# Table of Contents

Acknowledgements ........................................................................................................... 6
Program Agenda .................................................................................................................. 7
2015 Program Scholars ....................................................................................................... 8
Activities ............................................................................................................................. 10
  Research ........................................................................................................................... 10
  Leadership ......................................................................................................................... 11
  Leadership in Action ......................................................................................................... 12
Infectious Diseases ............................................................................................................ 13
Drug Design ......................................................................................................................... 14
Careers in Industry ............................................................................................................. 15
Hypothesis Development .................................................................................................... 16
Career Explorations ............................................................................................................ 17
NIH Visit ............................................................................................................................. 18
Armed Services Research ................................................................................................. 20
Presentations and Prizes ..................................................................................................... 22
Program Scholars & Their Research .................................................................................... 23
Facilitators .......................................................................................................................... 36
Housing .............................................................................................................................. 38
Time Out .............................................................................................................................. 39
Program Dinner ................................................................................................................... 40
Program Alumni .................................................................................................................. 42
Where Are They Now? ....................................................................................................... 43
What Did They Say ............................................................................................................. 54
In the Limelight: Dr. Kevin Woolard .................................................................................... 55
The mission of the annual Cornell Leadership Program for Veterinary Students is to provide participants with learning experiences that clarify and reinforce their commitment to careers in science. The Program is distinguished by a tradition of excellence that spans 25 years. During this time, 589 alumni have participated. These individuals came from 67 veterinary colleges from 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 the program hosted 24 outstanding scholars this year. Some of these individuals have already committed to a career that will involve research. It is too early to know where their careers will take them; however, 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 participate in modules and workshops that are designed to highlight

John S. L. Parker, BVMS, Ph.D., Program Director
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 and means of prevention. 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 practical 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. The Leadership Program seeks to provide guidance on how best to cope with these challenges.

David R. Fraser, BVSc, Ph.D., Co-Director
THE LEADERSHIP PROGRAM FOR VETERINARY STUDENTS IS MADE POSSIBLE THROUGH AWARDS FROM FEDERAL AGENCIES, corporations, foundations, Universities, and other private sector sponsors. For their generous support this year, the program organizers thank:

- **Albert C. Bostwick Foundation**
- **Cornell Feline Health Center**
- **Deutscher Akademischer Austauschdienst (DAAD)**
- **University of Cambridge**
- **Royal Veterinary College**
- **University of Bristol**
- **Zoetis Inc.**
- **National Institute for Health**

The program organizers also thank the facilitators, counselors, and mentors who took part in the 2015 program. Thank you to Ms. Alexandra Chiusano, the Program Coordinator, Ms. Bonnie Coffin, 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.

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:


Interested parties also are invited to visit the program website at [http://www.vet.cornell.edu/BBS/Leadership](http://www.vet.cornell.edu/BBS/Leadership)
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<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>Mon, June 1</td>
<td>Opening Meeting and Ethics Discussion</td>
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<td>Biological &amp; Chemical Safety Training</td>
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<td>Welcome BBQ</td>
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<td>Tues, June 2</td>
<td>Laboratory Orientation</td>
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<td>Sat, June 6</td>
<td>Career Discussion</td>
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<td>Mon, June 8</td>
<td>Leadership Module</td>
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<td>Reception &amp; Dinner</td>
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<td>Thurs, June 11</td>
<td>National Institutes of Health</td>
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<td>Fri, June 12</td>
<td>Walter Reed Army Institute of Research &amp; Naval Medical Research Center</td>
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<td>Tues, June 24</td>
<td>Research Project Previews</td>
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<td>Mon, June 22</td>
<td>Drug Design and Development Workshop</td>
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<td>Mon, June 29</td>
<td>Hypothesis Development Workshop Pre-Meeting</td>
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<tr>
<td>Mon, July 6</td>
<td>Infectious Diseases Workshop</td>
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<td>Thurs July 9</td>
<td>Reunion Dinner</td>
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<td>Mon, July 13</td>
<td>Careers in Industry Workshop</td>
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<td>Tues, July 14</td>
<td>Leadership in Action</td>
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<td>Mon, July 20</td>
<td>Research Training</td>
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<td>Wed, July 22</td>
<td>Translational Science</td>
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<td>Thurs, July 23</td>
<td>Hypothesis Development Workshop</td>
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<td>Fri, July 24</td>
<td>Wine and Cheese Event</td>
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<td>Mon, July 28</td>
<td>Career Planning</td>
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<td>Wed, August 5</td>
<td>Research Presentations</td>
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<td>Thurs, August 6</td>
<td>Research Presentations &amp; Farewell Dinner</td>
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<td>Kevin Mu</td>
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<td>Hayley Robbins</td>
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<td>Mark Savage</td>
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Activities

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 Klaus Osterrieder, Professor Douglas McGregor, Dr. Mirja Wilkens, and Professor Elizabeth Simpson.
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 and Douglas McGregor, offered points to consider as well as feedback for the students to ponder.
Infectious Diseases

A workshop moderated by Professors Dermody, Carter, Parker, and van de Walle 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. Bob Barclay and Leanne Zhu 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.
To prepare tomorrow’s scientists and public health professionals

**Careers in Industry**

**Drs. Gerard Hickey, Emily Hickey, and Peggy McCann** conducted mock interviews for three positions in the pharmaceutical industry. 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.
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, provided an overview of the problem and then evaluated the students proposals and made suggestions during a formal presentation of the student’s ideas to their peers.
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.

Drs Kornreich, Ossiboff, and Springer reviewed career options available to veterinary graduates who aspire to careers in science. The three 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 Parker, Weiss, Kurpios and 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

**Introduction**
Dr. Charles Halsey, D.V.M., Ph.D., DACVP, National Cancer Institute

**Welcome to the NIH!**
Dr. Richard Wyatt, M.D., Executive Director, NIH Office of Intramural Research, NIH

**Characterization of the blood-tumor barrier in permeable and impermeable brain metastases from breast cancer**
Dr. Tiffany Lyle, D.V.M., DACVP, Comparative Biomedical Scientist Training Program Fellow, Women’s Malignancies Branch, NCI

**SIV infection of nonhuman primates as a model for human AIDS**
Dr. Vanessa Hirsch, D.V.M., D.Sc., DACVP, Senior Investigator, Chief Nonhuman Primate Virology Section, Laboratory of Molecular Microbiology, NIAID

**Use of animal models in research on emerging respiratory viruses**
Dr. Kanta Subbarao, M.B.B.S., M.P.H., Senior Investigator, Chief, Emerging Respiratory Viruses Section, Laboratory of Infectious Diseases, NIAID

**Where can you go? A broader view of veterinary career opportunities**
Dr. Franziska Grieder, D.V.M., Ph.D., Director, ORIP, NIH

**My year in a research lab**
Dr. Lisa Gretebeck, V.M.D., Research Fellow, Medical Research Scholarship Program, NIAID

**Immunotherapy for cancer: from promise to reality**
Dr. James Gulley, M.D. Ph.D., Chief, Genitourinary Malignancies Branch, Director, Medical Oncology Service, Center for Cancer Research, NCI

**Research training opportunities for veterinarians and vet students at NIH**
Dr. Charles Halsey, D.V.M., Ph.D., Staff Scientist, Molecular Pathology Unit, Laboratory of Cancer Biology & Genetics, NCI

**Plasticity beyond the synapse: regulation of myelin by action potentials**
Dr. Douglas Fields, Ph.D., Senior Investigator, Chief, Nervous System Development and Plasticity Section, NICHD

**Path to the clinic: assessment of iPSC-based cell therapies in vivo in a nonhuman primate model**
Dr. So Gun Hong, D.V.M., Ph.D., Postdoctoral Fellow, Molecular Hematopoiesis Section, NHLBI

**Novel insights into cardiovascular research using multiphoton microscopy**
Dr. Leah Zadrozy, D.V.M., Comparative Biomedical Scientist Training Program Fellow, Laboratory of Cardiac Energetics, NHLBI
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 accompanied by tours of the superb research facilities at WRAIR/NMRC.

Agenda

Welcome and overview
- COL Stephen E. Braverman, Commanding Officer, WRAIR
- CAPT John Sanders, Commanding Officer, NMRC

Undersea medicine research at NMRC and discussion/tour of dive chambers
- Lt Nicholas Rooney, Undersea Medicine

Experimental Therapeutics: Leishmania and Malaria
- Dr. Richard Sciotti, Experimental Therapeutics
- MAJ Charles Bane, Experimental Therapeutics

Blast injury overview and discussion/blast tube demonstration
- Dr. Joseph Long, Chief of Blast Induced Neurotrauma

Discussion/questions/tour of insectary
- MAJ Silas Davidson, Entomology
To prepare tomorrow’s scientists and public health professionals
Presentations and 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 Peter Kilfeather for the best overall research achievement as judged by his underlying hypothesis, investigative protocol, results, and presentation. Additional prizes were awarded to Alexa Edmunson, Yun Ha Hur, and Hayley Robbins, for exceptional achievements in integrative biology, cell biology, and molecular biology, respectively. The Selection Committee for the 2015 Leadership Program salutes these individuals and congratulates the entire group for their commitment to research and the excellence of their presentations.

