

ANNUAL REPORT 2016

SCOPE



Cornell University
College of Veterinary Medicine

OFFICE OF THE DEAN

Dr. Lorin Warnick, Austin O. Hooley Dean of Veterinary Medicine

Dr. Katherine Edmondson, Assistant Dean for Learning and Instruction

Dr. François Elvinger, Assistant Dean for Diagnostic Operations, Executive Director of the Animal Health Diagnostic Center

Dr. Marnie FitzMaurice, Director of Veterinary Curriculum

Dr. Susan Fubini, Associate Dean for Academic Affairs

David Howe, Assistant Dean for Finance and Administration

G. Leonard Johnson, Assistant Dean for Marketing and Communications

Kevin Mahaney, Assistant Dean for Alumni Affairs and Development

Dr. Meg Thompson, Assistant Dean for Hospital Operations and Director of the Cornell University Hospital for Animals

Dr. Alex Travis, Associate Dean for International Programs

Dr. Bettina Wagner, Associate Dean for Research and Graduate Education

OFFICE OF ALUMNI AFFAIRS AND DEVELOPMENT

Lyn LaBar, Assistant Director of Alumni Affairs and Development

Sheila Reakes, Director of Annual Giving

Amy Robinson, Associate Director of Alumni Affairs and Development

Alison R. Smith, Major Gifts Officer

Luanne M. Prosperi Stefanucci, Major Gifts Associate

OFFICE OF MARKETING AND COMMUNICATIONS

Mike Carroll, Digital Media Editor

Lynn Delles, Assistant Director of Marketing and Communications

Lauren Cahoon Roberts, Marketing & Communications Manager

Claudia Wheatley, Senior Public Affairs Officer

VOLUNTEER LEADERSHIP

Susan Ackerman DVM '86, President, Alumni Association Executive Board

David A. Behnke, Chair, Baker Institute/Cornell Feline Health Center Advisory Council

Kimberly R. Kahn, DVM '09, Chair, Young Alumni Annual Fund

Mitchell E. Kornet '76, DVM '79, Annual Fund Chair

Paul Gould '67, Chair, College Advisory Council

Elizabeth Lynch '90, DVM '95, Chair, Major Gifts Committee

'SCOPES ANNUAL REPORT 2016

Editor: Lauren Cahoon Roberts

Writers: Merry Buckley, Elodie Gazave, Olivia Hall, Lauren Cahoon Roberts

Designer: Wendy Kenigsberg, University Communications Marketing Group

Photographers: Robert Barker, Mike Carroll, Matthew Fondeur, Lindsay France, Jason Koski

Cornell University College of Veterinary Medicine

S2016 Schurman Hall
College of Veterinary Medicine
Cornell University
Ithaca, NY 14853-6401
Phone: (607) 253-3745
Fax: (607) 253-3740
E-mail: vetfriends@cornell.edu
www.vet.cornell.edu

'Scopes is your source for news from the College of Veterinary Medicine at Cornell University. The magazine is published three times annually, with the fall issue serving as the annual report. To change your address, please call 607-253-3745 or email vetfriends@cornell.edu.

Diversity and Inclusion are a part of Cornell University's heritage. We are a recognized employer and educator valuing AA/EEO, Protected Veterans, and Individuals with Disabilities. Produced by Cornell University 11/16 FLP 7:1M

'SCOPES

ANNUAL REPORT 2016

2 DEAN'S MESSAGE

4 NEWS BRIEFS

8 LEARNING

18 CARE

32 DISCOVERY

52 IMPACT

62 FINANCIALS

COVER: DR. LINDSAY THALHEIM, BOARD-CERTIFIED ONCOLOGIST, CUDDLES A FELINE PATIENT AT CORNELL UNIVERSITY VETERINARY SPECIALISTS. PHOTO: MATT BRANSCOMB

THIS PAGE: MARIACAMILA GARCIA '17, A STUDENT PARTICIPANT IN ONE OF THE CORNELL CONSERVATION MEDICINE PROGRAM'S FIRST ENGAGED CORNELL-FUNDED PROJECTS IN THE REPUBLIC OF CONGO (SEE PAGE 52). PHOTO: FERNANDO TURMO, TCHIMOUNGA CHIMPANZEE REHABILITATION CENTER, JANE GOODALL INSTITUTE



THE YEAR IN REVIEW



Dr. Lorin Warnick,
Austin O. Hooey Dean of Veterinary Medicine

This annual report issue provides us with a chance to reflect on all that has taken place during the year at the College of Veterinary Medicine. This year has been one of new beginnings and growth in almost every area of the College. We have new leadership at the helm: along with my appointment as the Austin O. Hooey Dean of the College of Veterinary Medicine, Dr. François Elvinger joined as Director of the Animal Health Diagnostic Center; Dr. Meg Thompson was appointed as director of the Cornell University Hospital for Animals; and Dr. Luis M. Schang began as the new director of the Baker Institute for Animal Health and the Cornell Feline Health Center. We also welcomed many new faculty who are already having a tremendous impact on our research, education, and service programs.

Our scope and impact as a research institution has expanded this past year; Dr. Alexander Travis and his team at the Baker Institute were the first in the world to successfully produce IVF puppies, dramatically increasing our ability to conserve the genetics of endangered canine species and enabling researchers to better treat and solve canine genetic diseases. Dr. Margaret Bynoe, associate professor of immunology, discovered a way to open up the blood brain barrier to pharmacological therapies—with major implications for treatments for diseases of the brain. Dr. Adam Boyko, assistant professor of biomedical sciences, published the largest genetic study of dogs to date, unveiling new information on both human and canine diseases. These few examples are emblematic of the of many successful research programs throughout the College that are advancing human and animal health.

