

Leadership Program for Veterinary Students



2017 Annual Report



Contents

Acknowledgements.....	6
Program Agenda.....	7
2017 Program Scholars.....	8
Activities.....	10
Research.....	10
Leadership.....	11
Leadership in Action.....	12
Infectious Diseases.....	13
Careers in Industry.....	15
Career Explorations.....	17
NIH Veterinary Scholars Conference.....	18
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. Chris Laing.....	55

A commitment to excellence

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. Since its inception, 28 years ago, over 640 alumni have participated. These individuals came from veterinary colleges in all parts of the world and many, as we had hoped, have become scientific leaders within the veterinary profession. We are delighted to report that 17 outstanding scholars participated in this year's program. It is too early to know where they will take their careers; however, based on the outstanding achievements of past participants we can expect great things from them.

RESearch IS THE MAJOR FOCUS OF THE LEADERSHIP PROGRAM. PROGRAM SCHOLARS UNDER-TAKE INDIVIDUAL RESEARCH projects under the guidance of Cornell faculty members who are all highly successful scientists and experienced mentors. The University's world-class research facilities and intellectual environment support the scholars' research investigations. In addition to laboratory-based research, program scholars participate in modules and workshops that are designed to highlight employment and leadership opportunities for veterinary graduates in academia, government, and industry.



*John S. L. Parker, BVMS, Ph.D.,
Program Director*

THERE IS CURRENTLY A SHORTAGE OF VETERINARY SCIENTISTS. IT IS THEREFORE CRITICAL FOR THE FUTURE SUCCESS OF THE veterinary profession that young veterinarians engage in biomedical research. Veterinary students are aware 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. Our goal is to show the most talented of our veterinary students the attractions of biomedical research as a career and to provide them with practical career guidance on how to succeed.



*David R. Fraser, BVSc, Ph.D.,
Co-Director*

Acknowledgements

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**
- **Boehringer Ingelheim Inc.**
- **Bristol University**
- **Cornell Feline Health Center**
- **Deutscher Akademischer Austauschdienst (DAAD)**
- **National Institute for Health**
- **Royal Veterinary College**

The program organizers also thank the facilitators, counselors, and mentors who took part in the 2017 program. Thank you to Ms. Stevanica Augustine, the Program Student Coordinator, Ms. Bonnie Coffin, Ms. Shelagh Johnston, 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 have described elements of the program, strategies for their implementation, and outcomes of this initiative. Recent publications include:

Promoting Science-Based Careers Through Student-Directed Learning. McGregor, D. D. and Fraser, D. R. *J. Vet. Med. Educ.* **33**; 294, 2006.

Counseling Veterinary Students Who Aspire to Careers in Science. McGregor, D. D. and Fraser, D. R. *J. Am. Vet. Med. Assoc.* **229**; 668, 2006.

Acquainting Veterinary Students With Careers in the Pharmaceutical Industry. McGregor, D. D., Fraser, D. R., Haven, M. L. and Hickey, G. *J. Vet. Med. Educ.* **34**; 139, 2007.

Career Paths of Alumni of the Cornell Leadership Program for Veterinary Students. Fraser, D.R., McGregor, D.D. and Gröhn, Y.T. *Vet. Record* **163**; 750, 2008.

Vocational choices made by alumni of the Leadership Program for Veterinary Students at Cornell University. Fraser D.R., Parker J.S.L., McGregor D.D. *J Am Vet Med Assoc* 249:759, 2016

Details on applying for the program can be found at the program website: <https://www2.vet.cornell.edu/education/other-educational-opportunities/leadership-program-veterinary-students-cornell-university>



Program Agenda



Mon, June 5	Opening Meeting and Ethics Discussion
	Biological & Chemical Safety Training
	Welcome BBQ
Tues, June 6	Laboratory Orientation
Sat, June 10	Career Discussion
Mon, June 12	Leadership Module
	Reception & Dinner
Mon July 3	Infectious Diseases Workshop
Wed July 5	Research Project Previews
Thurs, July 13	Reunion Dinner
Mon, July 17	Careers in Industry Workshop
Tues, July 18	Research Training
Thurs, July 20	Leadership in Action
Wed, July 26	Translational Science
Fri, July 28	Wine and Cheese Event
Thurs, August 3 to Sun, August 6	NIH Veterinary Scholars Conference
Mon, Aug 7	Career Planning
Wed, Aug 9	Research Presentations
Thurs, Aug 10	Research Presentations & Farewell Dinner

2017 Program Scholars

Name	University	Mentor (s)	Department	Sponsor
Anna Baker	Washington State University	Doug Antczak	Microbiology/Immunology	NIH & Bostwick Foundation
Annabel Dereham	University of Bristol	Scott Coonrod	Biomedical Sciences	University of Bristol
Ann DiPastina	Michigan State University	Yrjo Grohn	Population Medicine & Diagnostic Sciences	NIH & Bostwick Foundation
Rebecca Dubowitz	Royal (Dick) School of Veterinary Studies	Natasza Kurpios	Molecular Medicine	NIH & Bostwick Foundation
Jessica Edwards	Oklahoma State University	Tracy Stokol	Population Medicine & Diagnostic Sciences	NIH & Bostwick Foundation
Samantha Ellis	University of Sydney	Cynthia Leifer	Microbiology/Immunology	Feline Health Center & Bostwick Foundation
Luca Fortuna	Royal Veterinary College	Robert Weiss	Biomedical Sciences	Royal Veterinary College
Rachel Garty	Royal Veterinary College	Brian Rudd	Microbiology/Immunology	Royal Veterinary College
Jeffrey Kim	The Ohio State University	Jeongmin Song	Microbiology/Immunology	NIH & Bostwick Foundation
Emma Krakoff	Colorado State University	Doug Antczak	Microbiology/Immunology	NIH & Bostwick Foundation
Jon Lou	Cornell University	Bethany Cummings	Biomedical Sciences	NIH & Bostwick Foundation
Katherine Neal	University of Georgia	Elia Tait-Wojno	Microbiology/Immunology	NIH & Bostwick Foundation
Elisabeth Reetz	Freie University	Craig Altier	Population Medicine & Diagnostic Sciences	DAAD & Bostwick Foundation
Albert Thomas	University of Queensland	Chris Schaffer	Biomedical Engineering	Feline Health Center & Bostwick Foundation
Kathrin Welsch	TiHo	Colin Parrish	Microbiology/Immunology	DAAD & Boehringer Ingelheim
Stephen Yang	Cornell University	Gerlinde van de Walle	Microbiology/Immunology	NIH & Bostwick Foundation
Kelley Zimmerman	Royal Veterinary College	Avery August	Microbiology/Immunology	NIH & Bostwick Foundation





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 Dr. Franziska Grieder, Dr. Roy Pollack, and Professor Douglas McGregor.



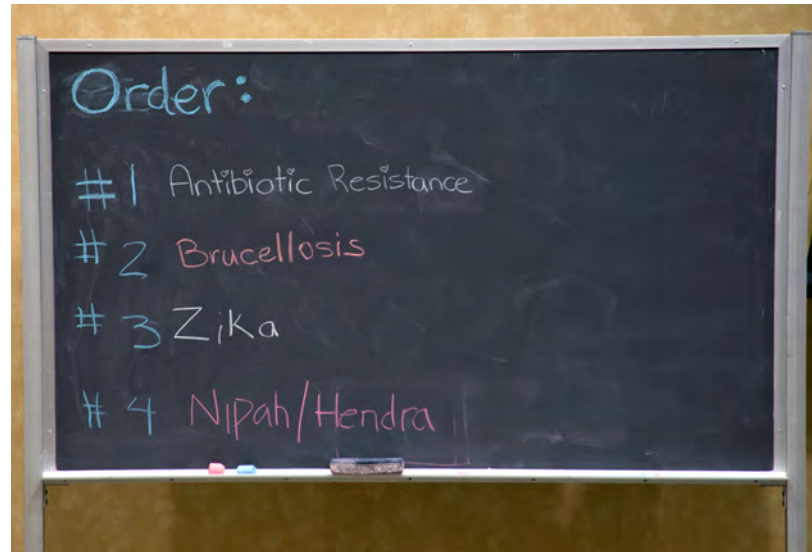
Leadership in Action

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 TERRY DERMODY, JEONGMIN SONG, AND JOHN PARKER FEATURED discussions of antibiotic resistance, Zika virus infection, Nipah virus and Hendra virus infection, and Brucellosis. These infectious agents are responsible for emerging or re-emerging diseases in humans and animals. 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.





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.



NIH Veterinary Scholars Symposium

IN MOST YEARS, LEADERSHIP PROGRAM SCHOLARS VISIT THE NATIONAL INSTITUTES OF HEALTH CAMPUS IN BETHESDA, WASHINGTON DC. THIS IS AN OPPORTUNITY TO LEARN ABOUT RESEARCH CONDUCTED AT THE NATION'S PREMIER BIOMEDICAL RESEARCH INSTITUTION. HOWEVER, this year the National NIH Veterinary Scholars symposium was hosted at the NIH campus from August 3rd to 6th. Program scholars traveled to DC and attended the symposium. The symposium gave the scholars the opportunity to hear plenary talks in a variety of scientific disciplines and to mix with and hear about scientific projects carried out by veterinary students throughout the United States. Several of our scholars presented posters or gave talks.



Career Explorations

CAREER PLANNING IS FEATURED PROMINENTLY IN THE LEADERSHIP PROGRAM. THREE MEETINGS WERE CONVENED to consider opportunities for veterinary graduates to broadly influence the veterinary profession through careers in the academy, government or industry.

Professor John Parker, Professor Tracy Stokol, and Dr. Elizabeth Moore 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 Robert Weiss, Douglas McGregor, and John Parker 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 Professors Julia Felipe and John Parker 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.



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 Kathrin Welsch for the best overall research achievement as judged by her underlying hypothesis, investigative protocol, results, and presentation. Additional prizes were awarded to Albert Thomas, Rachel Garty, and Anna Baker & Emma Krakoff, for exceptional achievements in integrative biology, cell biology, and molecular biology, respectively. Samantha Ellis was awarded a prize for the highest-ranking presentation by a scholar from the United Kingdom or Australia. The Selection Committee for the 2017 Leadership Program salutes these individuals and congratulates the entire group for their commitment to research and the excellence of their presentations.