Program Prize
Peter Kilfeather
Cortical microvascular and inflammatory change with consumption of a high-fat diet

Integrative Biology Prize
Alexa Edmunson
The Pituitary Bile Acid Receptor: TGR5 and Gonadotrope Signaling

Cell Biology Prize
Yun Ha Hur
Effects of extracellular vesicles on tumor progression as mediators of intercellular communication

Molecular Biology Prize
Hayley Robbins
Characterization of peptidylarginine deiminase expression and activity within canine skin tumors
Souheyla Benefrid. *Ecole nationale veterinaire d’Alfort, Virology*

*Raltegravir in-vitro treatment assay on two equine herpesviruses.*

When I was in second year of veterinary school, I attended a brilliant lecture at the National School of Administration that explained how smallpox and rinderpest had been eradicated. I am a fifth-year student at Alfort Veterinary School in France. I have completed a Master’s degree in Virology at the Pasteur Institute in Paris. My combined degree motivated me to apply for the Veterinary Leadership Program and after this experience I am planning to undertake a PhD.

My summer project in the Van de Walle lab was about the drug Raltegravir and its effect on herpesviruses. Raltegravir is an FDA approved human immunodeficiency virus (HIV) integrase inhibitor that has been shown to be effective against the human herpes simplex virus type 1 (HSV-1, an alphaherpesvirus) and human cytomegalovirus (HCMV, a betaherpesvirus). This summer I showed that raltegravir can also inhibit equine herpesvirus type 1 (EHV-1) in vitro at concentrations non-toxic to cells. I also studied Raltegravir’s effect on equine herpesvirus type 2 (EHV-2) and my preliminary findings suggest that Ralegravir also inhibits EHV-2 infection.

The Leadership program allowed me to upgrade my laboratory skills and gave me contacts and critical advice to prepare me to pursue a PhD. I would like to thank the Van de Walle lab for their patience and mentorship, and the entire program for this great opportunity, especially Zoetis and the FHC for their financial support. No doubt the program will be a major stepping stone in my career and I will always be grateful for the things I learned this summer in Cornell.

Else den Boer. *Utrecht university, Microbiology*

*The effect of Faecalibacterium Prausnitzii supernatant on the growth and virulence of adhesive-invasive E.coli.*

I’m a veterinary student currently starting my clinical years. While I grew up I had a never ceasing interest in animals, combined with an ongoing curiosity in how things work and why. It’s therefore not surprising that I became interested in research during my study. I applied for the Leadership program to obtain more experience in research and to get to know veterinary students from all over the world. This summer opened my eyes for the career options I have and made me realize that a career in academia might be the way to go for me.

This summer I investigated the effect of Faecalibacterium Prausnitzii (F.P) supernatant on adhesive-invasive E.coli (AIEC). In healthy adults, F.P represents more than 5% of the bacteria in the intestine, making it one of the most common gut bacteria. Lower than usual levels of F.P. in the intestines have been associated with Crohn’s disease and obesity. In patients with Crohn’s disease, the percentage of F.P. decreases, but the percentage of AIEC increases, causing dysbiosis. I found that F.P. supernatant has the ability to decrease the virulence and growth of AIEC, indicating that F.P. has a role in monitoring AIEC levels in the gut and revealing a possibility for a new treatment of Crohn’s disease patients.

I want to thank everybody from the Simpson lab for their help and support during this summer, especially Shiyng Zhang and Kenneth Simpson. I also want to thank Carla Foditsch for kindly providing me with the F.P. supernatant and Zoetis for the funding.
Alexa Edmunson, The Ohio State University, Molecular Biology
The Pituitary Bile Acid Receptor: TGR5 and Gonadotrope Signaling.

Upon completing my DVM, I plan to complete a graduate degree while becoming board-certified in laboratory animal medicine. The Leadership program gave me a comprehensive look at career options in research.

This summer I studied gonadotropin releasing hormone (GnRH) cellular signaling in pituitary cells. Mouse pituitary cells have a GnRH-responsive G-Protein Coupled Receptor called TGR5. TGR5 is a bile acid receptor. TGR5 could link metabolism to the hypothalamic-pituitary-gonadal axis. I hypothesized that TGR5 influences the pituitary gonadotropin signaling axis and secretion of gonadotropins in a GnRH-responsive and ERK-dependent manner. To test these hypotheses, I investigated the receptor’s location, response to ligands, and influence on cell secretion. I found that TGR5 was present and responded to Gonadotropin-releasing hormone (GnRH) in alphaT31 cells and mouse pituitary cells; this response depended on the presence of Extracellular Signal Regulated Kinase1/2 (ERK1/2). I also found that TGR5 co-fractionated with the GnRH receptor in low-density lipid rafts in the cellular membrane and that GnRH stimulation caused TGR5 to redistribute to the high and low-density raft fractions of the membrane. In addition, I found that TGR5 levels in primary culture pituitary cells increases with exposure to cholic acid (a bile acid), and that such treatment increased transcription factor activation in αT31 cells. Cultured pituitary cells also had increased luteinizing hormone (LH) in response to cholic acid administration. My findings suggest that the bile acid receptor TGR5 is GnRH-responsive and ERK-dependent, and affects the pituitary gonadotrope cell secretion of gonadotropins. These findings could have implications for reproductive dysregulation in obese animals, premature puberty, and variability of estrous timing in seasonally-cycling animals. I would like to thank the Roberson lab for hosting me and the NIH & Bostwick Foundation for their support of this project.

Simon Frueh, Ludwig-Maximilians University Munich, Immunology
Canine Allergic Disease – The role of canine innate lymphoid cells in allergy.

As a member of the Elia Tait Wojno Lab, I characterized a rare type of innate immune cell called Group 2 Innate Lymphoid Cells (ILC2s) in canine blood to determine the role of these cells in allergy. ILC2s have been shown to play a major role in atopic disease in humans and mice, as they produce large amounts of cytokines to promote tissue inflammation. Thus, we hypothesized that we could find ILC2s in canine blood and that they might be associated with canine allergy. To test this I stained canine leukocytes from the peripheral blood of allergic and non-allergic dogs for surface molecules and transcription factors and analyzed the staining using flow cytometry. My preliminary data showed that we can detect ILC2s in canine blood. Surprisingly, when I quantified ILC2s in the blood of non-allergic vs. allergic dogs, I found that total numbers of ILCs in canine blood decrease in allergic dogs. However, ILC2s represent a higher fraction of the total ILCs in allergic dogs compared to non-allergic dogs. In addition, I successfully developed a method to culture canine ILC2s in vitro and measure cytokine production and made first steps in the development of the T helper cell polarization assay. The data showing that total numbers of ILCs in canine blood decrease in allergic dogs suggest that these cells migrate to inflamed tissues in allergic individuals, raising the question of whether the numbers of ILCs in the skin and other inflamed tissues increase in allergic dogs. Together, my results support the hypothesis. However, more data will be need to confirm these findings and to definitively link these findings to allergic disease in dogs.

Thank you to Dr. Elia Tait-Wojno for your outstanding mentoring and of course to Drs. Fraser, McGregor and Parker for everything they did for us! Additionally, I want to thank the DAAD and the Albert C. Bostwick Foundation for their support!
Crystal Gergye, University of Georgia, Molecular Biology
*A study of membrane adhesion and the fusion protein, HAP2, in Tetrahymena thermophila.*

As a third year veterinary student, I was excited to join the Cornell Leadership Program to get a more intricate understanding of research at the molecular level.

This summer I joined the Clark Lab which studies pathogen-host interactions at a molecular level using the protozoan, *Tetrahymena* thermophila, as a cellular model. HAP2 is a eukaryotic protein involved in membrane fusion processes that is required for gamete fusion and genetic exchange. HAP2 is conserved in many eukaryotic organisms, including plants, and increased knowledge of its function would give greater insight into the fertilization process. This summer I attempted to localize this protein at different time points in the mating process using immunofluorescence and confocal microscopy. Using a well-studied lectin based tag, Concanavalin A, I visualized HAP2 co-localizing with Con A at the conjugation junction during mating. I also determined that Con A receptors localize at the anterior portion of the cell prior to HAP2. When I imaged HAP2 truncation mutants I found preliminary evidence that truncated HAP2 mutants are quickly degraded and exocytosed from *Tetrahymena* mating cells. Further research is needed to determine if the removal of these functional domains leads to the loss of localization of HAP2 at the conjugation junction. Continued investigation into this protein is likely to provide greater knowledge of membrane fusion during eukaryotic fertilization.

I would like to give my sincere thanks to Dr. Ted Clark, Dr. Donna Cassidy-Hanley, and Jennifer Pinello for guiding me in this project and encouraging me to think through a scientific process. Finally, I would like to thank the NIH & Bostwick Foundation for providing the funding support.

Elena Graf, Tierärztliche Hochschule, Hannover, Microbiology & Immunology
*Investigating the pathogenesis of MCMV-infection of the brain in neonate mice.*

I applied to the Cornell Leadership Program hoping to learn more about research and the associated career options and also to make contact with other students with similar interests and researchers who can counsel me during my career. After graduation I’m planning to do a doctoral thesis or a PhD.