In our role as an educational institution, we've been making bold new steps towards broadening our programs and course offerings—including approval of Cornell's new Master of Public Health degree, and the development of a Master of Professional Studies in Veterinary Medical Science with a concentration in Veterinary Parasitology. Veterinary Curriculum Director, Dr. Marnie FitzMaurice has worked to improve course offerings for our third- and fourth-year veterinary students and implemented a new course and rotation schedule that will allow students to better prepare for their specific career interests.

This year we have seen impressive growth in our diagnostic and clinical service. The Animal Health Diagnostic Center experienced 4.4% growth to 208,908 accessions and continues to meet critical testing needs for New York State, the rest of the United States, and throughout the world. The

Cornell University Hospital for Animals has seen its caseload increase by 12% in this past year, with the substantive increase in the companion animal clinic. Our satellite small animal specialty clinic, Cornell University Veterinary Specialists, saw a caseload increase of 20% this year, and Cornell Ruffian Equine Specialists saw an increase of 16%. We are indebted to the tireless work of our clinical faculty, house officers, veterinary technicians, staff, and students for the excellent care provided during periods of unprecedented caseload growth in many clinical specialties.

Our students, faculty and alumni continue to stretch the College's outreach and impact on regional, national and global communities. College-based organizations like the Shelter Medicine club and Maddie's® Shelter Medicine Program treat and care for shelter animals both in local communities and ones across the country. The faculty-founded, student-and-alumni-driven NGO FARVets had a record-breaking year in its efforts in developing countries to run free sterilization and wellness clinics for stray cats and dogs. Several of our DVM students were participants in an Engaged Cornell grant in Conservation Medicine where they conducted research in Republic of Congo, Indonesia, and Uganda. Meanwhile, the College and individual faculty continue to collaborate with international partners on the development of veterinary medicine programs in Hong Kong, India, Japan and many other locations throughout the world. Additionally, in December 2015 we completed the largest fundraising campaign in the College's history, with \$173.8 million raised in new gifts and commitments over ten years.

Our infrastructure—both physical and digital—is undergoing a major overhaul. The capital pre-clinical class expansion project continues to expand and update our facilities and capabilities. We are now enjoying tutorial rooms and clinical teaching facilities completed in phase I of the project. Plans for the new Community Practice Service building are nearing completion, and construction for that new space, which will provide benefits to the community and our students, will begin early next year. At the same time, the CVM website is in the midst of a redesign as well, with changes underway to make our online presence more user-friendly and visually appealing.



This review of the past year in our annual report is only a sample of the extraordinary people and projects that comprise our College. It is hugely satisfying to see how the seeds we invested in all of our core missions—learning, care, discovery, and impact—are taking shape and leading to success. Our programs, support for students, and new initiatives depend on critical financial support from New York State as well as generous philanthropy from alumni and friends of the College. We appreciate this support and are committed to finding the most effective use possible of our financial resources.

This fall we are looking to the future and refining our goals in research, clinical service, education, international activities, and other programs through a comprehensive review and planning process. We will ensure continuity of our ongoing projects, build on past successes, and set the stage for the next decade of growth in the College. In planning for the future, we will keep our responsibility to the public and the many stakeholders who depend on our work as a foundation. I hope in this report that you get a sense, through both the statistics and the stories, of the commitment of the College community.

Lois D. Warnick



ROCKSTARS

NOTEWORTHY AWARDS RECEIVED BY
FACULTY AND STAFF THIS PAST YEAR:

PAUL MAZA (RIGHT), WINNER OF THE SCAVMA 2016 COMMUNITY OUTREACH EXCELLENCE AWARD

FACULTY

DR. SHARON CENTER: American College of Veterinary Internal Medicine 2016 Robert W. Kirk Award for Professional Excellence

DR. TOM DIVERS: American College of Veterinary Internal Medicine 2015 Robert W. Kirk Award for Professional Excellence

DR. NORM DUCHARME: Induction to University of Kentucky Equine Research Hall of Fame

DR. ROBERT GILBERT: Theriogenologist of the Year; 2015 New York Horse Council Youth Advocate; 2015 Fulbright Specialist

DR. JOHN HERMANSON: SUNY Chancellor's Award for Excellence in Teaching

STEVE KRAUS: Induction to Farrier Hall of Fame

DR. URSULA KROTSCHKEK: New York State Veterinary Conference Outstanding Speaker Award

DR. NATASZA KURPIOS: Schwartz Research Fund for Women in the Life Sciences

DR. MANUEL MARTIN-FLORES: SCAVMA Teaching Award

DR. PAUL MAZA: SCAVMA Community Outreach Excellence Award

DR. CAROLYN McDANIEL: SCAVMA Teaching Excellence in Basic Science Award

DR. MARGARET MCENTEE '86: SUNY Chancellor's Award for Excellence in Faculty Service

DR. JAMES MORRISEY '92: 2015 Innovative Teaching Award

DR. ALAN NIXON: American College of Veterinary Surgeons Founders' Award for Career Achievement

DR. COLIN PARRISH: Fulbright Scholar Award

DR. JOHN SCHIMENTI: SUNY Chancellor's Award for Excellence in Scholarship and Creative Activities