Program Prize

Kathrin Welsch

Canine Parvovirus as a probe for sialic acids



Integrative Biology Prize

Albert Thomas

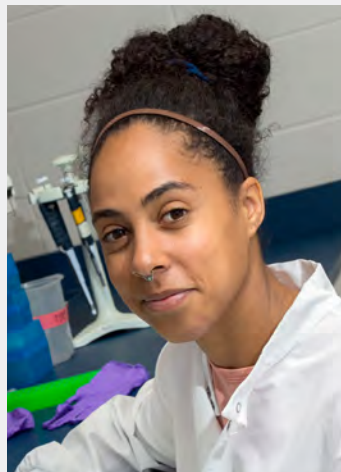
Effects of Polycythemia Vera on red blood cell interactions with brain endothelial cells



Molecular Biology Prize

Anna Baker & Emma Krakoff

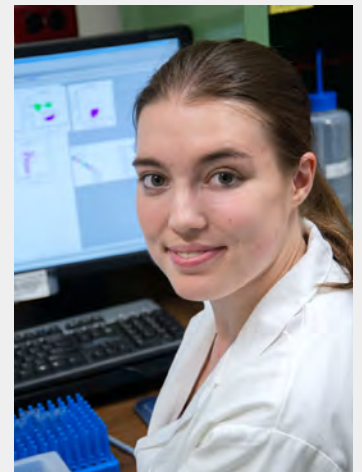
Characterization of MHC class I genes in the horse using linked-read genome sequencing & De novo exploration of MHC class I genes in the Arabian horse



Cell Biology Prize

Rachel Garty

Cell-intrinsic differences between neonatal and adult CD4+ T cells



Program Scholars & their Research



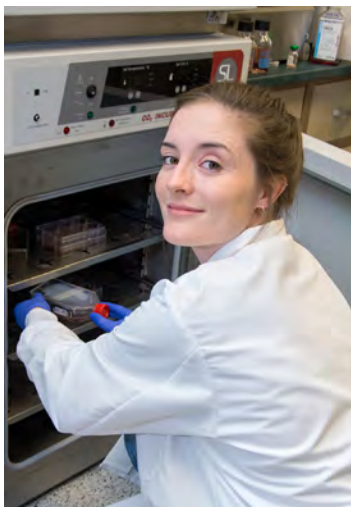
Anna Baker, Washington State University, Immunology

Characterization of MHC class I genes in the horse using linked-read genome sequencing

I'm a veterinary student, originally from Washington, D.C., and I will be entering my third year this fall. This summer I worked in Dr. Doug Antczak's lab studying immunology and equine genetics. I studied the major histocompatibility complex (MHC) region, which is an important and intensely studied region of the genome in all species. The class I MHC genes are especially important in anti-viral immunity and have been shown to be involved with many other clinically relevant processes in the horse; for example, equine herpes virus, equine sarcoids, maternal tolerance of the fetus, and immune recognition of allogenic stem cells. In my project, I helped to find three possible MHC class I genes: one by amplifying and sequencing PCR targets and the other by annotating long contiguous sequences generated by 10x Genomics Chromium (linked-read sequencing technology). The purpose of this project was to

expand the knowledge of the MHC class I region and to evaluate 10x Genomics technology as a valid and cost effective method to sequence other MHC haplotypes. Another big part of my job was helping to care for the horses and their reproduction program. We ultrasounded mare ovaries 3-6 times a week to track their cycles, and followed one mare to a successful pregnancy with frozen semen.

I'd like to thank Dr. Antczak for his great ideas and help with understanding and presenting this project. Another special thank you to Don Miller, who was an amazing and supportive teacher. Also, a sincere thank you to the Directors of the Leadership Program. Finally, thank you to my wonderful Leadership classmates for making this summer amazing!



Annabel Dereham, University of Bristol, Cancer Biology

The role of TGFβ3 in hemangiosarcomas progression.

The Cornell Leadership Program has been an exciting and unique opportunity for me to explore career paths alternative to that of a practicing veterinarian. In addition, it has provided me with invaluable career advice, laboratory experience, and strong friendships with likeminded individuals. I learnt a great deal about careers in academia and industry and appreciate the significance of mentorship and making informed career choices.

I was fortunate to join Dr. Scott Coonrod's laboratory, working on their hemangiosarcoma (HSA) project. Canine HSA is a common and aggressive tumor of endothelial origin with high metastatic rates, limited treatment options and poor prognoses; the human equivalent is angiosarcoma. My research was mainly focused on transforming growth factor beta-3 (TGFβ3). This cytokine is involved in many

normal physiological pathways but recent genome-wide Pro-Seq analysis has found it to be highly upregulated in splenic HSA compared to normal splenic tissue. Immunohistochemical analysis of tumor tissue and RT-PCR analysis of our generated HSA cell lines support this conclusion. I performed functional in vitro proliferation and scratch wound (migration) assays to assess TGFβ3's role in tumor progression. Whilst TGFβ inhibition of HSA cells did not affect proliferation, their migratory ability was dramatically reduced and their morphology was altered. Furthermore, preliminary results show that treating endothelial cells with recombinant TGFβ3 increases their migration. More work is required to quantify these changes but these results suggest that TGFβ3 is important in HSA migration and therefore tumor invasion and spread. TGFβ3 inhibitors thus may have the potential to be developed for use therapeutically as an adjuvant therapy following splenectomy to prevent reoccurrence and control metastasis.

I would like to thank the whole Coonrod lab and everyone at the Baker Institute for their help and support this summer, I loved my time in the laboratory with such a friendly team. I would particularly like to thank Dr. Scott Coonrod and Dr. Chinatsu Mukai for excellent guidance and mentorship throughout. Thank you also to Drs. Parker, Fraser and McGregor, all other program facilitators and our program coordinator, Stevanica Augustine, for all their hard work to ensure the program's huge success. Finally, I would like to thank the University of Bristol, particularly the Arthur Hosier Bequest and The INSPIRE Scheme, for providing funding for my participation in the program.



Ann DiPastina, Michigan State University, Epidemiology, computer modeling
Optimization of antimicrobial use for mastitis to combat antimicrobial resistance on US dairy farms.

At the start of the Leadership Program, I planned to follow my veterinary education with a residency – although I had not decided in what specialty – and I intended to pursue a position in academia that would prioritize clinical duties and teaching. It was my impression that educating future veterinarians was the only way that I could have a positive influence on the profession which reached farther than my own community. To explore academia, I applied to the Leadership Program and was fortunate to work with Dr. Yrjö Gröhn in the Department of Population Medicine and Diagnostic Sciences.

Our project involved exploring methods of antimicrobial use (AMU) for mastitis prevention and treatment that allow for a balance between farm profit and the societal cost of antimicrobial resistance (AMR). Using a system dynamics approach, we built a concept map illustrating the points at which antimicrobials might be employed to prevent or treat mastitis throughout the lifecycle of a dairy herd. From this map, we designed a dynamic model which simulates various scenarios investigating the relationship between AMU (an assumed risk factor for AMR) and farm profitability. With this approach, we gained a better understanding of AMU for mastitis on a typical US dairy farm, and we developed a model which is one component of the unified effort to combat AMR.

As the project progressed, I realized that research is an exciting way to address problems that affect not only the United States, but the world. While I still intend to teach, I am now considering combining training in pathology with research training in infectious diseases or epidemiology.

The Leadership Program was a transformative experience, and I am incredibly grateful to Dr. Gröhn and Dr. Karun Kaniyamattam for their guidance. I would also like to express my gratitude to the NIH for their generosity in funding the project. Finally, I must thank Drs. Parker, McGregor, and Fraser for their invaluable advice – if there is one thing that I have learned from them, it is the importance of creating a logical and realistic plan to attain my career goals. I can safely say that I have a much clearer understanding of the field in which I would like to work and, perhaps most importantly, how to get there.



Rebecca Dubowitz, University of Edinburgh, Developmental Biology
The role and regulation of Pitx2 in asymmetric organogenesis

The Cornell Leadership Program for Veterinary Students has been an invaluable experience that has connected me with bright and motivated veterinary students with similar interests and ambitions from various corners of the globe; from Britain, to the United States, to even Germany and Australia. Before getting into vet school, I knew I wanted to pursue a career in research, however, I struggled to find other people with similar career ambitions. Having had the opportunity to live and work with everybody involved in the Leadership Program this summer, I am confident that I now have a lifelong network of people with similar interests that I will always be able to go to for advice and support.

Over the past 10 weeks, I have had the absolute delight of working in the Kurpios Lab, where I studied potential regulatory mechanisms of a pivotal gene responsible for asymmetric organ development, *Pitx2*. My specific project was to investigate the potential regulatory relationship between *Pitx2* and a long noncoding RNA named *Playrr* using section in situ hybridization on sections of E10.5 mouse embryos.

I am so incredibly thankful to have worked not only with such dedicated mentors during my summer at Cornell, but to have been able to work in such an animated, welcoming, and supportive lab. A special thanks to Frances Chen for her mentorship, supervision support, and all the laughs and sass along the way. I would also like to thank Drs. Parker, McGregor, and Fraser and all the other facilitators whose dedication to the program has made it the amazing experience that it has been. Finally, I would like to thank the NIH for funding my participation in the Leadership Program this summer.



Jessica Edwards, Oklahoma State University, Virology

Monocyte susceptibility to Equine Herpes Virus Type 1 based on expression of CD163

The Cornell Leadership Program was an amazing chance to get to know a wonderfully diverse group of veterinary students. I came to Ithaca to learn more about a veterinary career in research and my eyes were opened to many possibilities, not only in academia, but also in industry and government. Thanks to all of you making this summer so much fun. Some of my favorite memories include July 4th at Taughanock Park, camping in the Adirondacks, the Thousand Islands trip, paddle boarding in Cayuga Lake, and the NIH Veterinary Scholars Symposium in D.C.

I was fortunate to work in the Stokol lab where I isolated two subsets of equine monocytes based on their expression of a receptor for CD163. I then infected those cells with a strain of Equine Herpes Virus Type 1 expressing green fluorescent protein (GFP). Using flow cytometry, I determined that a greater percentage of the CD163+ cells expressed GFP than did the CD163- cells. I also found changes in the phenotypic expression of both CD163 and CD14 in those monocytes after they were incubated and infected with virus. The hope is that my results will further the understanding of how EHV-1 impacts monocytes and the immune system.

I would especially like to thank Dr. Tracy Stokol for giving me the opportunity to work in her lab. In addition, the amazing support of Dr. Priscila Serpa and Dr. Jorge Adarraga made my work fun. I would also like to thank all the facilitators of the Cornell Leadership Program, but especially Dr. Fraser for his thoughtful guidance. I'm also grateful to the NIH for providing the funding for my project.