Cytomegalovirus is a double-stranded DNA virus belonging to the betaherpesviridae and in the US, the leading viral cause of congenital brain damage that can result in severe lifelong disabilities. Because it is not known yet how the virus gains entry into the brain and which cell type is first infected, we hypothesized that microglial progenitors function as “Trojan horses” and carry the virus into the brain from the blood.

To test the hypothesis I infected neonate mice intraperitoneally with MCMV-GFP, harvested and sectioned their brains at different time points, stained them for several markers, e.g. IBA1 (macrophages / microglia), CD31 (endothelial cells) and CD45 (T-cells) and imaged them using a confocal fluorescence microscope. Although, I could not find data to support or reject the hypothesis, I repeatedly observed infection of the endothelial cells lining the vasculature of the brain. This is a new observation and fits well with the known CMV tropism for endothelial cells in other parts of the body.

I want to thank Professor Rudd and his lab, especially Wisler Charles, for being so welcoming and cooperative and Drs. Parker, Fraser and McGregor, who made the program a unique experience. I’d also like to thank the Bostwick Foundation and the DAAD for their financial support.
Elaine Handley, Royal Veterinary College, Microbiology

Identification of the essential amino acids within the HilD protein of Salmonella Typhimurium required for the post-translational control of Salmonella invasion genes by fatty acids.

I am a final year veterinary student studying in London, UK with my home back across the pond in Marietta, Georgia. My goal is to hopefully work in the area of One Health and/or infectious disease, following time in large animal clinical practice.

I attended a talk about the Veterinary Leadership Program, presented by Dr. Carter, and was instantly hooked on the idea of advancing the veterinary profession, and the idea of human doctors and veterinarians collaborating and looking at medicine as one. During this program I gained new insights, new friends, and a better understanding of the role of veterinarians in research.

This summer I worked in the Department of Population Medicine on a project focused on the identification of the essential amino acids within the bacterial regulator HilD protein of Salmonella typhimurium, which is involved in the post translational control of Salmonella invasion genes in the presence of fatty acids. The long-term goal of this project is to come up with a prophylactic treatment for salmonellosis in farm species.

I would like to thank Dr. Craig Altier for welcoming me into his lab and making me feel like one of the team. I would also like to thank my mentors Dr. Chien-Che Hung, Dr. Colleen Eade and Staci Nugent for aiding me in my in lab research and putting up with all my questions. Finally, I would like to thank the NIH & Zoetis Inc. for funding my time and research here at Cornell University this summer.

Yun Ha Hur, Seoul National University, Cancer biology

Effects of extracellular vesicles on tumor progression as mediators of intercellular communication.

I decided to attend the Leadership Program was to gain additional research experience before pursuing a Ph.D. This goal was certainly met, but I also gained so much more. The Program not only afforded me with an experience in a cutting-edge lab, but also exposed me to potential career paths and wonderful people from all over the world.

My research project involved the study of microvesicles (MVs) and how they contribute to cancer progression. MVs are a form of cell-to-cell communication that involves the generation of membrane-enclosed packages of information by cells. These vesicles are then transferred to other cells, causing their behavior to change. When generated by cancer cells, MVs are able to promote the growth and survival of recipient cells. However, it is unclear whether normal cells produce MVs with similar capabilities. Using an onco-Dbl-inducible model of cellular transformation, I showed that normal fibroblasts generate similar amounts of MVs as their transformed counterparts, but that these MVs were less efficient at promoting cell survival. I then went on to discover that focal adhesion kinase (FAK), a signaling protein that has been linked to oncogenesis, is distinctly expressed in MVs collected from transformed cells. Inhibiting the FAK activity associated with the MVs abrogated their ability to promote cell survival, suggesting that the induction of cellular transformation leads to changes in MV cargo that provide them with unique capabilities.

I would like to thank the members of Cerione lab, especially Marc Antonyak and Laura Desrochers, for all their assistance, and Drs. McGregor, Fraser, and Parker for developing such amazing modules. I am also grateful for the funding support from Zoetis.
Shuting Jin,  University of Queensland, Genetics
Gain and loss of transcriptional regulatory activity in human CD4+ T cells.

I’m interested in the application of new technologies to existing problems, and in the Leadership Program I have been extremely fortunate to work under the mentorship of Professor Charles Danko on cutting-edge bioinformatics research studying how gene regulation contributes to evolution.

Different types of regulatory sites have recently been discovered using genome-wide analysis, including sites in closed, poised, and active states. Changes in activity at these sites are an important factor contributing to differences in phenotype between species. Using statistics and machine-learning tools developed by the Danko lab, I analyzed sequencing data from ChIP-seq, DNase-seq and other assays to look for gains of regulatory activity in human CD4+ T cells arising from ancestral poised states. This is the first evidence that transitions between classes of chromatin modifications occur during evolution.

I am very grateful to Professor Danko for his guidance and support, and to all of the lab members, especially Lauren Choate, for patiently answering all of my questions. I would also like to thank Drs. Parker, Fraser and McGregor for their encouragement and for creating such an incredible program. Many thanks to the NIH & Bostwick Foundation for making my participation in the Leadership Program possible.

Franziska Kaiser,  TiHo Hannover, Immunology
Characterization of the Specificity of Different Monoclonal Murine Anti-Equine IgA Antibodies in Serological Assays.

I applied to the Cornell Leadership Program hoping to benefit from an invaluable research experience and to learn about the professional opportunities available for veterinary graduates. This program offered me unique learning experiences in an inspiring environment of international participants.

This program has confirmed my wish to start a research orientated career after my veterinary graduation in three years.

I had the privilege to do my research in the Wagner Lab which performs projects on EHV-1 vaccine development, host-pathogen interaction, allergy and neonatal immunology.

An important topic in equine immunology is to identify the role of the different classes of immunoglobulins in viral infections.

My project this summer focused on equine mucosal immunity against EHV-1 infections and the identification of the class of the EHV-1 specific immunoglobulin. To achieve this goal I analysed the specificity of different monoclonal murine antibodies against equine IgA. For this I had the chance to test the antibodies in various serological assays, such as western blot and ELISA and could proof their reactivity.

I would like to use this chance to thank my mentor Dr. Bettina Wagner, Dr. Christiane Schnabel and the Wagner Lab for supporting me and my research, the Albert C. Bostwick Foundation, Cornell University Feline Health Center and DAAD for funding.
Joss Kessels,  **University of Queensland, Disease Modeling**  
*Optimization of Middle Eastern Respiratory Syndrome coronavirus single virion fusion assays.*

I began my veterinary degree with the idea that my training would lead to a globally-focused role with a direct, measurable impact on human-animal health through reducing disease and improving productivity of livestock. The Leadership Program has helped me identify the educational pathways that will be required for such a career, and provided an excellent network of friends and colleagues who are passionate about science!

My initial project was to compare economically optimised, cow- and herd-level culling policies for dairy herds using dynamic and linear programming, to assess the impact of milk quality on cow management decisions. This work is ongoing, and during the summer I revised previous work that uses dynamic programming to make economic comparisons of treatment protocols for clinical mastitis. We constructed treatment scenarios to reflect realistic treatment situations on-farm, and addressed how we could model these most accurately within the structure of our dynamic program. We found that pathogen-specific identification followed by recommended treatment is economically optimal relative to other treatment scenarios where all cows received recommended treatment.

This program has been an incredible experience and I would like to thank my mentor, Dr Yrjö Gröhn, Dr Elva Cha and Drs. Tauer and Kristensen for their guidance and support this summer. Thank you to Drs. Parker, McGregor and Fraser for facilitating such a wonderful and rewarding learning experience, and Zoetis for providing financial support.

Peter Kilfeather,  **University of Bristol, Biomedical Engineering**  
*Cortical microvascular and inflammatory change with consumption of a high-fat diet.*

Long-term consumption of a high-fat ‘western’ diet is a risk factor for major stroke; wherein vessel occlusion or hemorrhage causes widespread tissue hypoxia, neurodegeneration and rapid cognitive decline. The cause of progressive neurodegenerative conditions, such as dementia is not fully understood. We hypothesized that high-fat diet consumption elicits an inflammatory response within the brain, triggering microvascular occlusion, microglial reactivity and dendritic morphological abnormalities. Using two-photon fluorescence microscopy, we chronically monitored morphological changes in the cortical microvasculature and dendritic fields of three mice fed a high-fat diet (42% calories from fat). We also used laser speckle contrast imaging to quantify relative changes in cerebral perfusion over time. We found increased microglial number and collagen deposition within two weeks of commencing a high-fat diet. Blood velocity within cortical regions reduced by 12-22% after two weeks. The findings of this investigation have widespread implications, particularly within the Western World, where obesity and dementia rates increase continually. These experiments will likely prompt further investigation, ultimately informing public health guidelines for the prevention of obesity and/or neurodegenerative disease. Additionally, they may provide a framework by which to evaluate anti-inflammatory (or other compound) activity to prevent diet-induced inflammation within the brain.