DR. DANNY SCOTT: UC Davis School of Veterinary Medicine 2016 Alumni Achievement Award

DR. CHARLES SHORT, EMERITUS: Doctor Honoris Causa by the University of Helsinki

DR. BUD TENNANT, EMERITUS: Baruch S. Blumberg Prize by the Hepatitis B Foundation

STAFF

DR. KRISTIAN ASH: Outstanding Resident 2016

REBECCA CRUMB: CVM Service Award for 35 years of service

WAYNE DAVENPORT: SUNY Chancellor's Award for Excellence in Professional Service

MARY LINTON: CVM Service Award for 40 years of service

DR. VINICIUS MACHADO: Outstanding Resident 2016

MIKHAIL McGOVERN-GRONENTHAL: Outstanding LVT 2016

DR. DIEGO PORTELA: Outstanding Resident 2016

DIANE STEMNOCK: CVM Service Award for 35 years of service

FACULTY COMINGS AND GOINGS

HIRED

DR. CAROLYN ADLER, Assistant Research Professor, Molecular Medicine

DR. SARA CHILDS-SANFORD, Assistant Professor, Clinical Sciences

DR. LENA DETAR, Assistant Clinical Professor, Population Medicine & Diagnostic Sciences

DR. MARIANA DIEL DE AMORIM, Lecturer, Clinical Sciences

DR. CHRISTOPHER W. FRYE '11, Instructor, Clinical Sciences

DR. KARINE GENDRON, Instructor, Clinical Sciences

DR. SAMUEL HURCOMBE, Associate Clinical Professor, Ruffian Equine Specialists

DR. KELLY LYBOLDT '05, Lecturer, Biomedical Sciences

DR. MANUEL MARTIN-FLORES, Assistant Professor, Clinical Sciences

DR. KATHRYN M. MCGONIGLE, Instructor, Clinical Sciences

DR. BLAKE NGUYEN '12, Lecturer, Population Medicine & Diagnostic Sciences

DR. STEVEN A. OSOFSKY '89, Jay Hyman Professor of Wildlife Medicine, Population Medicine & Diagnostic Sciences

DR. DIEGO A. PORTELA, Instructor, Clinical Sciences

DR. HEIDI REESINK, Assistant Professor, Clinical Sciences

DR. LUIS M. SCHANG, Professor and Director, Baker Institute and Feline Health Center

RETIRED

DR. ERIC DENKERS, Professor, Microbiology & Immunology

DR. ROB GILBERT, Professor, Clinical Sciences

DR. DANNY SCOTT, Professor, Clinical Sciences

DR. YNTE SCHUKKEN, Professor, Population Medicine & Diagnostic Sciences

UPDATE ON THE CAPITAL EXPANSION

Major building demolition has finally finished, and the construction for the new library, modular resource center, cafeteria, and dean's suite is in progress and should be complete by August 2017. The foundation and underground utilities for the atrium, lecture halls and classrooms are being constructed, and the exterior enclosed courtyard and pet walk excavation and construction have begun. Crews are installing the new glass curtain wall on the Veterinary Research Tower, which is slated to finish this fall. In the meantime, the design for the new Community Practice Service building is in process; the new building will be placed where the old Poultry Virus labs are currently—these will be demolished in December 2016.



DEAN SMITH PENS AAVMC BOOK

As part of his sabbatical work, Emeritus Dean Donald Smith wrote *Pathways to Progress: The Vision and Impact of Members of the Association of American Veterinary Medical Colleges at the Fiftieth Anniversary (1966-2016)*. The book, commissioned by the Association of American Veterinary Medical Colleges (AAVMC) in order to commemorate the organization's fiftieth anniversary, documents the origins, evolution, and current state of academic veterinary medicine. Smith profiles each AAVMC member institution, along with highlights of the men and women who played defining roles in the history of veterinary medical education.



CVM WEBSITE

Been online lately? The College website is in the middle of a makeover. Undergoing a comprehensive redesign with the Cornell-based design firm Custom Web Development, the website overhaul is separated into two phases. Phase one, completed this spring, incorporated the homepage, the first-level landing pages, education-related pages, and 'about us' pages. Phase two will update the remaining sections and pages of the website. The new version of the College website promises responsive design, improved information architecture, and a modern look and feel—making the Cornell CVM online presence both impactful and useful.



RACHEL PHILIPSON

'GREEN,' A PUPPY BORN VIA *IN VITRO* FERTILIZATION AT CORNELL THANKS TO GROUND-BREAKING RESEARCH CONDUCTED BY DR. ALEX TRAVIS AND HIS RESEARCH TEAM.

CVM IN THE NEWS



“... as we did some subsequent testing and the outbreak got a bit bigger, it became evident that this was not the normal canine influenza virus that we have been seeing in the U.S.” —**Ed Dubovi**, NPR, *Chicago-Area Dog Flu Outbreak Rises To Over 1,000 Cases*

“In terms of a vaccine the good news is that there’s already a fair amount of knowledge in related viruses.” —**Gary Whittaker**, NPR *WHO: Birth Defect Linked To Zika Virus Is ‘Public Health Emergency’*

The New York Times

“From the perspective of an equine veterinarian and scientist, options for ensuring the health and safety of horses and preserving the iconic New York City carriage horse tradition exist.” —**Lisa Fortier**, *The New York Times*, *Address Concerns About Horse Carriages by Improving Horse Paths*

“Since the mid-1970s, people have been trying to do this in a dog and have been unsuccessful.” —**Alexander J. Travis**, *New York Times*, *First IVF Puppies are Born in Breakthrough at Cornell*



“I love the fact that the [dog] subjects benefit from the research, but my primary motivation is that I want to cure people with lymphoma.”