Samantha Ellis, University of Sydney, Immunology

The effect of TRPV4 on macrophages

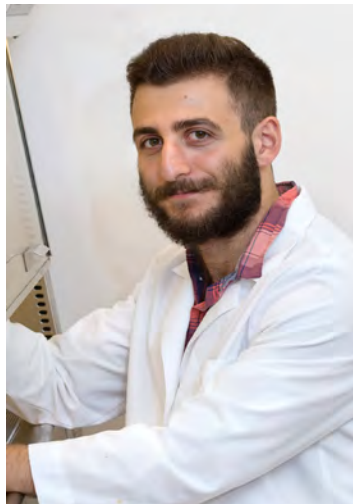
This year I was lucky enough to be a part of the Cornell Leadership program. I have always had an interest in research and infectious diseases, and when the opportunity came up to apply for this program it was too much to pass up.

Throughout the program, I have learnt so much. I have developed skills in communication to allow me to be able to interact with leaders within the field of veterinary medicine and my spark for research has been reignited.

During my time, I was given the opportunity to work in the Leifer lab. My project was on the Regulation of Toll-like receptor 4 by Transient receptor potential vanillin 4 protein (TRPV4), where I concluded that TRPV4 played a role in macrophage function through the elucidation of the mechanism of this protein on TLR4 signaling as well as the effect of TLR4 signaling on the protein itself. Drs. Cynthia Leifer and

Erika Gruber were incredible mentors, and I learnt a great deal over the 10 weeks that I had the opportunity to work with them.

It has been an incredible privilege to be part of such an amazing group of people, all of whom aspire to be leaders in their field. The contacts I have made and the skills I have learned will stay with me always. I would like to thank Drs. Parker, McGregor and Fraser, for giving me the opportunity to come to Cornell and learn from some of the most incredible people. It is an experience I will never forget and to the people who I was lucky enough to go through these 10 weeks with; they are some of the most incredible people I have ever met and I know that no matter what, we will all be leaders in our field.



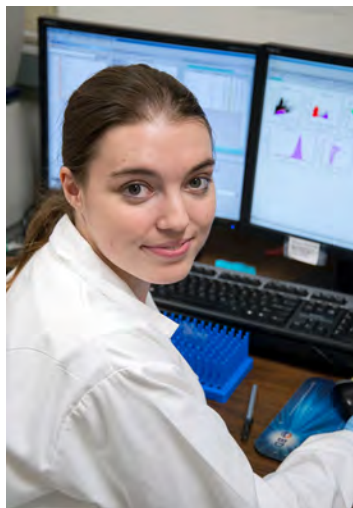
Luca Fortuna, Royal Veterinary College, Cancer Biology

Evaluating chemosensitivity in cell lines derived from a testicular germ cell tumor mouse model

The Veterinary Leadership Program has been an incredible experience this summer. It has provided me with a realistic picture of the varied career paths possible for a vet in research, and to obtain a detailed understanding of how best to pursue those paths. It has helped solidify my plan to specialise as a veterinary internist and conduct research alongside my clinical work, and provided me with skills in critical thinking, problem solving and leadership that I hope will help me achieve this. The Program has also given me the opportunity to form great memories with fantastic new friends, and the chance to explore some beautiful areas of the country.

I spent the summer in the lab of Dr. Bob Weiss, where I investigated the sensitivity to chemotherapy of a line of Embryonal Carcinoma (EC) cells, a kind of cancer stem cell found in some testicular germ cell tumors (TGCTs). These cancers are particularly sensitive to chemotherapy, and understanding why could prove important for making more effective treatments in other cancers that don't respond as well to treatment. We showed that differentiation of the EC cells results in a reduced sensitivity to the chemotherapeutic drug cisplatin, showing lower expression of an apoptotic marker and lower survival 48 h post treatment. I was exposed to a variety of techniques, and have gained a better understanding of what it is like to work in research.

I would like to thank Dr. Weiss and Dr. Moore for their mentorship and instruction over the summer, Darshil Patel and Timothy Pierpont for their advice on the project, and all the other members of the Weiss lab for their support. I would also like to thank all the organisers for putting on such a fantastic Program this summer, and the Royal Veterinary College and the Animal Care Trust for funding my participation.



Rachel Garty, Royal Veterinary College, Immunology

Cell-intrinsic differences between neonatal and adult CD4⁺ T cells

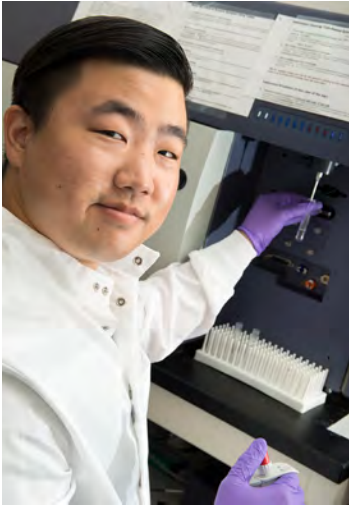
I am entering my fourth year of the BVetMed (intercalated BSc) program at the Royal Veterinary College (RVC). I have always been interested in a research-oriented career. This interest was encouraged during my BSc Comparative Pathology degree and were further solidified during the Cornell Veterinary Leadership program. The program increased my knowledge regarding future career options in research and provided me with vital laboratory skills which will be useful in following my desired career path. Following graduation, I aim to pursue a residency in either pathology or large animal medicine followed by a PhD.

My research project in the Rudd lab investigated the behavioral differences between neonatal and adult CD4⁺ T cells. Human neonates are more susceptible than adults to recurrent microbial infections and immune-mediated allergic responses.

This suggests that neonatal T cells generate insufficient immunity and have a greater tendency to produce a skewed allergic (TH2) response. These differences may depend on the environment within which T cells are activated and/or cell-intrinsic differences. We completed several experiments that explored the cell-intrinsic differences of neonatal CD4⁺ T cells compared to their adult counterparts. Our results indicate that neonatal CD4⁺ T cells proliferate and become activated faster than adult CD4⁺ T cells after in vitro stimulation. Interestingly, neonatal CD4⁺ T cells produced more TH1 (IFN γ) and TH2 (IL-4, IL-13) cytokines than adults, suggesting they are not skewed differently,

but rather have an inherent propensity to become activated and secrete a wide range of cytokines. As neonatal CD4⁺ T cells are derived from a distinct pool of hematopoietic stem cells that is distinguished by Lin28b, we are currently testing whether adult CD4⁺ T cells induced with Lin28b will behave more like neonatal CD4⁺ T cells.

I thank the entire Rudd lab for their guidance, the training I received in flow cytometry, mouse models and cell sorting has been incredible. I especially thank Dr. Brian Rudd, Cybelle Tabilas, Kristel Joy Yee Mon and Dr. Neva Watson for their personal support. I thank the leadership program facilitators for their invaluable career advice. Finally, I would not have been able to participate in the Leadership program without the financial support provided by the RVC, for which I am extremely grateful.

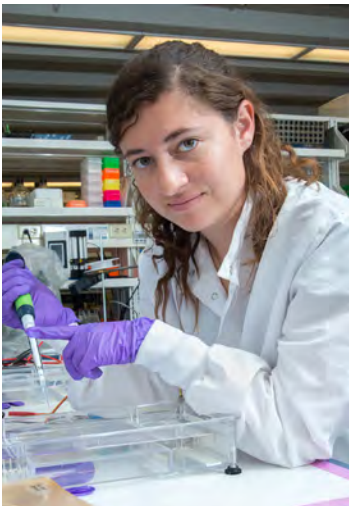


Jeffrey Kim, The Ohio State University, Bacteriology

Mouse models for Typhoid Fever research using bioengineered Salmonella Javiana and Typhimurium

As a veterinary student at the Ohio State University, class of 2020, I am grateful to have had the opportunity to do research through the Cornell Leadership Program. My research in animal model development for typhoid fever is especially interesting to me since as a hopeful laboratory animal veterinarian, an important role I will have involves collaboration with researchers in creating animal models. Developing convenient laboratory animal models is critical in infectious disease research, but this can be challenging for human-adapted pathogens. One exemplary pathogen is Salmonella Typhi, the causative agent for typhoid fever resulting in approximately 21 million illnesses and 200,000 deaths annually throughout the world. This human-adapted pathogen S. Typhi necessitates collaboration with laboratory animal veterinarians

to create effective animal models that are useful for studying the pathogenesis of typhoid fever, but also testing new therapeutic and vaccine candidates. Here, we aimed to test two promising strategies using bioengineered Salmonella serovars Javiana and Typhimurium that infect MyD88 knockout and wild-type C57BL/6J mice respectively, and produce bacterial determinants important for recapitulating many of the characteristic signs of typhoid fever. If successful, this scientific endeavor would bring significant impacts in typhoid fever research. I am grateful for the support provided by the NIH for my participation in the program.



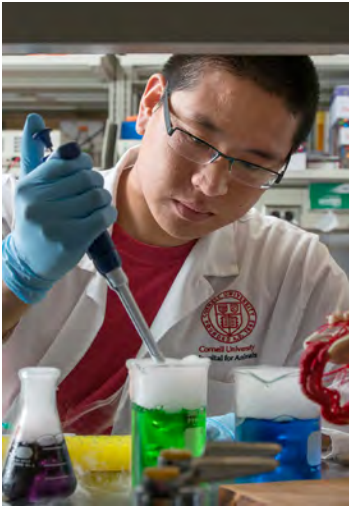
Emma Krakoff, Colorado State University, Immunology

De novo exploration of MHC class I genes in the Arabian horse

I decided to take part in the Cornell Leadership Program because I wanted to explore cutting-edge research in equine genetics and immunity while getting to know vet students from around the world. The program offered everything that I hoped for plus welcome guidance in career exploration and development. I feel that I now know what it means to pursue a career as a veterinary research scientist and what steps I need to take to achieve this goal.

I worked in Dr. Antczak's laboratory studying the equine major histocompatibility complex (MHC). My specific project was to characterize class I genes from the Arabian horse COR007 haplotype. I performed RT-PCR on lymphocytes from a COR007 homozygote and then cloned the amplicons for sequencing. I identified five genes that likely make up the COR007 haplotype, one of which was concurrently discovered in the A3 haplotype. When I wasn't in lab, I gained valuable hands-on equine experience working with Dr. Antczak's own herd of research horses that he developed to be homozygous for the MHC. I assisted in routine herd health treatments, clinical reproduction and foal care. I really enjoyed splitting my time between the lab and the barn this summer. Both experiences have contributed to my developing interest in a career in equine medicine.