I am grateful for the advice and assistance of Professors Nishimura and Schaffer during my project at the Leadership Program. I would like to thank Drs. Parker, McGregor and Fraser for their guidance, ideas and enthusiasm that make this program unique within the field. Additionally, I am thankful for the funding support provided by the University of Bristol, enabling me to take part at the Leadership Program.
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Kevin Mu,  Cornell University, Cancer Biology
*How to cure a cancer: assessing testicular germ cell tumors (TGCTs) response to cisplatin chemotherapy.*

I applied to the Cornell Leadership program as a first year veterinary student because I wanted to learn more about non-traditional career options in veterinary medicine.

During the program, I worked in Dr. Robert Weiss’s lab on a set of unusually curable cancers called testicular germ cell tumors (TGCTs). Using a novel mouse model of TGCT, we investigated the role of a unique population of cancer cells called cancer stem cells (CSCs) in mediating TGCT’s sensitivity to treatment. Using immunohistochemistry, we assessed the cancer stem cells’ responses to cisplatin chemotherapy in terms of mitotic activity, double strand breaks in DNA, activation of the DNA damage response protein p53 and cell death. I found that after treatment, p53 may be activating cell death, eliminating the cancer. P53 monitors DNA damage and can mediate a variety of responses to damage including cell cycle arrest or apoptosis. Strong p53 expression in this cancer is likely reflective of their origin from reproductive cell precursors. These cells have evolved a robust DNA damage response because their genomes are crucial to the viability of the species.

I would like to acknowledge the NIH & Bostwick Foundation for funding my experience, all the program facilitators for hosting modules and career panels, and of course, the other leadership students for a memorable, action packed summer.

Hayley Robbins,  University of Calgary, Cancer Biology
*Characterization of peptidylarginine deiminase expression and activity within canine skin tumors.*

My passion for research stemmed from my research experience gained throughout my health sciences undergraduate degree. After completing two years of my DVM degree, I still have a strong interest in pursuing a research-based career with a One Health focus.

I had the opportunity to work in Dr. Coonrod’s lab at the Baker Institute. The Coonrod lab studies peptidylarginine deiminases (PADs), which are a family of post-translational modification enzymes. They alter the structure and function of proteins by changing the charge of a certain amino acid. The laboratory is interested in the role of the PAD family in cancer biology. My goal was to characterize PAD enzyme expression and activity within benign and malignant canine skin tumors. In order to achieve this goal, immunohistochemistry was used to identify the PAD enzymes and the activity within the tumor and normal tissue. My results demonstrated that PAD enzyme expression, activity and cellular localization differ between the benign and malignant skin tumors.

I would like to thank Dr. Coonrod for his insightful mentorship and support this summer, as well as all of the members of the Coonrod lab, with special thanks to Lynne Anguish for her technical expertise. I would like to thank the NIH & Zoetis Inc. for funding my research scholarship and I would like to recognize all the individuals who make the leadership program possible.
Tierney Roche,  University of Pennsylvania, Virology
Investigating the role of feline junctional adhesion molecule A in feline calicivirus infection.

Feline Calicivirus (FCV) infection has a high prevalence in cat populations and can cause a variety of diseases. This summer, I worked with the receptor for feline calicivirus: feline junctional adhesion molecule A (fJAM-A). I investigated the capacity of the wild type (WT) fJAM-A to bind and inactivate FCV in comparison with two mutant fJAM-A molecules. We hypothesized that the WT receptor would bind and inactivate more efficiently than either mutant. However, this turned out not to be true and suggested that the receptor has other functions.

Before this summer, I did not have much research experience, which is why I originally applied for the program. My time in the lab has been very educational and I am happy to say that I had a great time. As a rising third year student, I am getting closer to choosing my career path, and the program has opened my eyes to many different options in the veterinary field, for which I am very appreciative.

I would like to thank everyone in the Parker lab for the help and instruction they gave me this summer. A special thanks goes to Meleana Hinchman and Dr. Zhengchun Lu for their wisdom and guidance. Additionally, I would like to thank Drs. Parker, Fraser and McGregor for organizing such an amazing program. I was lucky to be a part of it and I am very grateful for everything they have done. Finally, I would like to thank the NIH and the Feline Health Center for funding my project.

Mark Savage, University College Dublin, Microbiology
Uptake and assimilation of fatty acids by Mycobacteria.

During my first two years of Vet school, I established a curious and inquisitive mind-set that helped make my studies even more interesting. I felt the idea of completing a research project and attempting to discover the unknown, would serve to only strengthen this mentality and so I applied to Cornell Leadership Program.

I had the privilege of spending the summer in the lab of Prof. Brian VanderVen, investigating lipid metabolism in mycobacteria. Mycobacteria have a complex cell wall composed of both carbohydrates and lipids. The mechanisms that control assembly of the cell wall lipids remain unknown. To better understand cell wall lipid assembly in mycobacteria I developed a new method to image sites of lipid synthesis in the bacteria using innovative techniques such as click chemistry and confocal microscopy.

The Vanderven lab has recently identified a fatty acid transporter in Mycobacterium tuberculosis (M.tb). I sought to establish if a M.tb mutant lacking the fatty acid transporter does not assimilate host-derived lipids in vivo. To do this, I stained lipid inclusions in tissue sections from mice infected with M.tb using confocal microscopy. Using the 3D reconstructed images I then quantified the amount of stained lipid within M.tb in the lung tissues.

My participation in the program has improved my outlook on career possibilities post - MVB. Spending 10 weeks with 22 other remarkable scholars raised my levels of ambition, as well as enabling me to make lifelong friendships.

Finally, I would like to thank the members of the Vanderven Lab; Brian, Thuy, Christine and Naman for their mentorship and finally Zoetis and the Albert Bostwick Foundation for their financial assistance.
Julia Sehl, Freie University, Neurobiology
Determining the neural origins of song motor timing and auditory feedback signals in songbirds using retrograde and anterograde labeling Herpes Simplex Virus.

Gaining a broad understanding of movement disorders such as Parkinson’s or Huntington’s disease requires research on the basal ganglia thalamocortical loop associated with those diseases. The Goldberg Lab, where I spent my summer, focuses on motor learning through trial and error based on the basal ganglia thalamocortical loop in the songbird brain. Learning a song requires certain pieces of information: song timing and auditory error. My project was to figure out where those signals come from. In order to do that, I performed neurosurgeries to inject Herpes Simplex Virus. HSV labels the inputs to the Ventral Pallidum, a known part of the basal ganglia, which processes these incoming signals.

Due to my pre-existing interest in research, I applied for the Cornell Leadership Program, which exceeded all my expectations. It has provided me many opportunities to gain insight into the different fields of veterinary science. Additionally, spending the summer with people from different cultures and making new friends was a priceless part of the program that I really appreciate.

The Leadership Program encouraged me, as a rising 5th year student, to pursue an academic research career, specifically in veterinary pathology and neuroscience, where I hope to integrate my research interests and my passion for pathology.

I would like to thank the whole lab of Dr. Jesse Goldberg for the memorable experience this summer. Furthermore, I want to thank Drs. Parker, Fraser and McGregor for this amazing program and the DAAD for their support.

Sandra Stelzer, Freie University, Biomedical Engineering
Does increased substrate rigidity influence lipid-uptake in macrophages?

I have always been intrigued by all the diversity and secrets life has to offer. Before starting veterinary school in Berlin three years ago, I worked as a laboratory technician in basic medical research, which always fascinated me.

The Cornell Leadership Program has helped me to further investigate which path I would like to pursue regarding my career. It gave me the opportunity to combine doing what I love with new challenges. This summer will be unforgettable and I’m leaving with new friends and experiences.

My project this summer was to investigate the effects of mechanosignaling on the function of macrophages related to their role in the development of atherosclerotic plaques. Macrophages promote formation of atherosclerotic plaques through uptake and metabolism of lipids and cholesterol, but little is known about whether and how arterial stiffening leads to defective changes in their behavior. Cells sense their physical surroundings, such as the stiffness of tissues through a process called mechanotransduction. I used both an established cell line and primary mouse macrophages to quantitatively analyze lipid uptake by cells plated on surfaces with different stiffnesses mimicking normal and atherosclerotic vasculature. My findings show that as tissue stiffness increases, lipid uptake increases. These data suggest that macrophages may accumulate and become lipid-laden in the stiff atherosclerotic plaque. This information may lead to new ways to modulate macrophage function to reduce, or even reverse, plaque formation.

I sincerely thank Drs. McGregor, Fraser and Parker for all their effort and support during this summer, Dr. Leifer and her lab, especially Erika Gruber, for the great research experience and support and the DAAD, the Bostwick Foundation and the Feline Health Center for their funding.
Carlayna Stone,  Tuskegee University. Immunology
In vivo imaging in mouse models of metastatic tumor development.

When I first dreamed of becoming a veterinarian at the age of seven, I envisioned myself directly helping all species of animals by diagnosing and treating their ills. But my research experience during my undergraduate training in Africa peaked my interest towards pursuing a possible research career. I applied for the Cornell Leadership Program hoping to gain laboratory research skills. I found that the Cornell Leadership Program provided me with important information regarding career opportunities for veterinarians in research, which has helped me to make informed decisions to direct my career path.