—**Kristy Richards**, *JAMA*, *Researchers Turn to Canine Clinical Trials to Advance Cancer Therapies*

THE WALL STREET JOURNAL.

“For most dog breeds, everybody is a fourth cousin . . . You can trace a disease back to a popular male sire.”

—**Adam Boyko**, *Wall Street Journal*, *Bulldog Breeding Faces Controversy as Health Problems Pile Up*

the Atlantic

“These agents don’t simply appear . . . They are already there and we make the conditions that cultivate them for emergence.” —**James Casey**, *The Atlantic*, *The Scary Thing About a Virus That Kills Farmed Fish*

LEARNING

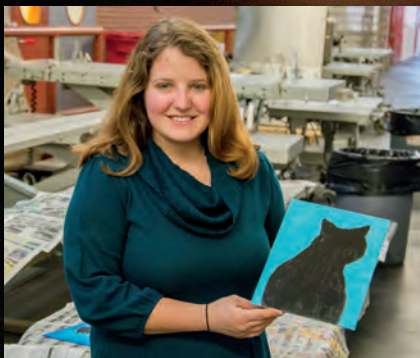


ISABEL JIMENEZ '19, WORKS ON A GROUP FLOWCHART DURING THE FOUNDATION COURSE, FUNCTION AND DYSFUNCTION, IN SCHURMAN HALL.

DVM HIGHLIGHTS:

DVM DE-STRESS

The office of DVM student and academic services hosted **wellness activities** throughout the year, including a ‘beat the winter blues’ series in February that featured stress-busting outings such as laser tag, indoor bounce-houses, ice skating, and bowling. In addition, students hosted a number of wellness activities including paint night (‘Van Gogh Vets’) and a regular yoga class conducted by certified instructor Sophie Trowbridge ’17.



VAN GOGH VETS

WEEKEND WELCOME

The College hosted the first **parents’ weekend** in October, which coincided with the annual SCAVMA (Student Chapter of the American Veterinary Medical Association) auction so that parents could attend.

HANDS-ON CONSERVATION

The first group of DVM students began pursuing international conservation opportunities as part of the **Engaged Cornell grant program**. Projects included working with the endangered Javan rhino in Indonesia, and chimpanzees in the Republic of Congo and Uganda (see page 52).

CRAWLING FOR A CAUSE

Students held the first **Canine Crawl**—a 5K/1 mile fun walk which donated 100% of the proceeds to the Tompkins Country SPCA and the Guiding Eyes for the Blind Program.

FIFTY YEARS OF FUN

The College celebrated its **50th annual Open House**, organized and run by DVM students with help from faculty and staff. The milestone event hosted thousands of eager visitors as they checked out favorite exhibits such as the petting zoo, the teddy bear ER, the horse treadmill, and canine agility demonstrations.



50TH ANNUAL OPEN HOUSE



DOLPHINS TO DAIRY COWS:

COLLEGE SUMMER PROGRAMS OFFER DIVERSITY OF EXPERIENCES

BY LAUREN ROBERTS

The Cornell University College of Veterinary Medicine is well known for its world-class DVM program. But the learning doesn't stop when the school year ends; during the summer months, the College hosts educational programs that give students engaging and instructive experiences—from dolphin training, to dairy management, to workshops hosted by Nobel Laureates. “Our summer programs offer fantastic opportunities for students to engage in research and pursue career interests in greater depth,” says Dr. Kathy Edmondson, assistant dean for learning and instruction at the College.

DIVING DEEP: AQUAVET®

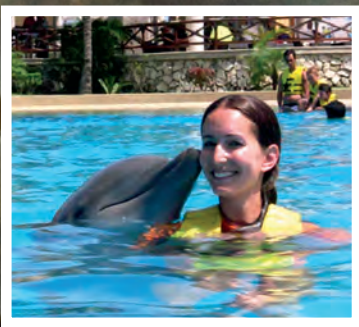
AQUAVET® trains both DVM students and established veterinarians in aquatic animal medicine. From fish anatomy, to water quality, to dolphin husbandry, trainees receive intensive hands-on learning in all areas of marine and aquatic animal health. Having celebrated its 40th anniversary this year, AQUAVET® is the oldest and best-known program of its kind.

“One of the biggest benefits students get out of this experience is the breadth of experts they get to meet,” says Dr. Rod Getchell, research scientist in the Department

of Microbiology and Immunology and associate director of the program. “They get exposed to the best talent this field has to offer, and, if you're lucky, these teachers will someday be your colleagues, too.” AQUAVET® alums include the senior staff veterinarian at Chicago's Shedd aquarium, vice president for research and science at SeaWorld, and clinical assistant professor in the zoological pathology program at University of Illinois at Urbana-Champaign.

“This program provides a unique opportunity to understand and explore a part of veterinary medicine that's not usually covered in traditional vet school curriculum,” notes Sarah Friday '19.