I would like to thank Dr. Antczak for offering me the opportunity to work in his lab this summer and Don Miller for his guidance through the course of the project. I would also like to thank Drs. Parker, Fraser and McGregor for coordinating the Cornell Leadership Program as well as my fellow program participants for all the summer adventures. I am grateful to the National Institute of Health for the financial support.



Jon Lou, Cornell University, Endocrinology

β -cell glucagon-like peptide-1 receptor regulates β -cell proglucagon processing in mice

Before attending vet school, I trained as an orchestral percussionist and timpanist at the Indiana University Jacobs School of Music and the San Francisco Conservatory of Music. Then, I gained clinical experience while working at the Angell Animal Medical Center in Boston, MA. I thought that a research career studying diseases that affect humans and animals was a delusion of grandeur for a musician without research experience, but summer research programs at Cornell like the Veterinary Investigators Program (VIP) and the Leadership Program for Veterinary Students have made this delusion seem possible.

As a member of the Cummings Lab, I am helping to reveal new mechanisms for treatment of type 2 diabetes. Bariatric surgery, like the vertical sleeve gastrectomy (VSG), is the most effective long-term treatment for obesity and results in high rates of type 2 diabetes remission days after surgery. Although the mechanism is undefined, we know that glucagon-like peptide-1 (GLP-1) secretion increases after surgery. We performed several experiments to unravel GLP-1 biology. The Cummings Lab previously reported that the β -cell GLP-1 receptor (GLP-IR) contributes to improved glucose regulation and islet function in mice after VSG. We found that β -cell GLP-IR signaling decreased β -cell area per islet, increased β -cell per islet, and kept the β -cells in the periphery of the islet. Furthermore, we found that it increased islet GLP-1 expression due to increased prohormone convertase 1/3 production, and then proglucagon cleavage to GLP-1 in the β -cells. Traditionally, GLP-1 expression was thought to be in the gut. Together, these data reveal a novel role for the β -cell GLP-IR in regulating β -cell location and β -cell proglucagon processing.

The Leadership Program and the Cummings Lab (Dr. Bethany Cummings, Dr. Karolina Zaborska, Darline Garibay, and Seona Lee) generously provided opportunities, mentorship, and a supportive community to develop my career in research and clinical practice as a veterinarian. Thank you to Dr. Parker, Dr. Fraser, and Dr. McGregor for accepting me into this program, and to the NIH for the T35 Training Grant.



Katherine Neal, University of Georgia, Immunology, Parasitology

*Gpr44 expression in mouse tissues after infection with *Nippostrongylus brasiliensis**

Parasitic helminth infection is a worldwide problem that affects humans and animals. Parasites induce a Type 2 inflammation, which is characterized by cytokines IL-4, IL-5, and IL-13. Type 2 innate lymphoid cells (ILC2s), rare cells that lack antigen-specific receptors, play a critical role in Type 2 inflammation via cytokine production. On ILC2s, Prostaglandin D2 binds to the CRTH2 receptor, which is encoded by the gene Gpr44. This interaction causes chemotaxis of inflammatory cells and enhances cytokine production. *Nippostrongylus Brasiliensis* is used as a model to induce Type 2 Inflammation. *N. Brasiliensis* larvae infect mice through skin penetration, travels via blood to the lungs, and then to the small intestine to mature to adult. The mice should self-clear the infection anywhere from 7-13 days post-inoculation. The mice were infected subcutaneously with *N. Brasiliensis* larvae, and 7 days post-inoculation immune cells were extracted from the lungs, blood, and mesenteric lymph node. The cell types and presence of Gpr44 expression were identified using PrimeFlow RNA Assay and Flow Cytometry. The percentage of ILCs and ILC2s in the lineage negative population of cells showed an infection induced increase in the lung, blood, and mesenteric lymph node. In the lung, the percentage of Gpr44+ ILCs and ILC2s increased compared to naïve. The

blood showed no significant difference between the mice in percentage of Gpr44 expression in ILCs and ILC2s. The mesenteric lymph node of infected mice had varied and inconclusive results, due to so few cells to begin with.

I would like to sincerely thank Dr. Elia Tait-Wojno for letting me work in her lab this summer and always taking the time from her busy schedule to teach me or help me with experiments. Thank you to Drs. Lauren Webb, Oyebola Oyseola, and Simon Frueh, and to Seth for their never-ceasing patience, knowledge, and encouragement. I had a wonderful research experience, and learned so much from all of you. Thank you to Drs. Parker, Fraser, and McGregor, as well as Stevanica, for all they do for the program. I am also incredibly grateful for the financial support provided by the NIH, who made this experience possible.



Elisabeth Reetz, Freie Universität, Bacteriology

Mutations of HilD, a central regulator of Salmonella invasion, affecting its control by environmental and genetic factors.

Salmonella enterica serovar Typhimurium is the most common bacterial cause of food-borne disease and can cause gastrointestinal inflammation in animals and humans. Infection of the intestinal tract with *S. enterica* first requires invasion of epithelial cells. The virulence factors that allow it to invade these cells are fundamental to their pathogenicity, and the genes involved are highly regulated. The majority of these virulence factors are encoded on Salmonella Pathogenicity Island I (SPII) within the bacterial chromosome. The master regulator of SPII is the protein HilD which responds to many environmental signals and genetic regulatory factors.

We had previously conducted a screen to identify gain-of-function mutants of HilD capable of inducing invasion genes under typically repressive conditions. Here I characterized the regulation of these mutants. Of the 9 mutants tested, 8 showed

increased invasion gene expression using sipC::lacZ and hilD::lux reporter fusions.

One such mutant, with a point mutation that changed amino acid 180 from tyrosine to asparagine, showed high invasion activity that was not further increased in a Lon protease knockout strain. These results suggest that this region plays a significant role in the degradation of HilD by preventing its recognition by Lon protease. Additionally, the same region made invasion gene expression insensitive to cholate, a part of bile that normally inhibits the invasion process.

Previously no binding region for Lon has been described or presumed. Understanding the regulation of HilD, especially its downregulation, will establish the basis for therapeutic targets to inhibit the invasion of salmonella.

This summer was a wonderful and intense experience. What made this summer special were the people. So, I want to say thank you to all of them!

Thank you Dr. Altier for teaching me, letting me work in your laboratory and allowing me try and test almost everything! Thank you, Michael for being the smartest post doc I've ever met and answering every question! Thank you, Paulina for being a great artist, being honest about everything and telling the funniest stories.

Thank you: Stevanica for organizing almost everything for us. Albert for teaching us all those Aussie slang words. Annabelle for always keeping your British elegance. Rachel for always being the loveliest person, even when you were terribly stressed out. Becky for being literally excited about everything and for your great smores. Luca for showing us that if you want to learn an instrument all you need is persistence. Ann for demonstrating that technical failures can't stop a true expert! Anna for organizing our great Washington trip. Jessica for showing us all that giving up is never an option! Kathin W. for cooking an absolute great traditional German dinner for all of us. Kathrine N. for driving heroically to Toronto and back and all your great travel tips. Emma for always being keen for a hike, even at 1 am and planning so many trips. Steven for being exactly who you are and not caring about other people's expectation. Jeffrey for sharing your passion and knowledge about cooking, wine and sous vide with us. Samantha for having the best poker face while a taxi driver explains that the pyramids were built with antigravity. Jon for making us laugh every day, always being up for fries and ice cream and helping when help was needed! Kelley for being a wonderful person, a great character and a true friend. Thanks also to Achim Gruber, Robert Klopffleisch, Marcus Fulde and Marcus Doherty

for supporting me. The DAAD for their financial support. And of course, thank you to Drs. Parker, McGregor and Fraser for organizing this program and making all this possible.



Albert Thomas, University of Queensland, Biomedical Engineering
Effects of Polycythemia Vera on red blood cell interactions with brain endothelial cells.

Being a veterinarian has always been a pathway to which I have aspired. I was never someone who was satisfied consuming information and assuming it was truth. I have always questioned and needed to know the underlying mechanisms.

The Leadership Program has allowed me the intellectual flexibility to: question, delve and explore deep pathobiological mechanisms that underlie both human and animal disease. It has also allowed me to realize the independence, dedication and resilience a scientist needs in a challenging, yet rewarding research environment. It is a career I now consider in earnest.

My Project formed part of a larger study within the Schaffer-Nishimura Laboratory in the School of Biomedical Engineering. It involved using a mouse model of Polycythemia Vera (PV), a myeloproliferative neoplasm of RBCs in humans, to study

microvascular cellular interactions.

I designed an experiment where we studied the interaction of RBCs and brain microvasculature endothelial cells in an in vitro parallel flow plate model. We found that PV RBCs are more likely to interact with endothelial cells than wild type blood and this will allow future work in an in vivo cortical microvasculature imaging study for the mechanism to be fully elucidated.

I would like to thank Dr. Schaffer for being a great mentor and setting me up to succeed, whilst allowing me the freedom to be challenged. I would also like to thank the Schaffer-Nishimura Lab for being some of the most intellectual and fun people I have ever known, whose help has gotten me so far along the learning pathway. I would also like the team at the Biotechnology Resource Centre Imaging Facility, Particularly Dr. Williams, for her guidance and expertise. Lastly to Michael McCoy, whose patience and understanding allowed me to persevere when things got tough.



Kathrin Welsch, TiHo, Virology
Canine Parvovirus as probe for sialic acids

Being a trained research technician, I have always liked working in a laboratory environment. The Leadership Program was an opportunity for me to find out whether I could do more than technician work and aim for a higher career.

My mentor, Dr. Colin Parrish, and his team provided me with a very well thought out project on canine parvovirus (CPV). CPV binds to the canine transferrin receptor (TfR), but also to N-Glycolylneuraminic acid (Neu5Gc) - a sialic acid on the surface of many cells. The aim of my project was to knock out TfR binding in CPV virus-like particles (VLPs) to create a probe for Neu5Gc.

Two loops of the CPV major capsid protein - the 93-loop and the 300-loop - interact with the transferrin receptor. We introduced a set of alanine mutations into each of them - separately and in combination - to disrupt this interaction. These mutated genes were then integrated into a baculovirus expression vector and transfected into insect cells. Capsids produced by the cells were purified on a CsCl gradient.