My summer research project aimed to investigate the effect of Ayurvedic medicine on the passive systemic anaphylaxis response in mice. Brihatpanchamool (compound B) is one of the most important drugs used in Ayurvedic Medicine, due to its therapeutic abilities such as anti-inflammation, anti-pyretic, and analgesic properties associated with asthma and allergic diseases. I investigated whether Brihatpanchamool can suppress IgE mediated allergic responses and passive systemic anaphylaxis (PSA) pathways in mice. I found that compound B can reduce histamine release and temperature loss in a mouse systemic anaphylaxis model. Compound B can therefore reduce the symptoms of passive systemic anaphylaxis. This suggest that this component of Ayurvedic Medicine may be useful as an alternative therapeutic treatment for asthma and allergic diseases.

I would like to thank the members of the August lab, especially Amie Wood, for their assistance this summer and the NIH for providing financial support.

Valerie Tierney,  University College Dublin, Molecular Biology
CD8+ T-cell response in neonatal mice infected with murine cytomegalovirus.

By participating in the Leadership Program, I hoped to gain further research experience, and to also explore veterinary careers, outside that of traditional clinical work. The Leadership Program has been very useful in allowing me to investigate this, so I can make informed career decisions.

This summer I worked in the Linder Lab studying palmitoylation- the reversible post- translational modification of cysteine residues with fatty acids.

My project focussed on the human palmitoyltransferase DHHC20, an enzyme that is required for the activity of several cancer- associated proteins. DHHC20 is capable of transforming NIH/3T3 cells, suggesting that it is an oncogene, and it has been demonstrated that DHHC20 is over- expressed in many human tumours, including those of breast, ovarian and prostate cancers. Accordingly, DHHC20 is a potential target for novel anticancer therapeutics.

The aim of my project was to identify proteins that DHHC20 interacts with using BioID, a novel technique which involves fusing a promiscuous biotin ligase (BirA*) to a protein of interest. When expressed in cells in the presence of exogenous biotin, the ligase will biotinylate proteins that are in close proximity to the fusion protein. Any captured protein interactions can then be recovered on streptavidin beads and analysed by mass spectrometry. I created N-terminal C-terminal fusions of DHHC20 with BirA* to test in this system.

I would like to thank Professor Linder for granting me the opportunity to work in her lab this summer. Thank you to all the members of the lab- Wendy, Colin and Ian- for their assistance and support. I would also like to express my gratitude to Zoetis for funding this opportunity.
Alice Watson,  University of Cambridge, Biomedical Engineering  
**Transcriptional regulation in L-R asymmetric organogenesis: gene expression analysis in Pitx2 locus deletion mice.**  
During my preclinical studies I developed an interest in research and I was inspired further during my intercalated year studying embryonic development and neuroscience. I applied to the Veterinary Leadership Program as it enabled me to participate in cutting edge research at a top institution.

I investigated the genomic regulation of Pitx2, using the dorsal mesentery of the gut tube as a readout of left-right (LR) asymmetry. Pitx2 is an asymmetrically expressed critical transcription factor responsible for patterning and organogenesis of the left side, and is positioned within a locus of genes asymmetrically expressed on the right. I used a CRISPR/Cas9 mouse model with a deletion of e926, a putative regulatory element of Pitx2, to test the hypothesis that e926 regulates Pitx2 expression and will have phenotypic effects. Phenotyping included tracking weights and necropsies of the e926 null mice, whilst gene expression analysis involved whole mount, slice and section in situ hybridisations. I produced preliminary data for mouse weights from weaning to mating age, and found that at e9.5 there was no gross difference in Pitx2 expression, whilst at e10.5 there was evidence of bilateral Pitx2 expression in the foregut. These data suggest that e926 may regulate Pitx2 expression in a specific spatiotemporal pattern. Further investigation is required to fully elucidate this mechanism, and confirm the preliminary data generated in this project.

The program also broadened my knowledge of career pathways available to veterinary graduates, and clarified the routes that may be taken to obtain such positions. I am exceedingly grateful to the Kurpios lab for their generous support throughout my project, to my mentor Frances Chen, and to the University of Cambridge for their financial support.

Katriina Willgert,  Royal Veterinary College, Virology  
**The introduction and basic reproduction number of canine influenza virus H3N2 in the United States.**  
I am interested in infectious disease management and veterinary public health. The Cornell Leadership Program allowed me to improve my research knowledge and professional skills while exploring different career options. Following graduation next year, I hope to work towards an improved global public health at the animal-human-ecosystem interface.

During the summer I worked with canine influenza virus (CIV) H3N2 in the Parrish laboratory. The virus was detected in the United States for the first time in February 2015 and the aim of the study was to assess if CIV H3N2 entered the country through a single introduction event and how the virus has evolved in the United States since then based on molecular data. We also investigated the spatiotemporal distribution and basic reproduction number of CIV H3N2 to better understand the transmission dynamics of the infection.

I would like to thank Dr Colin Parrish, Dr Kai Huang and Dr Benjamin Dalziel for their inspiration and guidance throughout my research project. I would also like to thank all the fellow leadership students for the many great moments we have shared during the Program and the facilitators for making this experience possible. I am also very grateful for the financial support provided by the Royal Veterinary College.
Lauren Witter,  *Cornell University, Cancer Biology*

*Capturing Tumor Cells in Canine Mammary Cancer.*

Circulating tumor cells (CTCs) shed from advanced cancers set the stage for metastasis. A novel microfluidic device (GEDI) created by Dr. Kirby has successfully immunocaptured CTCs from human patients with pancreatic and prostatic carcinoma to determine metastatic risk and individualized chemotherapeutic responses. I worked this summer in Dr. Stokol’s laboratory in collaboration with Dr. Kirby to optimize the GEDI system for capturing canine cancer cells using a canine anti-tissue factor antibody. Tissue factor, a coagulation protein, is aberrantly expressed in some canine tumors, e.g. mammary cancer, osteosarcoma. Using the GEDI system, we successfully captured over 85% of canine mammary tumor cells infused into the device. Experiments with cancer cells spiked into canine blood still need to be done. We are hopeful that blood-spiked trials will be successful because of the promising capture rate. This technique has the potential to provide improved diagnostic and prognostic information in dogs with cancer.

A Brooklyn native and a rising third-year veterinary student at Cornell University, I applied to the Leadership Program to integrate research into my veterinary career. This summer I have met an amazing group of people who share my passion for science, learned new laboratory techniques, and developed my professional self. My future plans include entering a comparative medicine PhD and using basic research practices to advance human and animal health. I would like to thank my mentor Tracy Stokol and the Stokol lab, the Kirby lab, and the Leadership program for all of their support and guidance. I am grateful to the NIH & Zoetis Inc. for the funding for my project.

Alexandra Chiusano,  *Cornell University, Program Student Coordinator*

Alex is an Animal Science major at Cornell University with an interest in veterinary medicine as a career. Alex served as this year’s student coordinator of the program. She helped organize the workshops and modules and travelled with the students to Washington D.C. The scholars and program principals extend their gratitude to Alex for her help and hard work this summer and with her well with her future career plans.
Facilitators

Dr. Joel Baines, Professor and Dean, Louisiana State University
Dr. Bob Barclay, Associate Director, Business Development, Zoetis Inc.
Dr. Phillipa Beard, Group Leader and Veterinary Pathologist, Roslin Institute, University of Edinburgh.
Dr. Phillip Carter, Professor Emeritus, Animal Science University of Sydney.

Dr. Terry Dermody, Professor, Virology, Vanderbilt School of Medicine
Dr. David Fraser, Professor Emeritus, Animal Science University of Sydney
Dr. Franziska Grieder, Director, Office of Research Infrastructure Programs (ORIP), National Institutes of Health (NIH).
Dr. Michelle Haven, Senior Vice President, Corporate Development, Alliances and Solutions, Zoetis Inc.

Dr. Emily Hickey, Corporate Vice President, In vivo Discovery Research Services, Charles River Laboratories.
Dr. Gerry Hickey, President, Synergy Regulatory Services, LLC.
Dr. Bruce Kornreich, Associate Director, Feline Health Center, Cornell University
Dr. Natasza Kurpios, Associate Professor, Dept. Molecular Medicine, Cornell University.
Dr. Peggy McCann,
Director, Global Regulatory Affairs, Merck & Co.

Dr. Douglas McGregor,
Professor Emeritus, Microbiology & Immunology, Cornell University

Dr. Robert Ossiboff,

Dr. John Parker,
Associate Professor, Microbiology & Immunology, Cornell University

Dr. David Russell,
Professor, Microbiology & Immunology, Cornell University

Dr. Kenneth Simpson,
Professor, Clinical Sciences, Cornell University

Dr. Nora Springer,
Post-doctoral graduate fellow, Biomedical Engineering, Cornell University

Dr. Gerlinde van de Walle,
Assistant Professor, Microbiology & Immunology, Cornell University

Dr. Brian Vanderven,
Assistant Professor, Microbiology & Immunology, Cornell University

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

Dr. Leanne Zhu,
Associate Director, Business Development, Zoetis, Inc.

