**, Captain, U.S. Army Veterinary Corp., Fort Bragg, NC

**Clinton Doering**, Resident, Comparative Veterinary Ophthalmology, University of Calgary, Calgary, Alb

**Line Greve**, PhD Candidate, Sports Medicine, Royal Veterinary College, London, UK

**Sarah Hooper**, Resident, Laboratory Animal Medicine, University of Missouri, Columbia, MI

**Brina Lopez**, PhD Candidate, Equine Medicine, University of Georgia, Athens, GA

**Luise Steltzer-Seeker**, PhD Candidate, Cell Biology, Scottish Agricultural College, Edinburgh, UK

**Eliza Smith**, Researcher, Food Safety and zoonoses, International Livestock Research Institute, Nairobi, Kenya,

**Daniel Woodburn**, Resident, Zoological Pathology, University of Illinois, Urbana, IL

**Sirima Yaemsiri**, Resident, Small Animal Medicine, University of California, Davis, CA



## 2011

**Ángel Abuelo Sebio**, PhD Candidate, Metabolism, University of Santiago de Compostela, Spain

**Jessica Brown Beck**, Resident, Pathology, Purdue University, Lafayette, IN

**Kristin Elfers**, PhD Candidate, Physiology, Tierärztliche Hochschule, Hannover, Germany

**Per Karlsson**, PhD Candidate, Robotics, Imperial College, University of London, UK

**Maureen O'Brien**, Resident, Pathology, Texas A&M University, College Station, TX

**Erasmus zu Ermgassen**, PhD Candidate, Environmental Science, University of Cambridge, UK



## 2012

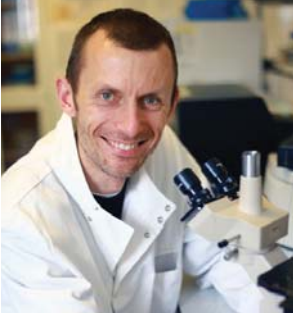
**Josep Duato-Botam**, DPhil Candidate, Molecular Biology, University of Oxford, UK

**Hilary Hu**, PhD Candidate, Neurobiology, Iowa State University, Ames, IA

**Lucas Smolders**, Intern, Surgery, University of Zurich, Switzerland



# What Did They Say?



"20 years ago I worked with Colin Parrish as a student. Now we are collaborators. Isn't science exciting."

Alan Radford, 1991



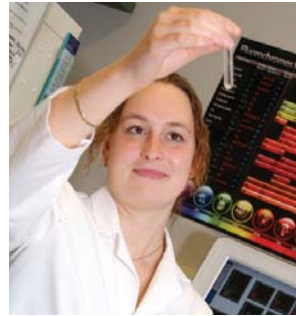
"To this day, I am glad that I took part in the Leadership Program."

Karyn Havas, 2002



"The Leadership Program was tremendous and another of the many great opportunities and treasured memories at Cornell!"

Prema Arasu, 1991



"I still love to look back to that great summer and the valuable experiences I gained."

Eva-Maria Laabs, 2006



"Last February, my Professor from Cornell Ton Schat, stayed in Amsterdam. We had a very good conversation and shared great memories of the summer 15 years ago in Ithaca."

Anne Marije Sparnaaij, 1998



"I miss Ithaca, Cornell and especially the Leadership Program."

Maria Volkmann, 2007



"The 2000 Leadership Program propelled me along the career path I am now pursuing."

Stephen Daley, 2000



"It was for sure one of the best things I ever did for my career and it truly opened the world to me."

Jolanda Verhoef, 2009



"I have fond memories of my experience in the Leadership Program."

Lisa Rose, 2002



"The program provided me with the necessary knowledge and motivation to pursue a career, both as a veterinary clinician and researcher, all in order to advance both human and veterinary medicine."

Lucas Smolders, 2012



# *In the Limelight:*

*Robin Yates*



I attended the Cornell Leadership Program in 2001 when I was completing my final year of veterinary school at the University of Queensland, Australia. I knew at that time that I wanted to pursue a career in biomedical research, but it was the Leadership Program that provided me with the knowledge needed to best achieve this goal. After graduating and then completing a small animal medicine internship at Queensland Veterinary Specialists, I returned to Cornell in 2003 with a Fulbright scholarship to pursue a Ph.D. I completed this in 2006 under the supervision of Dr. David Russell studying the host-pathogen interface in tuberculosis. *Mycobacterium tuberculosis* parasitizes the macrophage, and my thesis focused on how sub-cellular compartments within the macrophage are manipulated by this bacterium, enabling it to perpetuate its own survival. I continued this line of investigation during my post-doctoral fellowship with Dr. Russell with greater focus on the bacterial components

involved in this interaction. In 2008, I started on faculty at the University of Calgary, Canada, as an assistant professor with a joint appointment to the Department of Comparative Biology and Experimental Medicine in the Faculty of Veterinary Medicine and the Department of Biochemistry and Molecular Biology in the Faculty of Medicine. The cross-appointment has been key to establishing a rigorous research program in human medicine as well as maintaining ties to my veterinary roots.

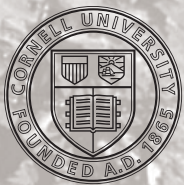
The research team that I currently lead consists of a stellar group of nine highly-trained scientists and graduate students ([www.ucalgary.ca/yateslab](http://www.ucalgary.ca/yateslab)). Together we conduct research to better understand the fundamental function of immune cells called phagocytes in health and disease. These cells exist within every cubic millimeter of every tissue of every animal and human. Normally they act to maintain health and guard against infection, but in certain people, these cells can dysfunction, leading to the destruction of healthy cells, which results in diseases such as multiple sclerosis (MS). MS is the most common debilitating neurological disease that affects young-adults in the U.S., U.K. and Canada. My research team is dedicated to better understand changes to antigen processing in MS, and other similar autoimmune disorders.

In addition to biomedical research, I still get much satisfaction in teaching immunology and investigative medicine to DVM students in Canada's newest veterinary college. It's also gratifying to see some of my students be admitted into the Cornell Leadership Program and have them come back buzzing from the experience. The Cornell Leadership Program was exceedingly influential on my career. It is great to see the diversity of the leadership students, and career paths that this program fosters, and I feel honored to be part of its legacy.

*Robin is an Associate Professor at the University of Calgary.*

To prepare tomorrow's scientists and public health professionals





Cornell University  
College of Veterinary Medicine

**For more information about the Leadership Program, contact**

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Leadership Program for Veterinary Students  
Baker Institute for Animal Health  
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**[www.vet.cornell.edu/BBS/leadership](http://www.vet.cornell.edu/BBS/leadership)**

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