All VLPs hemagglutinated red blood cells strongly showing that capsids assembled and were binding sialic acids. To determine if TfR binding still occurred, we used Bio-layer interferometry and showed that the 93-loop mutations significantly decreased receptor binding, making it a good candidate for a sialic acid probe. We obtained a similar

result for the double mutant. Mutations in the 300-loop on the other hand, increased TfR binding compared to wild type-VLPs. This result, while unexpected, could help explain the role of the 300-loop in receptor binding.

In the short time of the Program I achieved the aim of my project and improved my skills in the laboratory. I am now more convinced that I can become a successful research scientist.

Probably the best experience though was getting to know many incredibly creative and clever people and spending a fun time with them. I hope to stay in touch with many of them for a long time. I would like to thank Dr. Parrish for letting me work on a fascinating project, everybody in his team for their great support and the Program facilitators for making this summer possible.



Stephen Yang, Cornell University, Stem Cell Biology, Virology
Antiviral Properties of Equine Mesenchymal Stem Cells against Equine Herpesvirus Type 1 (EHV-1) in vitro

Over the course of the program I think I gained a better insight into what is involved in the PhD application. I also learned of stipend opportunities for DVM students seeking a PhD at Cornell which was enticing and made the choice to pursue a PhD more practical. In terms of social gains, I gained a greater appreciation for working with budding scientists in the world both in terms of learning about their region specific veterinary quandaries and their unique perspective on our culture. On the downside, I feel if I had lived at Zeta Psi I would have forged stronger friendships with my fellow students. Finally, I received training on how to be a good leader including how to take criticism and show empathy.

For my research endeavours, I looked at mesenchymal stem cells (MSCs) and their use against EHV-1 spread. MSCs have regenerative properties routinely used by equine practitioners as a biologic treatment for orthopedic diseases. The van de Walle lab has previously shown that equine MSC exhibit antibacterial properties, in part through secreted antimicrobial peptides (AMPs). As some AMPs exert broad-spectrum effects on microbes, we began to explore antiviral properties of MSC secreted factors, with the long-term goal of using MSC as a therapy to control EHV-1. This in vitro study aims to determine if equine MSC secreted factors inhibit EHV-1 replication, and if so, how. We found that MSC secreted factors inhibit the replication of a non-neuropathogenic (NY03) and neuropathogenic (Ab4) pathotype of EHV-1 in host cells lines. We also generated preliminary evidence that MSC secreted factors act to inhibit the viral replication cycle after EHV-1 entry. Moreover, gene expression analysis of infected host cells in the presence or absence of MSC secreted factors suggests that these factors increase antiviral responses in host cells. These data support the hypothesis that MSC secreted factors possess antiviral properties and increase cellular anti-EHV-1 response. Continued study on how MSC secreted factors inhibit EHV-1 replication will help us to determine if these cells can be used as a control therapy for EHV-1 replication.

*Research Hot Summer
Baker Free Food Good Advice
Awesome Lifelong Bonds*



Kelley Zimmerman, Royal Veterinary College, Immunology

A role for the adaptive immune system in the immediate hypersensitivity reaction

The Cornell Leadership Program for Veterinary Students has provided me with an invaluable research experience. It also gave me a better understanding of different veterinary careers within research and strategies to best achieve my career goals. The ten weeks I spent at Cornell have been unforgettable. It was fantastic to be surrounded by similar minded veterinary students, who I am sure will be lifelong friends.

This summer I had the enormous honor of working in Dr. August's lab, investigating the role of the adaptive immune system on mast cell peritoneal population sizes, FcεRI expression, and mast cell degranulation responses in vivo. This was undertaken using four different mice strains in a passive systemic anaphylaxis model (PSA). My results suggest additional influence from the adaptive immune system, or the Rag gene itself, is required for a robust mast cell-dependent PSA. By further understanding the influences involved in anaphylaxis and mast cell maturation pathways it is hoped that potential targets could be identified for immunotherapy.

I would like to thank Drs. Parker, McGregor, and Fraser for continuing to put so much of their efforts into this excellent and truly unique program. Furthermore, I would like to thank Dr. August and all the members in his lab, especially Amie Redko, for the opportunity to work with them as well as all their support, patience, and willingness to teach me. I would also like to express my gratitude to the NIH for their sponsorship, which allowed me to participate in this program. Lastly, thank you to all the other student members who made every moment a joy.

Stevanica Augustine, Cornell University, Program Student Coordinator.





Facilitators



Dr. Phillip Carter,
Professor Emeritus, Dept.
Microbiology, North Carolina
State University



Dr. Terry Dermody,
Professor, Virology, Vander-
bilt School of Medicine



Dr. Julia Felipe,
Professor, Dept. of Clinical
Sciences, Cornell University



Dr. David Fraser,
Professor & Dean Emeritus,
Animal Science, University of
Sydney



Dr. Kathy Earnest-Koons,
Dept. Microbiology & Immunology,
Cornell University.



Dr. Franziska Grieder,
Director, Office of Research Infra-
structure Programs (ORIP),
National Institutes of Health (NIH).



Dr. Emily Hickey,
Corporate Vice President, In vivo
Discovery Research Services,
Charles River Laboratories.



Dr. Gerry Hickey,
President, Synergy Regulatory
Services, LLC.



Dr. Peggy McCann,
Director, Global Regulatory Affairs,
Merck & Co.



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



Dr. Elisabeth Moore,
Graduate student, Biomedical
Sciences, Cornell University



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



Dr. Roy Pollock,
Chief Learning Officer,
The 6Ds Company



Dr. Jeongmin Song,
Assistant Professor, Microbiology &
Immunology, Cornell University



Dr. Tracy Stokol,
Professor and Director of Clinical
Pathology, Population Medicine
& Diagnostic Sciences, Cornell
University



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



Housing

PARTICIPANTS IN THE *LEADERSHIP PROGRAM* WERE HOUSED IN THE ZETA PSI FRATERNITY HOUSE ON THE CORNELL CAMPUS. THEY had exclusive use of the building for the ten-week period that the program was in session. Several events were scheduled there, typically in the evening in conjunction with a catered meal. The living arrangements enabled the scholars to socialize and relax in a convenient and pleasant campus environment.



Time Out

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.



To prepare tomorrow's scientists and public health professionals

Program Dinner

The Leadership Program scholars hosted a dinner for their mentors, module facilitators, counselors, and other guests at the Baker Institute for Animal Health.





Program Alumni

CONTACT WITH LEADERSHIP PROGRAM GRADUATES IS MAINTAINED IN ORDER TO STRENGTHEN THE PROFESSIONAL NETWORK FORGED AT CORNELL AND TO UPHOLD THE PROGRAM'S TRADITION OF EXCELLENCE FOR THE BENEFIT OF FUTURE SCHOLARS. ALUMNI ARE encouraged to make informed decisions about the advanced training needed to realize their professional goals. The accompanying table lists degrees awarded to program graduates and degrees they are expected to receive after completing the academic programs in which they are presently registered. Not included in the list are degrees alumni received before they began their veterinary studies.

Academic Qualifications of DVM alumni of the Leadership Program (1990-2016)

Degree	No.	% North America Alumni (N = 281)	No.	% Other Countries Alumni (N = 283)	% Total Alumni (N = 628)
PhD	51	18.0%	157	45.6%	33.1%
Dr. Med. Vet.	NA	NA	26*	7.6%*	NA
MPH	13	4.6%	9	2.6%	3.5%
MS	11	3.9%	12	3.5%	3.7%

* Numbers and 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 (1990-2016)

No.	% North American Alumni (N=306)	No.	% Other Alumni (N=322)	% Total Alumni (N=628)
114	37.3%	58	18.0%	27.4%

Where Are They Now?

LISTED BELOW ARE THE POSITIONS CURRENTLY OCCUPIED BY PROGRAM ALUMNI WHOM HAVE COMPLETED THEIR VETERINARY education and are pursuing careers in science or public health.

1990

John Angelos, Professor, Medicine and Epidemiology, University of California at Davis, CA

William Carr, Associate Professor, Biology, Medgar Evers College, CUNY, New York, NY

Laura Gumprecht, Director, Safety Assessment, Merck Research Laboratory, Philadelphia, PA

Elizabeth Lyon-Hannah, Associate Professor, Epidemiology, 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, 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

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

Judy Hickman-Davis, Professor, Veterinary Preventive Medicine, The Ohio State University, Columbus, OH

Alan Radford, Reader, Infection Biology, University of Liverpool, UK

1992

Tomasz Betkowski, Site and Resource 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, 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, Dean, School of Veterinary Medicine, Ludwig Maximilian University, Munich, Germany

1993

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

Deborah Hoyle, Epidemiologist, Roslin Institute, University of Edinburgh, UK

Christopher Laing, Executive Director, Capitol City Innovation, School of Medicine, University of Texas, Austin, TX

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, Director, Ryter, Ltd, London, UK

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

Melinda Stewart-Gabor, Veterinary Pathologist, NSW Department of Primary Industries, Sydney, AU

Lynn Wachtman, Epidemiology, Officer, VS SPRS, USDA (APHIS), Indianapolis, IN

1994

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

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

Leslie Gabor, Head, Study Execution and Laboratories, Elanco, Sydney, AU

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

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

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

Jeffery Phillips, Associate Professor, Immunology and Oncology, Lincoln Memorial University, Knoxville, TN

Stacy Pritt, Vice President, American Veterinary Medical Association, Dallas, TX

Mary Thompson, Associate Professor, Small Animal Medicine, Murdoch University, Perth, 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, Microbiologist, Roslin Institute, University of Edinburgh, UK

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

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

Wendy Harrison, Managing Director, School of Public Health, Imperial College, London, UK

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

Tony Mutsaers, Associate Professor, Clinical Sciences, Ontario Veterinary College, Guelph, Ontario, CA

1996

Michelle Dries-Kellaway, Chief Operating Officer, Qantas Assure, Sydney 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, Fetal Morphologist, Charles River Laboratories, Nijmegen, The Netherlands

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

1997

Peter Bracken, Principal Specialist, Regulatory Affairs, Boehringer Ingelheim, St. Joseph, MO

Jonathan Happold, Project Consultant, Ausvet, Proprietary, Ausvet, Canberra, AU

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

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

Patricia Pesavento, Chair, Graduate Group in Comparative Pathology, Microbiology & Immunology, University of California, Davis, CA

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

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

Rachel Walker, Research Scientist, Elanco Ltd., University of Sydney, Sydney, AU

Rebecca Wilcox-Fisher, Animal Welfare Officer, RMIT University of Melbourne, Melbourne, AU

Esther Wissink-Antonis, Head Research Affairs, Faculty of Law, Economics and Governance, University of Utrecht, Utrecht, The Netherlands



1998

Max Bastian, Principal Investigator, Friedrich-Loeffler Institute, Grefswald, Germany

Steven Fleisher, Director of Therapeutic Drugs, Evaluation, Food and Drug Administration, Bethesda, MD

Karsten Huffer, Professor, Microbiology, 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, Principal Investigator, Disease Surveillance, University of New Mexico, Albuquerque, NM

Anne-Marije Sparnaay, Project Manager, Netherlands Food Safety Authority, Amsterdam, The Netherlands

1999

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

Nadine Bowden-Ramos, Staff Research Fellow, Food and Drug Administration, Washington DC

Christine Broster, PhD candidate, Microbiology, University of Bordeaux, Bordeaux, France

Robert Dickens, Veterinary Medical Officer, U.S. Department of Agriculture, Raleigh, NC

Joshua Fine, Principal Senior Scientific Advisor, Tunnell Government Services, Inc., Washington D.C.