“AQUAVET® I was one of the most rewarding and life-changing experiences I have been involved with throughout veterinary school, and frankly, most of my educational career,” says College student Erica Feldman '18 who, thanks to the program, became interested in ornamental fish aquaculture and as a result will do a tropical aquaculture fish lab externship in Florida in 2018. “The people I have met, the knowledge I have gained and the paths I can see myself traveling in the future will stem from this summer, and I know AQUAVET® will be a major influence on the rest of my career.”



“AQUAVET® WAS ONE OF THE MOST REWARDING AND LIFE-CHANGING EXPERIENCES I HAVE BEEN INVOLVED WITH THROUGHOUT VETERINARY SCHOOL, AND FRANKLY, MOST OF MY EDUCATIONAL CAREER.”

—ERICA FELDMAN '18



INTERNATIONAL INFLUENCE: LEADERSHIP PROGRAM FOR VETERINARY SCHOLARS

This past summer, the College hosted a buzz-worthy event—“The Creativity Spark,” a workshop with Nobel Laureates and other scientific super stars who discussed the role of creativity in science exploration and discovery. The event was put together by one of the College's most prominent and prestigious summer programs—the Leadership Program for Veterinary Scholars.



LEADERSHIP PROGRAM

For the past 27 years, top-notch veterinary students from across the globe gather to live and learn together, participating in leadership workshops and engaging in faculty-led research projects. Participants have traveled from Ireland, Australia, South Korea, and beyond to immerse themselves in science, career development, and leadership training.

“Our goal is to provide students with learning experiences that clarify and reinforce their commitment to careers in science,” says Program Director Dr. John Parker, associate professor of virology. “Many of our alums become scientific leaders within the veterinary profession.” Indeed, program graduates have gone on to become director of pathology at Novartis, director of the DVM/MPH program at the University of Minnesota, and head of the Institute of Virology at the School of Veterinary Medicine in Leipzig, Germany.

“I would highly recommend this program to my peers,” says Liz Goldsmith, who attended the program this past summer and is a fourth-year DVM student at Colorado State University. “Participants are bound to

have a valuable training experience during an incredibly fun and potentially life-changing summer.”

CREAM OF THE CROP: SUMMER DAIRY INSTITUTE

Cornell also hosts the number one training program for prospective dairy veterinarians—the Summer Dairy Institute. Founded 13 years ago by College faculty members Dr. Daryl Nydam ’97, Dr. Charles Guard ’80, and Dr. Robert Gilbert, the program has grown into the best of its kind, with the goal of “bridging the gap between what is taught in traditional veterinary curriculum, and what new graduates need to accelerate their career in providing value to sophisticated dairy farmers,” says Nydam, who acts as program director.

This means students get in-depth training in skills that are crucial for the modern dairy industry—rigorous data-based decision-making, records analysis, and sophisticated technology-driven reproduction protocols, to name a few. “Our students want to bring these valuable services to high-level dairy producers, in addition to the traditional medical services,” Nydam says.

While it’s an intensive program, it’s also a lot of fun. “These students live together, eat together, study together,” says Nydam. “We’ve even had a few marriages come out of this program.”

MEANINGFUL MENTORSHIP: VETERINARY INVESTIGATORS PROGRAM (VIP)

For students who are keen to sharpen their scientific skills, the Veterinary Investigators Program is a natural fit. This ten-week program is designed to give veterinary students (most of them from Cornell) an introduction to biomedical research. Applicants identify three faculty with whom they are interested in working, along with the applicant’s top three areas of interest.

“The program is structured for people with no research experience, but who may have an inkling that it’s something they may want to do,” says Arla Hourigan, graduate education manager.

“VIP gives students an excellent introduction to the world of biomedical research,” adds Dr. Bettina Wagner, associate dean for research and graduate education and director of VIP. For many participants it ignites a life-long passion for scientific inquiry.”

The experience is also a natural fit for combined degree students at Cornell—those who are pursuing both a DVM and a PhD degree simultaneously. Erica Lachenauer ’18 is a current combined-degree student, and has participated in VIP twice. “My absolute favorite part about the VIP program is the NIH-Merial conference at the end of the summer,” she says. “This conference has prestigious faculty from around the country and world, who give seminars on the amazing research they are completing.” With such energized students, engaging programs, and eminent faculty, these programs continue to make summers at the College both memorable and meaningful.