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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.
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Time Out

A PART 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. A feature of this years
program was the scholars participation in the Annual
Dragonboat race held on Cayuga lake.
Program Dinner

The Leadership Program scholars hosted a dinner for their mentors, module facilitators, counselors, and other guests at the Statler Hotel on the Cornell University campus.
To prepare tomorrow’s scientists and public health professionals
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 list are degrees alumni received before they began their veterinary studies.

### Academic Qualifications of DVM alumni of the Leadership Program (1990-2013)

<table>
<thead>
<tr>
<th>Degree</th>
<th>No.</th>
<th>% North America Alumni (N = 281)</th>
<th>No.</th>
<th>% Other Countries Alumni (N = 283)</th>
<th>% Total Alumni (N = 564)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PhD</td>
<td>52</td>
<td>18.2%</td>
<td>131</td>
<td>46.3%</td>
<td>32.3%</td>
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<tr>
<td>Dr. Med. Vet.</td>
<td>NA</td>
<td>NA</td>
<td>22</td>
<td>35.5%*</td>
<td>NA</td>
</tr>
<tr>
<td>MPH</td>
<td>13</td>
<td>4.6%</td>
<td>5</td>
<td>1.8%</td>
<td>3.2%</td>
</tr>
<tr>
<td>MS</td>
<td>9</td>
<td>3.2%</td>
<td>14</td>
<td>4.9%</td>
<td>4.1%</td>
</tr>
</tbody>
</table>

* Percentage of German and Austrian alumni.

The following table indicates that a substantial number of program alumni obtained residency training in the course of their graduate studies. One hundred and seven of these individuals were graduates of veterinary schools in North America while fifty-seven 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 (1990-2013)

<table>
<thead>
<tr>
<th>No.</th>
<th>% North American Alumni (N=280)</th>
<th>No.</th>
<th>% Other Alumni (N=283)</th>
<th>% Total Alumni (N=563)</th>
</tr>
</thead>
<tbody>
<tr>
<td>111</td>
<td>39.6%</td>
<td>57</td>
<td>20.1%</td>
<td>29.8%</td>
</tr>
</tbody>
</table>
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. In our 25th year, it is extremely gratifying to see the large number of alumni who have pursued the careers we advocated.

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, Director, Safety Assessment, Merck Research Laboratory, Philadelphia, PA
Elizabeth Lyon-Hannah, Associate Professor, Boise State University, Boise, ID
Richard Haworth, Head, Pathology, 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, Professor and 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, Associate Dean, Academic Affairs, College of Veterinary Medicine, University of Missouri, Columbia, MO
Ian Davis, Associate Professor, Veterinary Biosciences, The Ohio State University, Columbus, OH

1992

Judy Hickman-Davis, Director, Laboratory Animal Training Program/Associate Professor, Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, OH
Alan Radford, Reader, Infection Biology, University of Liverpool, UK
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, Technical Associate, Academic Diagnostic Biology, 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 Maximillian University, Munich, Germany

1993

Virginia Fajt, Associate Professor, Pharmacology, Texas A&M University, College Station, TX
Deborah Hoyle, Career Track Fellow, Epidemiology, University of Edinburgh, UK
Christopher Laing, Vice President, Science and Technology, University City Science Center, Philadelphia, PA
Emma Massey O’Neill, Lecturer, Small Animal Medicine, University College, Dublin, Ireland
Joanne Rainger, Anesthesiologist, University of Queensland, Brisbane, AU
Ashley Reynolds, Program Officer, MSNW, Inc., Redmond, WA
Susannah Ryan, Head, Science Communication, Waltham Center for Pet Nutrition, London, UK
Veiko Saluste, Chief Executive Officer, Interchemie Worken, Adelaar AS, Estonia

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

Lynn Wachtman, Senior Research Clinical Veterinarian, Massachusetts Institute of Technology, Cambridge, MA

1994

Melissa Beall, Medical Affairs Manager, IDEXX Inc., Portland, ME

Larissa Bowman, Director, Mountain Veterinary Pathology, Ashville, NC

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

Maria Lara-Tejero, Associate Research Scientist, Microbial Pathogenesis, Yale University, School of Medicine, 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

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

Stacy Pritt, Director, IACUC, University of Texas, South Western Medical Center, Dallas, TX

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

Oliver Turner, Director, Pathology, Novartis Institute for Biomedical Research, East Hanover, NJ

1995

Gertraut Altreuther, Clinical Project Manager, Parasitology, Bayer Animal Health, Leverkusen, Germany

Philippa Beard, Group Leader & Veterinary Pathologist, Roslin Institute, University of Edinburgh, UK

Kate Creepy, Associate Professor, Small Animal Medicine, University of Georgia, Athens, GA

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

Wendy Harrison, Deputy Director, School of Public health, Imperial College, London, UK

Kellie Lorschy Marketing Manager, Marketing Manager, AVBA, Sydney, AU

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

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

1996

Michelle Dries-Kellaway, CEO, Early Start University of Wollongong, AU

Mark Doherty, Portfolio Manager, Merial, Sydney, AU

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

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

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

Allison Stewart, Professor, Equine Internal Medicine, Auburn University, Auburn, AL

Edwin van Duijnhoven, Research Scientist, WIL Research Europe, BV, Den Bosch, the Netherlands

Constantin Von der Heyden, Commercial Director, Pegasys Capital, Cape Town, South Africa

1997

Peter Bracken, Head, Regulatory Affairs, Animal Health, Boehringer Ingelheim, Sydney, AU

Jonathan Happold, Team Leader & Principal Veterinary Advisor, Australia-Indonesia Partnership, Jakarta, Indonesia

Tanya LeRoith, Associate Professor, Pathology, Virginia Tech, Blacksburg, VA

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

Patricia Pesavento, Professor, Pathology, Microbiology & Immunology University of California, Davis, CA

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

Jonathan Werner, Principal Pathologist, Amgen, Inc., Thousand Oaks, CA
Rachel Walker, PhD candidate, Pathology, University of Sydney, AU
Rebecca Wilcox, Animal Welfare Officer, RMIT University, Melbourne, AU
Esther Wissink-Antonis, Research Manager/Economics, Virology, University of Utrecht, The Netherlands

1998

Max Bastian, Senior Scientist, Paul Ehrlich Institute, Langen, Germany
Steven Fleisher, Director of Therapeutic Drugs, Office of New Drug Evaluation, FDA, Bethesda, MD
Karsten Hüffer, 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, Senior Lecturer, Reproductive Immunology, Royal Veterinary College, London, UK
Erin Phipps-Crotty, Public Health Specialist, New Mexico Dept. of Health, Santa Fe, NM
Anne-Marije Sparnaay, Specialist Inspector Food & Consumer Products Safety Authority, Amsterdam, The Netherlands

1999

Erica Behling-Kelly, Assistant Professor, Clinical Pathology, Cornell University, Ithaca, NY
Nadine Bowden-Ramos, Postdoctoral Fellow, Cardiology, NIH, Washington DC
Robert Dickens, Training Specialist, U.S. Department of Agriculture, Raleigh, NC
Joshua Fine, Senior Scientific Advisor, Tunnell Government Services, Inc., Washington D.C.
Peter Florian, Director of Pharmacology R&D, Sanofi, Frankfurt, Germany
Francette Geraghty-Dusan, Ausvet Plan Policy Officer, Animal Health, Canberra, AU

2000

Stephen Daley, Senior Research Fellow, Dept. of Biochemistry & Molecular Biology, Monash University, Melbourne, AU
Katharine Evans, Hermes Fellow in Quantitative Genetics, University of Nottingham, Nottingham, UK
Toby Floyd, Veterinary Research Scientist, Pathology, Veterinary Laboratories Agency, Addleton, UK
Rachel Geisel-Allavena, Senior Lecturer, Pathology, University of Queensland, Brisbane, AU
Samuel Hamilton, Director, Animal Disease Preparedness Services, DAFF, Canberra, AU
Charles Johnson, Veterinary Pathologist, ABAXIS Veterinary Research Laboratories, Olathe, KA
Natali Krekeler, Lecturer, Veterinary Reproduction, University of Melbourne, Melbourne, AU
Jamie Lovaglio, Biosecurity Scientist, Pacific Northwest National Laboratory, Richland, WA
Richard Luce, EIS Officer, US Centers for Disease Control and Prevention, Atlanta, GA

Bronwen Harper, Staff Member, Box Hall Institute, Melbourne, AU
Carl Holmgren, Research Scientist, Université de la Méditerranée, Marseille, France
Emily Meseck, Director, Project Pathology, Novartis Institute for Biomedical Research, East Hanover, NJ
Rachel Peters, Senior Scientist, Takeda Pharmaceuticals, Cambridge, MA
Mary Nabity, Clinical Assistant Professor, Pathobiology, Texas A&M University, College Station, TX
Kimberly Newkirk, Associate Professor, Anatomical Pathology, University of Tennessee, Knoxville, TN
Christopher Premanandan, Assistant Professor, Veterinary Biosciences, The Ohio State University, Columbus, OH
Rachael Tarlinton, Lecturer, Cellular Microbiology, University of Nottingham, UK
Holger Volk, Professor, Veterinary Neurology and Neurosurgery, Queen Mother Hospital for Animals, RVC, London, UK
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, ECVAA Residency Supervisor, University of Utrecht, The Netherlands
Birgit Viertlboeck, Senior Research Scientist, Immunology, Institute of Animal Physiology, Ludwig Maximilian University, Munich, Germany
Kevin Woolard, Assistant Professor, Pathology, University of California, Davis, CA