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

Franciette Geraghty-Dusan, Veterinary Manager, Animal Health, Turner, AU

Bronwen Harper, Science Educator, Box Hall Institute, Melbourne, AU

Carl Holmgren, Neuroscientist, Center for Advanced European Studies and Research, Bonn, Germany

Emily Meseck, Director, Project Pathology, Novartis Institute for Biomedical Research, East Hanover, NJ

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

Kimberly Newkirk, Associate Professor, Anatomical Pathology, University of Tennessee, Knoxville, TN

Rachel Peters, Associate Director, Agies Pharmaceuticals, Cambridge, MA

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

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

Holger Volk, Department Head, Neurology and Neurosurgery, Royal Veterinary College, London, UK

2000

Stephen Daley, Senior Research Fellow, Biochemistry & Molecular Biology, Monash University, Melbourne, AU

Katharine Evans, Health Research Manager, Kennel Club of London, London, UK

Toby Floyd, Veterinary Research Pathologist, Animal Health and Veterinary Laboratories, Weybridge, UK

Rachel Geisel-Allavena, Associate Professor, 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

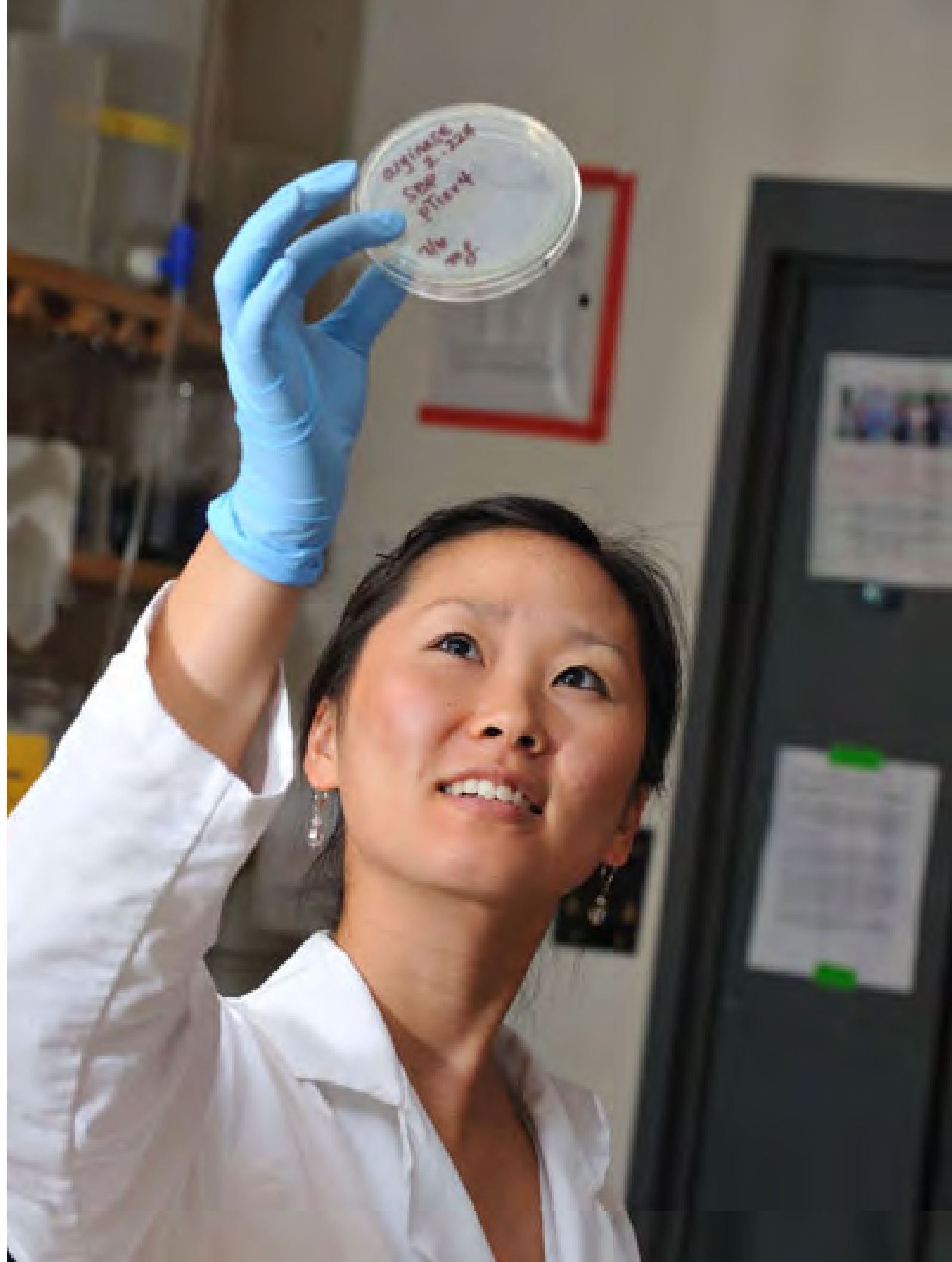
Jamie Lovaglio, Biosecurity Scientist, Pacific Northwest National Laboratory, Richland, WA

Richard Luce, EIS Officer, US Centers for Disease Control and Prevention, Atlanta, GA

Fiona Norris-Sansom, Senior Lecturer, Veterinary Biosciences, University of Melbourne, Melbourne, AU

Knut Stieger, Professor, Ophthalmology, Justus, Liebig University, Giessen, Germany

Joost Uilenreef, Staff Advisor, Anesthesia, Academic Medical Center, Amsterdam, 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

Rachel Ballantyne Windsor, Scientific Support Manager, Royal Canin Co., United Arab Emirates

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

Robert Klopffleisch, Professor, Veterinary Pathology, Freie Universität, Berlin, Germany

David Loch, Patent Attorney, Fisher, Adams & Kelly, Brisbane, AU

Maeva May, Public Health Analyst, National Heart, Lung, and Blood Institute, NIH, Bethesda, MD

Timothy Myshrall, Associate Director, Biological Resources, Cleveland Clinic, Cleveland, OH

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

Kis Robertson, Senior Epidemiologist, USDA-FSIS, Washington D.C.

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

Jason Stayt, Staff Scientist, VetPath Laboratories, Perth, AU

Amy Warren-Yates, Associate Professor, Pathology, University of Calgary, Calgary, Alberta, CA

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

Bevin Zimmerman, Senior Staff Pathologist, Charles River Laboratories, Ashland, OH

Karin Darpel, Lecture, Veterinary Virology, University of Surrey, Guildford, UK

Karyn Havas, Chief, Infectious Disease Epidemiology, Population Medicine, Cornell University, Ithaca, NY

Steven Laing, Pathologist Scientist, Genentech, San Francisco, CA

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, Associate Professor, Pathology, Royal Veterinary College, London, UK

Kelly Still-Brooks, Assistant Professor, Clinical Sciences, Iowa State University, IA

Barbara Tännler-Werhli, Marketing and Technical Manager, Zoetis Inc., Zürich, Switzerland

2003

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

John Baker, Vice President, Diagnostics and Licensing, Adcom, Cambridge, UK

Patrick Carney, Assistant Professor, Clinical Sciences, Cornell University, Ithaca, NY

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

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

Lindsay Hamilton, Anesthesia Specialist, Babraham Institute, Cambridge, UK

Michael Krahn, Professor, Cell Biology, University Hospital of Munster, Munster, Germany

Heather Martin, Assistant Professor, Veterinary Science Weill Medical College, Cornell University, New York, NY

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

Kate Patterson, Multimedia Project Leader, Garvin-Weizman Center for Cellular Genomics, Sydney, AU

2002

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

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

Karla Stucker, Science Teacher, George School, Newton, PA

Lyn Wancket, Pathologist, MAMSA, Northwood, OH

Christiane Wrann, Assistant Professor, Medicine, Harvard Medical School, Boston, MA

2004

Anton Asare, Veterinary Officer, USDA, APHIS, Columbia, SC

Carolyn Block, Clinical Manager, Immunology and Ophthalmology, Roche Pharma AG, Reinach, 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, PhD Candidate, Bioengineering, Glasgow Caledonian University, Glasgow, UK

Robert Ossiboff, Assistant Professor, Wildlife Pathology, University of Florida, Gainesville, FL

Allison Rogala, Research Assistant Professor, Infectious Diseases, University of North Carolina, Chapel Hill, NC

Duncan Russell, Assistant Professor, Pathology, Oregon State University, Corvallis, OR

Baukje Schotanus, Scientist, AbbVie Inc., Utrecht, The Netherlands

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

Ivana Sekis, Resident in Anesthesia, School of Veterinary Medicine, Vienna, Austria

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

Claire Underwood, Senior Lecturer, Large Animal Diagnostics, University of Queensland, Brisbane, AU

James Weemhoff, PhD candidate, Pharmacology, University of Kansas, Kansas City, MO

2005

Krystal Allen-Worthington, Academic Clinician, University of Pennsylvania, Philadelphia, PA

Melanie Ammersbach, Technical Services Veterinarian, Bayer Animal Health, Kitchener, Ontario, Canada