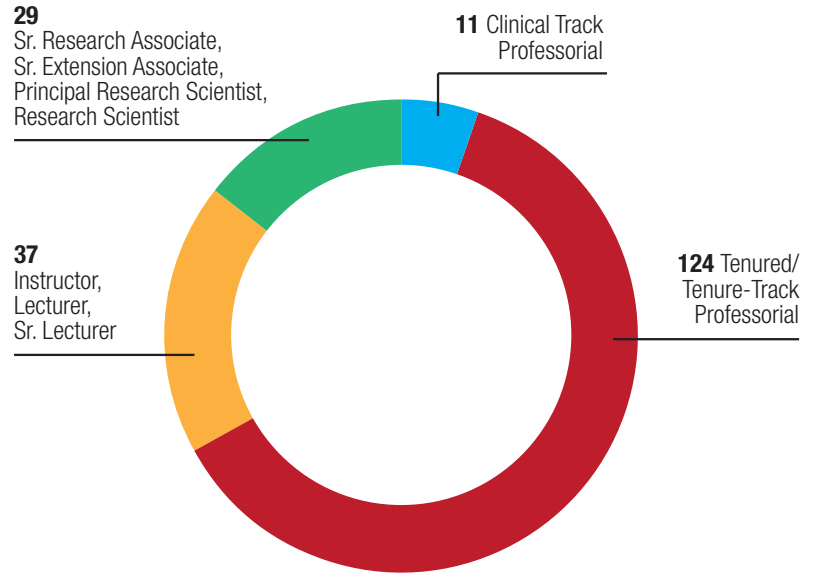
CLASS OF 2020

1025
Applications

101
in the
Class of 2020

SCHOLARSHIP DOLLARS 2015-2016
> \$2.5M

FACULTY



CLASS OF 2020 FAST FACTS

22
median
age

23% 77%
male female

55%
New York State residents
45%
non-New York State residents

9% Other
15% Urban
22% Rural
54% Suburban

CORNELL DVM CAREER PLACEMENT

Academia **2%**
Government/Military **12%**
Large Animal **14%**
Mixed Animal **14%**
Companion Animal **58%**

50%
go into
clinical
practice



50%
seek
specialty
training

4% PhD/Fellowship program
14% Large Animal/Equine Internships and Residencies
82% Small Animal Internships and Residencies

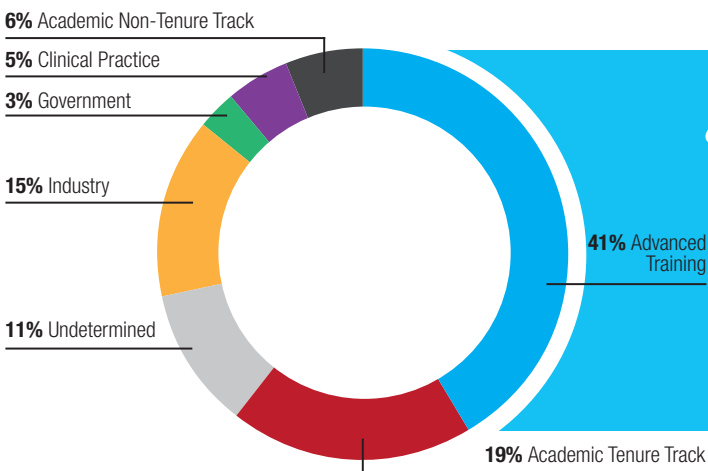
LEARNING

BIOLOGICAL AND BIOMEDICAL SCIENCES GRADUATE PROGRAM (BBS)



PERCENTAGE OF INCOMING BBS STUDENTS WHO ARE UNDERREPRESENTED MINORITIES:
33%

CAREER PLACEMENT FOR BBS PROGRAM GRADUATES (LAST 5 YR DEGREE CONFERRALS)



BBS GRAD SNAPSHOT:

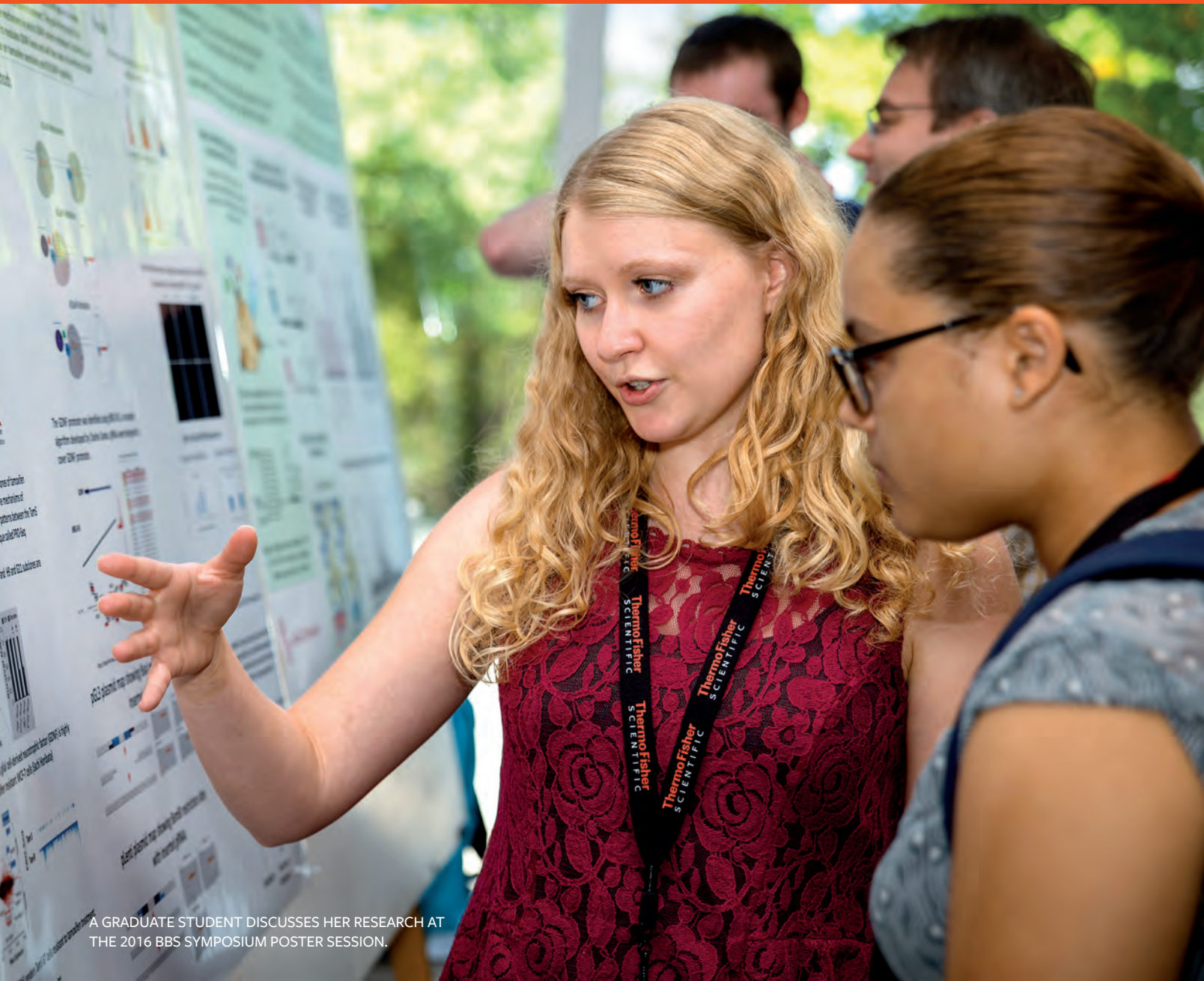
Dr. Sachi Horibata '16: Postdoctoral Fellow at National Institute of Health, National Cancer Institute (NCI):
 “The journey to get my PhD was challenging as most hypotheses and experiments failed one after another for years. But this is how I acquired skills to learn from my mistakes, to make improvements, to be patient, to be persistent, and to strive to succeed! The BBS program made this journey easier for me as there are many colleagues, professors, and mentors who sincerely care about you and your success. The academic environment and opportunities available here truly promote improvement and development for students. I am glad that this is the program I chose to pursue my PhD. It is one of the best decisions I ever made!”