2001

Julie Chevrette, Associate Director, Animal Care, McGill University, Montreal, Canada
Karin Hölzer, Scientific Program Officer, Food Safety, Pew Charitable Trust, Philadelphia, PA
Katherine Hughes, Lecturer, Veterinary Pathology, University of Cambridge, UK
Stephanie Janeczko, Senior Director, Veterinary Outreach, ASPCA, New York, NY
Charles Johnson, Postdoctoral Fellow, Comparative Pathology, University of Minnesota, Minneapolis, MN
Robert Klopfleisch, Assistant Professor, Pathology, Freie Universität, Berlin, Germany
David Loch, Patent Practitioner, Fisher, Adams & Kelly, Brisbane, AU
Maeva 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, Senior Epidemiologist, USDA-APHIS, Washington D.C.
Simon Starkey, Education Veterinarian, Pet Smart Inc., Phoenix, AZ
Jason Stayt, Staff Scientist, VetPath Laboratories, Perth, AU
Amy Warren-Yates, PhD Candidate, Neurobiology, Associate Professor, Pathology, University of Calgary, Calgary, Alberta, CA

Rachel Windsor Ballantyne, Scientific Support Manager, Royal Canin Co., United Arab Emirates
Robin Yates, Associate Professor, Comparative Biology, University of Calgary, Calgary, Alberta, CA
Bevin Zimmerman, Scientific Director, Janssen Pharmaceutical Co., Springhouse, PA

2002

Christine Bayley Trezise, Veterinary Pathologist, Gribbles Pathology, Melbourne, AU
Karin Darpel, Lecture, Veterinary Virology, University of Surrey, Guildford, UK
Karyn Havas, Head of Diagnostic Services Section USDA-APHIS, Plum Island, NY
Patrick Kenny, Head, Department of Neurology and Neurosurgery, Royal Veterinary College, London, UK
Steven Laing, Postdoctoral Scholar, University of California, Davis, CA
Susannah Lillis, Senior Lecturer, Veterinary Diagnostic Imaging, Murdoch University, Perth, AU
Anne Lo, Program Officer, Horizon Ventures, Hong Kong
Michael Mienaltowski, Assistant Professor, Applied Physiology, University of California, Davis, CA
Andrew Miller, Assistant Professor and Pathologist, Biomedical Sciences, Cornell University
Simon Priestnall, Senior Lecturer, Pathology, Royal Veterinary College, London, UK
Kelly Still-Brooks, Veterinary Field Service Clinician, Iowa State University, IA
Barbara Tännler Werhli, Marketing and Technical Manager, Zoetis Inc., Zürich, Switzerland

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

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

John Baker, Manager, Bain & Co., London, UK

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

David Gardiner, CEO, Animal Reference Pathology Inc., Salt Lake City, UT

Erika Gruber, PhD Candidate, Microbiology & Immunology, Cornell University, Ithaca, NY

Lindsay Hamilton, Research Veterinarian, Animal Health Trust, Cambridge, UK

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

Heather Martin, Senior Clinical Veterinarian, Weill Medical College, Cornell University, New York, NY

Siobhan Mor-La Roche, Senior Lecturer, Food Safety, University of Sydney, Sydney, AU

Kate Patterson, Senior Research Officer, Garvin Institute, University of New South Wales, AU

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

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

Lyn Wancket, Pathologist, MAMSA, Northwood, OH

Christiane Wrann, Research Scientist, Cell Biology, Dana-Farber Cancer Institute, Harvard University, Cambridge, MA

Anton Asare, USDA Medical Veterinary Officer, University of South Carolina, SC

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

Matthew Breed, Senior Animal Program Veterinarian, Frederick National Cancer Laboratory, NIH, Bethesda, MD

Andrew Broadbent, Research Fellow, Virology, Pirbright Institute, UK

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

Annika Krengel, Veterinarian, Wilhelma Zoo, Stuttgart, Germany

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

Robert Ossiboff, Postdoctoral Fellow & Pathologist, Wildlife Pathology, Cornell University, Ithaca, NY

Allison Rogala, Postdoctoral Fellow, Infectious Diseases, University of North Carolina, Chapel Hill, NC

Duncan Russell, Clinical Assistant Professor, Pathology, Oregon University, Corvalis, OR

Baukje Schouten-Schotanus, Senior Researcher, University of Utrecht, The Netherlands

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

Katy Townsend, Assistant Professor, Small Animal Surgery, Oregon State University, Corvallis, OR

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

Krystal Allen-Worthington, Staff Veterinarian, University of Pennsylvania, Philadelphia, PA

Melanie Ammersbach, PhD candidate, Clinical Pathology Ontario Veterinary College, Guelph, CA

Hannah Bender, Lecturer, Veterinary Pathology, Murdoch University, Perth, AU
Hille Fieten, PhD Candidate, Genetics, University of Utrecht, The Netherlands
Amanda Kreuder, PhD candidate, Microbiology, Iowa State University, Ames, IA
Rebecca Mitchell, Postdoctoral Fellow, Centers for Disease Control and Prevention, Atlanta, GA
Marieke Opsteegh, Scientist RLVM, National Institute for Public Health & the Environment, Utrecht, The Netherlands
Emily Orchard-Mills, PhD Candidate, Psychology, University of Sydney, AU
Bo Raphael, Biosecurity Officer, Australian Department of Agriculture, Fisheries and Food, Canberra, AU
Johanna Rigas, Assistant Professor, Clinical Pathology, Washington State University, Pullman, WA
Klara Saville, Veterinary Senior Advisor, The Brooke, London, UK
Catherine Trickett-Tisdall, Lecturer, Animal Behavior, Myersough College, Preston, UK
Nina Weishaupt, Postdoctoral Fellow, Neuroscience, University of Western Ontario, London, Ontario, CA

2006
Onno Burfeind, Research Assistant, Clinic for Animal Reproduction, Freie Universität, Berlin, Germany
Bronwyn Clayton, Postdoctoral Fellow, Virology, CSIRO, Geelong, AU
Alexander Corbishley, Lecturer, Farm Animal Practice, University of Edinburgh, UK
Janny de Grauw, Resident, Anesthesiology, University of Utrecht, The Netherlands
Louise Fitzgerald-Sullivan, Pathologist, Gribbles, Adelaide, AU
Annika Haagsman, Resident, Small Animal Surgery, University of Utrecht, The Netherlands
Eva-Marie Laabs, PhD candidate, Parasitology, Tierärztliche Hochschule, Hannover, Germany
Gelja Maiwald-Surma, Senior Product Manager, IDT Biologika, Dessau, Germany
Richard Meeson, PhD Candidate, Material Science, Imperial College, London, UK
Ashley Neary Hartley, Resident, Small Animal Medicine, North Carolina State University, Raleigh, NC
Joseph Neary, Assistant Professor, Animal Health and Well Being, Texas Tech University, Lubbock, TX
John Parker, PhD Candidate, Neurology, University of Cambridge, UK
Tiffany Reed-Lyle, Molecular Pathology Fellow, National Cancer Institute, NIH, Bethesda, MD
William Sander, AAAS Science and Technology Policy Fellow, US Environmental Protection Agency, Washington DC
Justine Shotton, Research Assistant, Wildlife Medicine, Royal Veterinary College, London, UK
Laura Spoor, PhD candidate, Bacteriology, Roslin Institute, University of Edinburgh, UK.

2007
Patrick Ayscue, EIS Officer, CDC, San Francisco, CA
Sonja Bröer, Postdoctoral Scientist, Pharmacology, Tierärztliche Hochschule, Hannover, Germany
Stephen Burr, PhD Candidate, Immunology, Cambridge University, UK
Sarah Wang, Junior Research Fellow, Virology, University of Cambridge, Cambridge, UK
Elva Cha, Research Assistant Professor, Epidemiology & Economics, Kansas State University, Manhattan, Kansas
Boran Choi, PhD candidate, Neuroscience, John's Hopkins University, Baltimore, MD
Ludwig Groebler, Staff Veterinarian, Johnson & Johnson, Inc., Erkrath, Germany
Laura Grogan, PhD Candidate, Conservation Biology, James Cook University, AU
Kate Johnson, PhD Candidate, Clinical Science, Royal Veterinary College, London, UK
Kristin Lewis, Pathologist, Flagship Biosciences, Westminster, CO
Kay Russo, Service Specialist, Boehringer Ingelheim, Inc., Loveland, CO
Ryan Traslavina, Captain, US Army, Fort Detrick, 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, Immunology, Australian National University, Canberra, AU

Jennifer Bernard, Pathology Fellow, San Diego Zoo, San Diego, CA

Lucie Chevallier, Director of Research, Genetics, University of Alfort, Paris, France

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

Johanna Dups, Postdoctoral Fellow, Parasitology, Australian National University, Canberra, AU

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

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

Sally Ann Iverson, Vet. Med. Officer, USDA, Plum Island Animal Disease Center, NY