Hannah Bender, Veterinary Pathologist, Taronga Conservation Society, Sydney, AU

Hille Fieten, Faculty Member, Veterinary Medicine, University of Utrecht, The Netherlands

Amanda Kreuder, Assistant Professor, Veterinary Diagnostics, Iowa State University, Ames, IA

Rebecca Mitchell, Visiting Assistant Professor, Epidemiology, Emory University, Atlanta, GA

Marieke Opsteegh, Scientist RLVM, National Institute for Public Health & the Environment, Utrecht, The Netherlands

Emily Orchard-Mills, Service Specialist, Dept. of Agriculture, Fisheries, and Food, Canberra, AU

Trisha Oura, Assistant Professor, Diagnostic Imaging, Tufts University, Boston, MA

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, Senior Veterinary Advisor, The Brooke, London, UK

Catherine Trickett-Tisdall, Lecturer, Veterinary Science, Myerscough College, Willsborrow, UK

Nina Weishaupt, Assistant Manager, Neurology, New Beta Innovation, Burnaby, British Columbia, Canada

2006

Stephanie Brien, Veterinarian, Ape Action Africa Inc., London, UK

Onno Burfeind, Veterinary Service Specialist, Fettercamp, Education and Research Center, Kiel, Germany

Bronwyn Clayton, Postdoctoral Fellow, Virology, Australia Animal Health Laboratory, Geelong, AU

Alexander Corbishley, Lecturer, Farm Animal Practice, University of Edinburgh, UK

Janny de Grauw, Academic Clinician, Utrecht University, The Netherlands

Louise Fitzgerald-Sullivan, Pathologist, Gribbles, Adelaide, AU

Annika Haagsman, Resident, Small Animal Surgery, University of Utrecht, The Netherlands

Eva-Marie Laabs-Poos, Government Veterinary Officer, Oldenburg, 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

Tiffany Reed-Lyle, MoleAssistant Professor, Pathology, Purdue University, West Lafayette, IN

William Sander, Consultant, Booz Allen Hamilton, Washington, D.C.

Justine Shotton, Wildlife Veterinarian, Maxwell Wildlife, Winchester, UK

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

2007

Patrick Ayscue, Director, Epidemiology, Metabiota, San Francisco, CA

Sonja Bröer, Preclinical Neuroscientist, Neurona Therapeutics, San Francisco, CA

Rosemary Brungs, Registrar, Pediatric Endocrinology, Children's Hospital, Sydney, AU

Stephen Burr, Postdoctoral Fellow, Cell Biology, University of Cambridge, Cambridge, UK

Sarah Wang (nee Caddy), Postdoctoral Fellow, Molecular Biology, University of Cambridge, Cambridge, UK

Elva Cha, Senior Research Scientist, GNS Healthcare, Cambridge, MA

Boran Choi, PhD candidate, Neuroscience, John's Hopkins University, Baltimore, MD

Ludwig Groebler, Professional Education Manager, Johnson & Johnson, Erkrath, Germany

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

Kate Johnson, Postdoctoral Fellow, Cell Biology, University of Reading, Reading, UK

Kristin Lewis, Postdoctoral Fellow, Pathology, Nationwide Children's Hospital, Columbus, OH

Kay Russo, Technical Manager, Boehringer Ingelheim, St. Joseph, MI

Ryan Traslavina, Veterinary Officer, US Army, Fort Detrick, MD

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

Annemarie Voorbij, Academic Clinician, University of Sydney, Sydney, AU

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

2008

Rachel Acciaccia, Resident, Emergency and Clinical Care, U.S. Army, Colorado State University, Fort Collins, CO

Hannes Bergmann, Livestock Compliance Inspector, Western Australia Department of Agriculture, Moora, AU

Jennifer Bernard, Pathologist, IDEXX Laboratory, Memphis, TX

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

Katharina Dinger, Postdoctoral Fellow, Molecular Biology, University of Cologne, Cologne, Germany

Johanna Dups, Veterinary Epidemiologist, Western Australia Department of Agriculture, Moora, AU

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

Lisa Holz, Food Safety Officer, Government Authority, Baden-Württemberg, Germany

Sally Ann Iverson, EIS Officer, Centers for Disease Control and Prevention, Atlanta, GA

Joshua Leach, PhD candidate, Oncology, Beatson Institute for Cancer Research, Glasgow, UK

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

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

Dallas New, Epidemiologist, Veterinarians Without Borders, Saskatchewan, CA

Annelies Nijdam, Postdoctoral Fellow, Epidemiology, Netherlands Cancer Institute, Amsterdam, Netherlands

Kimberley Schiller, Management Consultant, Accenture, London, UK

James Swann, D.Phil. candidate, Rheumatology, University of Oxford, UK

Heidi Vesterinen, Resident, Veterinary Public Health, University of Minnesota, St. Paul, MN

2009

Floryne Buishand, Postdoctoral Associate, Oncology, National Cancer Institute, NIH, Bethesda, MD

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

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

Jenna Gettings, Postdoctoral Fellow, Epidemiology, Clemson University, Clemson, NC

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

Sonja Heinrich, Consultant, Boston Consulting Group, Boston, MA

Alan Humphreys, Assistant Professor, Laboratory Animal Medicine, Baylor College of Medicine, Houston, TX

Shuhei Ito, Technical Manager, Pfizer Inc., Tokyo, Japan

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, MSc candidate, University of Saskatchewan, Saskatoon, Saskatchewan, CA

Hans Winkler, Postdoctoral Fellow, Nutritional Science, University of Pretoria, South Africa

2010

Mirjam Brackhan, Postdoctoral Fellow, Neuroscience, Oslo University, Oslo, Norway

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

Jennifer Cassano, Intern, Large Animal Medicine, Tufts University, North Grafton, MA

Zachary Chillag, Base Veterinarian, U.S. Army, Fort Benning, GA

Greg Dickens, Inventor, Innovia Technology, Cambridge, UK

Line Greve, Clinician, Sports Medicine, Endensia Hospital, Helsingborg, Sweden

Sarah Hooper, Postdoctoral Scientist, Wildlife Biology, USDA, Forest Service, St. Paul, MN

Sanne Hugen, PhD candidate, Utrecht University, Utrecht, The Netherlands

Marie Killerby, EIS Fellow, Center for Disease Control and Prevention, Atlanta GA

Anne Kimmerlein, MPVM candidate, University of California, Davis, CA

Brina Lopez Graham, Resident/PhD candidate, Large Animal Medicine, University of Georgia, Athens, GA

Kathleen O'Hara, MPH candidate, University of California, Davis, CA

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

Eliza Smith, Communications Manager, Kyeema Foundation, Brisbane, AU

Luise Steltzer-Seeker, PhD candidate, Cell Biology, Scottish Agricultural College, Ed-inburgh, UK

Frances Taylor-Brown, Clinical Neurologist, University of Cambridge, Cambridge, UK

Daniel Woodburn, PhD candidate, Zoology, University of Illinois, Urbana, IL

2011

Ángel Abuelo Sebio, Assistant Professor Bovine Medicine, Michigan State University, College of Veterinary Medicine, East Lansing, MI

Hanna Atkins, PhD candidate, Molecular Medicine, Wake Forest University, Winston-Salem, NC

Jessica Brown Beck, PhD candidate, Cancer Biology, National Cancer Institute, NIH, Bethesda, MD

Timothy Chua, Veterinary Officer, ASTAR, Singapore

Scott Dudis, Medical Support Service Specialist, U.S. Army, Germany

Kristin Elfers, Lecturer, Department of Veterinary Physiology, TiHO, Hannover, Germany

Ellen Hart, Veterinary Medical Officer, FDA, Washington, D.C.

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

Per Karlsson, Postdoctoral Fellow, Statistics, Virginia Commonwealth University, Richmond, VA

Marion Leiberich, PhD candidate, Reproductive Biology, University of Pretoria, South Africa

Jessica Magenwirth, MPH candidate, Johns Hopkins University, Baltimore, MD

Celine Mortier, PhD candidate, Rheumatology, University of Ghent, Belgium

Maurine O'Brien, Veterinary Pathologist, Charles River Laboratories, Frederick, MD

Karina Radefield Stein, Dr. Med. Vet candidate, Reproductive Biology, University of Vienna, Austria

Viktoria Rungelrath, Dr. Med. Vet candidate, Microbiology, University of Leipzig, Germany

Lauren Smith, Resident, Radiation Oncology, University of Wisconsin, Madison, WI

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

Sarah Wood, PhD candidate, Western College of Veterinary Medicine, University of Saskatchewan, Saskatoon, CA

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

2012

Molly Benner, Resident, Oncology, University of Illinois, Urbana, IL

Luca Bertzbach, PhD candidate, Institute for Virology, Freie Universität, Berlin, Germany

Debbie Burnett, PhD candidate, Immunology, Gavin Institute, Sydney, AU

Iris Chan, Intern, Small Animal Medicine, University of Cambridge, Cambridge, UK

Kristofer Dewberry, Entrepreneur, Clinical Vending Group, Ithaca, NY

Anna Maria Gartner, Dr. Vet. Med. candidate, Giessen University, Giessen, Germany

Anna Goodroe, Resident, Laboratory Animal Medicine, Johns Hopkins University, Baltimore, MD

Anja Gremmer, PhD candidate, Neurobiology, Max Planck Institute for Brain Research, Frankfurt, Germany

Robert Holly, Acting Executive Officer, U.S. Army, Fort Bragg, Fayetteville, NC

Hilary Hu, Resident, Neurology, Texas A&M, College Station, TX

Laura Schmertmann, PhD candidate, Pathology, University of Sydney, Sydney, AU

Lucas Smolders, Postdoctoral Fellow, Surgery, University of Zurich, Switzerland

Hanna Telama-Castro, PhD candidate, Food Safety, University of Helsinki, Finland

Adam Werts, Resident, Comparative Animal Medicine, Johns Hopkins University, Baltimore, MD

Helena Wittgenstein, PhD candidate, Pathology, Freie Universität, Berlin, Germany

2013

Helena Brewer, Veterinarian, Poultry Health Services Ltd., Hemingford Grey, UK

Casey Cazer, PhD candidate, Epidemiology, Cornell University, Ithaca, NY

Francis Chen, DVM/PhD candidate, Developmental Biology, Cornell University, Ithaca, NY