BBS HIGHLIGHTS:

- Frances Chen, a combined DVM/PhD degree student with the **Kurpios Lab**, has won an **individual NIH F30 grant** which supports integrated research and clinical training of promising predoctoral students who intend careers as clinician-scientists. Chen's grant project uses genomic tools to answer questions about left-right asymmetric organ development (see page 32 for more on this research).
- The **15th annual BBS symposium** took place August 19, with the theme "Connect, Collaborate, Create." Tobias Meyer, the Mrs. George A. Winzer Professor in Cell Biology at Stanford University, gave the Dr. Douglas McGregor Lecture, "Molecular choreography of the sequential events that drive cell cycle entry and exit." The event featured breakout sessions on topics such as entrepreneurship and career exploration; faculty talks and student presentations on cutting-edge research, and finished with award presentations and concluding remarks by Dean Lorin Warnick. In all, the symposium featured **84** posters from grad students and post-docs, DVM students, undergrads and a clinical fellow, showcasing a great representation of the diverse research ongoing at Cornell.



FRANCES CHEN



A GRADUATE STUDENT DISCUSSES HER RESEARCH AT THE 2016 BBS SYMPOSIUM POSTER SESSION.

LEARNING

CONTINUING EDUCATION

CONTINUING EDUCATION HIGHLIGHTS:

FALL CONFERENCE, DONKEY DEBUT

The 9th annual **New York State Fall Veterinary Conference** was held on Sept 30–Oct 2, at the Cornell University campus. Co-sponsored by Cornell University College of Veterinary Medicine and the New York State Veterinary Medical Society, this annual multi-species, multi-track event featured varied lectures and laboratories with up to 22 NYSSED/RACE continuing education credits available. Additionally, for the first time on the East Coast, the **4th annual International Donkey Welfare Symposium** took place as part of the fall conference.



E-LEARNING OPPORTUNITY

The College recently launched two online learning courses on eCornell: **Basic Life Support** and **Advanced Life Support**, which are peer-reviewed and offer official certification in CPR by the American College of Veterinary Emergency and Critical Care. They are endorsed by the Veterinary Emergency and Critical Care Society, and teach the most current, evidence-based guidelines developed by the Reassessment Campaign on Veterinary Resuscitation (RECOVER) initiative, making them the gold standard in veterinary CPR training. Dr. Daniel Fletcher, associate professor of emergency and critical care, and Dr. Elizabeth Rozanski, associate professor of emergency and critical care at the Tufts University Cummings School of Veterinary Medicine, authored these comprehensive modules.



NEW LEADERSHIP

With Dr. Meg Thompson's appointment as assistant dean for hospital operations and director of the Cornell University Hospital for Animals, new leadership appointments have been made to ensure a smooth transition for the Continuing Education (CE) program. **Dr. Kathy Earnest-Koons** is now chair of the College Continuing Education Committee. "Dr. Earnest-Koons is ideally suited for this role, has great relationships with alumni and other veterinarians in private practice and will bring many new ideas to our programs," says Dean Lorin Warnick of the appointment. Additionally, **Assistant Dean Len Johnson** has partnered with Earnest-Koons in supporting College CE events and will provide oversight to the CE office. Online continuing education programming will be led by **John Graves**, assistant director of educational technology and innovation.



NUMBER OF PEOPLE
PARTICIPATING IN
CORNELL VETERINARY
CONTINUING
EDUCATION THIS YEAR

2,256



STAFF HIGHLIGHTS



WELLNESS AT WORK

The College staff council continues efforts to keep staff and faculty on a healthy track; this year they held the Fourth Annual March Madness walking challenge, in which individuals or teams tracked their steps day for four weeks. “This program is a chance for staff members to get motivated about their fitness, while also having fun,” says staff council member Scott Butler, laboratory manager in the Department of Biomedical Sciences. “We plan to continue this popular event, and create more opportunities like this for our College community.”