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

Joshua Leach, Resident, Pathology, University of Glasgow, UK

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

Joanna Mleczko, PhD Candidate, Biomedical Sciences, Cornell University, Ithaca, NY

Dallas New, Research Scientist, Health Quality Control, University of Saskatchewan, Saskatoon, CA

Annelies Nijdam, PhD Candidate, Epidemiology, University of Utrecht, The Netherlands

Kimberley Schiller, Management Consultant, Accenture, London, UK

James Swann, Senior Clinical Training Scholar, Royal Veterinary College, London, UK

2009

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

Alisa Guen Bradbury, Innovation Consultant, Innovia Technology, Cambridge, UK

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

Jenna Gettings, MPH candidate, University North Carolina, Chapel Hill, NC

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

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

Alan Humphreys, Clinical Veterinarian, Charles River Laboratories, Boston, MA

Shuhei Ito, Program Officer, GlaxoSmithKline, Tokyo, Japan

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

Greta Schmoyer, USDA APHIS Inspector, Knoxville, TN

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

Elizabeth Slack, Patent Officer, J.A. Kemp, Oxford, UK

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

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

Sarah van Rijn, Resident in Small Animal Surgery, University of Utrecht, The Netherlands.
Jolanda Verhoef, Resident, Pathology, Western College of Veterinary Medicine, University of Saskatchewan, Saskatoon, CA

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

2010

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

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

Zachary Chillag, Base Veterinarian, U.S. Army, Guam

Greg Dickens, Inventor, Innovia Technology, Cambridge, UK

Clinton Doering, Resident, Comparative Veterinary Ophthalmology, University of Calgary, Alberta, CA

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

Sarah Hooper, PhD Candidate, Nutrition, University of Missouri, Columbia, MO

Marie Killerby, MPH Candidate, Epidemiology, Harvard School of Public Health, Boston, MA

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

Gertje Petersen, PhD Candidate, Genetics, Otago University, Dunedin, NZ

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

Eliza Smith, Research Fellow, International Livestock Research Institute, Nairobi, Kenya

Frances Taylor-Brown, Resident, Neurology, Royal Veterinary College, London, UK

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

Sirma Yaemsiri, Resident, Small Animal Medicine, University of California, Davis, CA

2011

Angel Abuelo Sebio, Lecturer in Ruminant Health & Reproduction, Charles Sturt University, Wagga Wagga, New South Wales, AU

Hanna Atkins, Comparative Medicine Research Fellow, Wake Forest School of Medicine, Winston-Salem, NC

Jessica Brown Beck, Resident, Pathology, College of Veterinary Medicine, Purdue University, Lafayette, IN

Alyssa Chandler, Intern, Small Animal Medicine, NCSU, Raleigh, NC

Timothy Chua, Veterinary Officer, ASTAR, Singapore

Scott Dudis, Army Veterinarian, US Military Training Mission, Saudi Arabia

Ratchel Dutkosky-McEnroe, Resident, Pathology, Purdue University, Lafayette, IN

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

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

Linda Huang, Resident, Pathology, Michigan State University, East Lansing, MI

Per Karlsson, PhD Candidate, Surgery, Imperial College, University of London, UK

Jessica Magenworth, Veterinary Surgeon, Thai Animal Sanctuary, Baan Unrak, Thailand

Marion Leiberich, PhD Candidate, Microbiology, University of Pretoria, South Africa

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

Karina Radfield Stein, Dr. Med. Vet Candidate, Reproductive Biology, University of Vienna, Austria

Viktoria Rungelrath, Dr. Med. Vet., Microbiology, University of Liepzig, Germany

Lauren Smith, Resident, Radiation Oncology, University of Wisconsin School of Veterinary Medicine, Madison, WI

Michelle White, PhD Candidate, Genetics, College of Veterinary Medicine, Cornell University, Ithaca, NY

Sarah Wood, Resident, Pathology, Western College of Veterinary Medicine, University of Saskatchewan, Saskatoon, CA
To prepare tomorrow’s scientists and public health professionals

2012

Molly Benner, Intern, College of Veterinary Medicine, University of Missouri, Columbus, MS
Luca Bertzbach, PhD Candidate, Institute for Virology, Freie Universität, Berlin, Germany
Debbie Burnett, PhD Candidate, Immunology, Gavin Institute, Sydney, AU
Rosemary Cullander, Intern, Veterinary Emergency Center, Toronto, Canada
Anna Maria Gartner, Dr. Vet. Med. Candidate, Exotic Animal Medicine, Giessen University, Giessen, Germany
Anna Goodroe, Resident, Laboratory Animal Medicine, John Hopkins University, Baltimore, MD
Robert Holly, Base Veterinarian, US Army, Fort Bragg, NC

2013

Iva Cvitas, PhD Candidate, Molecular Biology, Life Science Graduate School, Zurich, Switzerland
Sylvia Janska, Intern, Endell Equine Hospital, London, UK
Nandita Kataria, Intern, Small Animal Medicine, Strathfield Animal Specialist Hospital, Sydney, AU
Wilfred Leung, PhD Candidate, Cornell University, Ithaca, NY

2014

Alexandra Jaarsma, MSc Candidate, Equine Medicine, Utrecht University, The Netherlands
Susanne Spoerel, PhD Candidate, Infectious Diseases, Heingrich Pette Institute, Hamburg, Germany

Hilary Hu, PhD Candidate, Neurobiology, Iowa State University, Ames, IA
Laura Schmertmann, PhD Candidate, Pathology, University of Sydney, Sydney, AU
Lucas Smolders, Resident, Surgery, Postdoctoral Fellow, University of Zurich, Switzerland
Hanna Telama-Castro, PhD Candidate, Food Safety, University of Helsinki, Finland
Adam Werts, Resident, Comparative Animal Medicine, John Hopkins University, Baltimore, MD
Helena Wittgenstein, PhD Candidate, Freie Universität, Berlin, Germany
What Did They Say

“The program ignited my interest in infectious diseases and opened my mind to professional aspects of veterinary medicine that I had not yet considered”
Larrissa Minicucci, 1998

“I had an awesome summer at Cornell”
Hanna Bender, 2005

“The Program gave me with the knowledge and motivation to pursue a career, as a veterinary clinician and researcher.”
Lucas Smolders, 2012

“If you are about to enter the Program, don’t go with any other expectation than to enjoy it. But be prepared for it to change your life.”
Alan Radford, 1991

“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 often think of the great time I had in Ithaca, and I’m still in touch with many of the Cornell fellows”
Annemarie Voorbij, 2007

“I look back at the program as some of the best weeks of my life”
Dimo Naujokat, 2014

“The program was one of the most important experiences in my life”
Joanna Mieczko, 2008

“I remember that wonderful summer of the Leadership Program.”
Mieke Baan, 2003

“I wouldn’t be where I am now without it”
Nina Weishaupt, 2005
When I was accepted into Veterinary School, the excitement was accompanied by an odd tinge of regret. The world of biomedical research, which I had just begun to explore as an undergraduate, was a unique, intellectual realm that seemed to reward creativity and, sometimes even, unconventional thinking. I worried that my newfound enjoyment in biomedical research would be relegated to the likes of the political science, history, and literature classes I so enjoyed during those proverbial “salad days.” After all, I had entered veterinary school to become a soft-tissue surgeon (it seemed like a good idea at the time...). After setting a record for the longest spay at NC State (during an encroaching hurricane no less- I believe the record still holds), I realized my early career plans were at best misguided, and that if I were to benefit veterinary medicine, it would not happen while holding a blade (at least, not one as small as a scalpel). Dr. Phil Carter, now an Emeritus Professor of Microbiology at NCSU pulled me aside after class and suggested I apply to the Leadership Program at Cornell University.

The summer I spent in the Leadership Program still ranks as one of the best summers of my life. It was the perfect blend of programmatic education into the possibilities open to veterinary researchers, a meaningful experience in laboratory science and molecular biology, and a wonderful time spent with like-minded students from around the world. To co-opt a term used by the Amish in the United States, it was my “Nerdspringa”.

Among the many things I learned from Drs. Douglas McGregor and David Fraser, the most important one was that veterinarians have a role in basic science. We are uniquely educated in comparative physiology and pathology, and can benefit the research community so much more than providing ancillary services. In the laboratory of Dr. Alex Brown, I truly grew to love research. Being able to manipulate cells in vitro and analyze the mechanisms of mast cell degranulation that summer opened my mind to the concept of not just recognizing what physiologic processes are occurring, but knowing how they are occurring. After that, I couldn’t understand how anyone would stop their pursuit of a disease until they investigated the “how.”

I am now an Anatomic Pathologist and an Assistant Professor at the University of California, Davis. I enjoy research, teaching, and diagnostic pathology, and I am lucky enough to participate in each of these every day of my life. I begin my introductory oncology class, taught to first year students, by stating, “I know that most of you will never go into molecular oncology or do a residency in pathology, but for the life of me I can’t understand why not.” I say that to encourage any student in the auditorium who believes they can merge veterinary medicine with basic science research to pursue that desire- just as the Cornell Leadership Program taught me to do.
For more information about the Leadership Program, contact

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Photos by Alexis Wenski-Roberts unless otherwise noted.
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