Iva Cvitas, PhD candidate, University of Bern, Switzerland

Krystana Föh, Clinical Fellow, Animal Behavior, Augsburg, Germany

Angus Fisk, D.Phil. candidate, Neurology, University of Oxford, UK

Nandita Kataria, Medical Student, University of Sydney, Sydney, AU

Wilfred Leung, PhD candidate, Oncology, Cornell University, Ithaca, NY

Jenny Munhofen, Officer, U.S. Army, South Korea

Hendrik Sake, PhD candidate, Biotechnology, Medical School, Hannover, Germany

Svenja Wiechert, PhD candidate, Microbiology, Medical School, Hannover, Germany

Bosco Yeung, Clinical Fellow, Royal Veterinary College, London, UK

Emily Milodowski, Research Fellow, Immunology, University of Bristol, Bristol, UK

Dimo Naujokat, Dr. Vet. Med. candidate, Business Administration, Tierärztliche Hochschule, Hannover, Germany

Isabel Ralle, PhD candidate, Cardiology, Medical School, Hannover, Germany

Clare Sherman, Intern, Medicine and Surgery, Veterinary Specialty and Emergency Hospital, San Diego, CA

Susanne Spoerel, Intern, Small Animal Medicine, University of Giessen, Giessen, Germany

Merit Van den Berg, Intern, University of Ghent, Ghent, Belgium

Vanessa Wallace, MPH candidate, Virginia-Maryland Technical University, Blacksburg, VA

Lucy Watson, PhD candidate, Ovarian Biology, Royal Veterinary College, London, UK

Jonathan Wilson, Student, Chemistry Education, University of Oxford, UK

2014

Callum Bennie, Intern, Dermatology, University of Sydney, Sydney, AU

Alicia Braxton, Resident, Laboratory Animal Science, Johns Hopkins University, Baltimore, MD

Sebastian Bunte, Dr. Med. Vet. candidate, Tierärztliche Hochschule, Hannover, Germany

Amy DiDomenico, Resident, North Carolina State University, Raleigh, NC.

Laura Eling, PhD candidate, Neurology, European Synchrotron Radiation Facility, Grenoble, France

Alexandra Jaarsma, Intern, Equine Medicine, University of Adelaide, AU

Rachel Labitt, Resident, Laboratory Animal Medicine, Cornell University, Ithaca, NY

Chelsea Landon, Resident, Laboratory Animal Medicine, Duke University, Durham, NC

Fabian Lean, PhD candidate, Infectious Diseases, Australian Animal Health Laboratory, Geelong, AU

2015

Souheila Benfrid, PhD candidate, Virology, Pasteur Institute, Paris, France

Simon Freuh, PhD candidate, Molecular Biology, Cornell University, Ithaca, NY

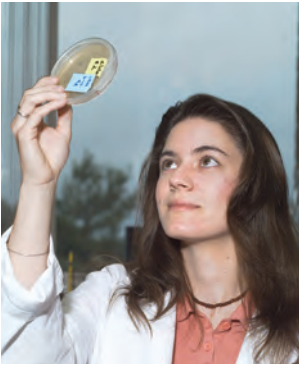
Yun Ha Hur, PhD candidate, Molecular Medicine, Cornell University, Ithaca, NY

Katerina Willgert, Intern, Small Animal Medicine, University of Cambridge, Cambridge, UK

2016

Michelle Teunissen, PhD candidate, University of Utrecht, Utrecht, The Netherlands

What Did They Say



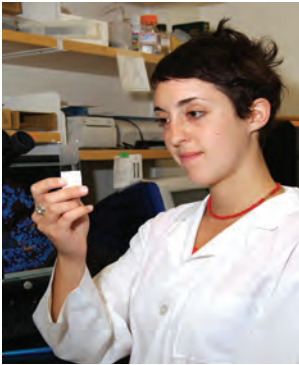
"The program ignited my interest in infectious diseases and opened my mind to professional aspects of veterinary medicine that I had not yet considered"

Larrissa Minicucci, 1998



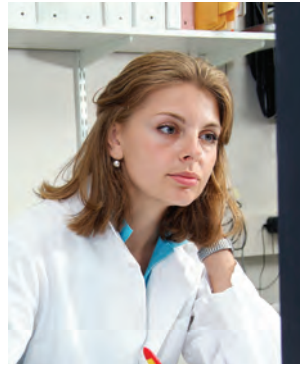
"It was for sure one of the best things I ever did for my career and it truly opened the world to me."

Jolanda Verhoef, 2009



"I had an awesome summer at Cornell"

Hanna Bender, 2005



"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



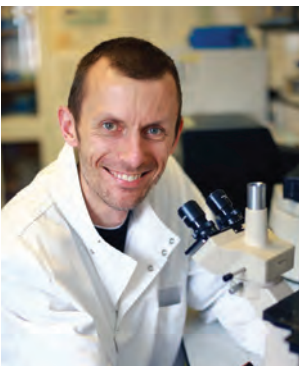
"The Program gave me with the knowledge and motivation to pursue a career, as a veterinary clinician and researcher."

Lucas Smolders, 2012



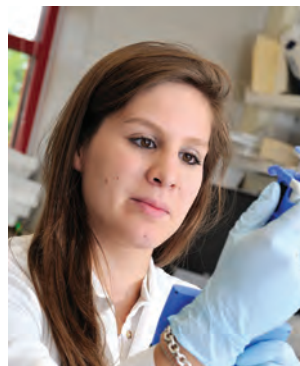
"I look back at the program as some of the best weeks of my life"

Dimo Naujokat, 2014



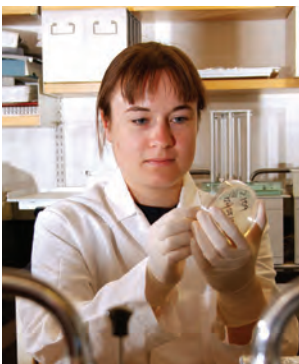
"If you are about to enter the Program, don't go with any other expectation than to enjoy it. But be prepared for it to change your life."

Alan Radford, 1991



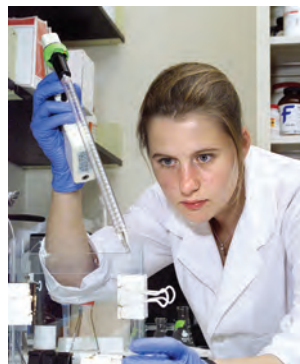
"The program was one of the most important experiences in my life"

Joanna Mieczko, 2008



"I wouldn't be where I am now without it"

Nina Weishaupt, 2005



"I remember that wonderful summer of the Leadership Program."

Mieke Baan, 2003



In the limelight: Dr. Chris Laing



I suppose there is nothing unusual about my motivations for studying veterinary science. I've always had a love of animals. Although mine was not borne of growing up surrounded by family pets, or of a life on the farm. It was rather more a curiosity, or fascination, with the living world.

So, it is not surprising that I took opportunities during my veterinary training at the University of Sydney to engage in research, at the encouragement of a mentor, Professor David Fraser, to whom I remain grateful! I spent a year investigating vitamin D and calcium derangements in Fijian iguanas at

Taronga Zoo, sparking my love of research. Being the first person to know some new piece of knowledge is exhilarating! A summer spent participating in Cornell's Leadership Program for Veterinary Students, during which I investigated canine lysosomal storage diseases, cemented that love for research. But it also did something else that became important to my career. It inspired me to train and work in the United States.

Following my PhD and a brief stint in clinical practice in the UK, I moved to Philadelphia for a postdoctoral fellowship at the University of Pennsylvania's School of Medicine. During my fellowship, I became acquainted with the concept of technology transfer when I moonlighted with a biotech company that was spinning out of the university. Product development research suited my personality, and so when my post-doc ended I took a chance at working with a series of startup companies. What I enjoyed was helping to bridge the gap between academic and commercial projects.

The University City Science Center is a 50-year-old organization in Philadelphia that works with universities to promote and support the region's innovation economy. I joined the Science Center in 2006, and helped build its new (and current) strategy first as director, then as vice president of science and technology. My role was to design and manage investment programs for technology transfer, startup company formation and growth, and business attraction. While I was not doing R&D directly, I worked closely with brilliant innovators on projects as diverse as screening tools for breast health, gene therapies for cystic fibrosis, medical imaging software, and wearables for personal protection. From 2010 – 2017, we worked with more than 300 projects, attracting almost \$700M in outside investment.

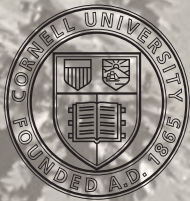
During this time, I became interested in how urban innovation districts promote commercialization and enterprise growth. My job enabled me to benchmark a number of established and emerging hubs including Boston/Cambridge, San Jose, Raleigh/Durham, Washington DC, New York City, Baltimore, Austin, St Louis, Toronto, and Granada. In 2015, I had the good fortune to travel to China as an Eisenhower Fellow, to explore how universities, companies, and municipal and provincial governments there are responding to Beijing's call for more innovation and global competitiveness.

In September 2017, I will start a new role as the inaugural executive director of Capital City Innovation, an Austin non-profit founded by the University of Texas, Central Health, and Seton Healthcare. CCI will coordinate these

and other anchors of a new healthcare-focused innovation district emerging in Austin. In addition to convening the capabilities of its founders, CCI will also leverage Austin's existing strengths in technology and creative industries, and create inclusive opportunities for Austin's community. It is the puzzle of finding a strategy that fits the overlapping priorities of all stakeholders that makes the challenge of this new role so exciting for me!

I am occasionally asked to participate in discussions on “alternative” careers for veterinary and PhD graduates – I suppose my job in business and economic development seems unusual given my training. However, I don't feel a disconnect – I use skills and perspectives from my veterinary and postgraduate training all the time, and feel that they synergize with the business, investing, and commercial skills I've picked up along the way.

It used to be that “alternative” careers for veterinarians and scientists were a way to open up new employment opportunities for graduates. But in today's geopolitical climate it is more important than ever that veterinarians and scientists consider roles outside of traditional clinical and research sectors – especially in civic and political leadership positions



Cornell University College of Veterinary Medicine

For more information about the Leadership Program, contact

John S. L. Parker, Director
Leadership Program for Veterinary Students
Baker Institute for Animal Health
College of Veterinary Medicine
Cornell University
Ithaca, NY 14853
Phone: 607 256-5626
Fax: 607 256-5608
E-mail: jsp7@cornell.edu

<https://www2.vet.cornell.edu/education/other-educational-opportunities/leadership-program-veterinary-students-cornell-university>

Photos by Alexis Wenski-Roberts unless otherwise noted.
Produced by the College of Veterinary Medicine.