DEEPENING DIVERSITY

The College boosted its engagement in diversity and inclusion by holding two programs, “Trans* 101” and “Safer People/Safer Places,” to constituency groups (staff and faculty) within the College. The events aimed to increase awareness, education, understanding and support/inclusion for members of the LGBT community. The overall success of these programs led to the College winning the University Department Award at Cornell’s 19th annual Lavender Graduation, which recognizes and celebrates the LGBTQ+ community.

EYE ON HIRING

The College’s Diversity Committee held a workshop for faculty and staff titled “Beyond the Lens,” produced by CITE (Cornell Interactive Theatre Ensemble). CITE specializes in diversity and inclusion training that facilitates honest dialogue, and this training focused on biases around the hiring process at the College. Spearheaded by diversity committee co-chairs Dr. Susan Fubini and Mary Beth Jordan, the initiative aligned closely with Cornell University’s “Toward New Destinations” framework that fosters the importance of diversity within the university community.

WARM WELCOME

The Office of Human Resources debuted its New Employee Orientation (NEO) this fall to all new employees, marking the beginning of new, comprehensive programming directed towards staff engagement. Comprised of multimedia information resources and informational meetings, the program aims to provide tools that will enable new employees for success both at the College and Cornell University as a whole. “One of my main priorities as dean is to make this a great place to work and study,” Dean Lorin Warnick notes in the NEO welcome video. “And also ensure it is a place where people can find fulfillment in their jobs.”

CARE

CORNELL UNIVERSITY HOSPITAL FOR ANIMALS
(CUHA)



CUHA PATIENT CASELOAD FY2016

COMPANION	NEMO FARM ANIMAL	EQUINE	SWANSON WILDLIFE	AMBULATORY
21,260	881	2,590	784	49,336

IMAGING RESIDENT ERIN EPPERLY PERFORMS AN ULTRASOUND
ON A CANINE PATIENT AS STUDENTS LOOK ON.



CUHA HIGHLIGHTS:

THOMPSON TAKES LEAD

Dr. Meg Thompson, associate clinical professor of imaging, was named assistant dean for hospital operations and director of CUHA. Thompson had been interim director of CUHA since August 2015, and was appointed to the permanent position on May 10, 2016. A member of the Cornell faculty since 2006, Thompson earned her DVM degree from the Tufts University Cummings School of Veterinary Medicine and completed her clinical training at Angell Memorial Animal Hospital and the University of Florida. She is a diplomate of the American College of Veterinary Radiology.

CANCER COLLABORATION

CUHA continues its crucial role in the **Cornell Lymphoma program**—a partnership between the College and Weill Cornell Medicine that applies a multi-pronged approach to developing new lymphoma therapies for both dogs and humans. Currently, CUHA is recruiting canine lymphoma patients for clinical trials, including developing a lymph node tissue bank and studying a re-purposed antibiotic as a potential therapy.

IMPROVED PORTAL

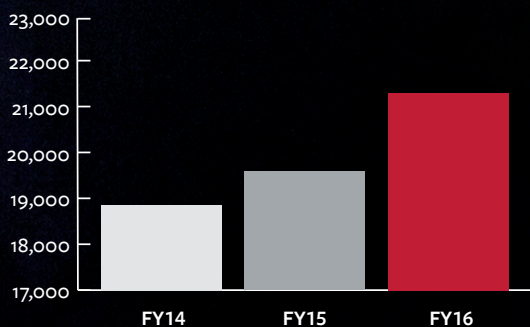
CUHA implemented a newly improved system that enables CUHA to share information with referring veterinarians. The **RefVet Portal** gives referring veterinarians convenient and immediate online access to their patients' medical records, reports, diagnostic images and laboratory results.



RESIDENTS GET REPRESENTATION

Residents training within the Department of Clinical Sciences and CUHA have an organized, political voice, thanks to the **Chief Resident program**. Four Chief Residents (one large animal resident, two small animal residents, and one clinical pathology/lab animal resident) represent their cohorts throughout the hospital, with the purpose of improving Cornell's veterinary residency program overall. Currently, Chief Residents Dr. Beth Noe, Dr. Amanda Heller, Dr. John Loftus '12, and Dr. Tonie Domino (pictured above) are assessing the time required for board preparation, and Cornell's pass rates, as compared to other veterinary schools in the United States to determine if and how the process could be improved at the College.

COMPANION ANIMAL CASELOAD



CARE
FEATURE STORY

SPECIALTY SPOTLIGHT:

AMBULATORY AND PRODUCTION MEDICINE

BY LAUREN ROBERTS



It's a muggy, hot, mid-July morning in Tompkins County, with forecasts threatening highs in the nineties. The ideal clothing for this type of weather is a swimsuit—but Dr. Jessica McArt '07, assistant professor of Ambulatory and Production Medicine, and DVM students Gabrielle Woo '17 and Anna Sarfaty '17, are suited up in full-body canvas coveralls, heavy rubber boots, and plastic chaps—without complaint. This brand of stoicism in the face of discomfort seems to be a prevailing trait within the Ambulatory and Production Medicine Clinic. Whether wading through manure, dodging (and enduring) hard-hooved kicks, or chasing down reluctant patients, these clinicians have been providing expert care to clients for over one hundred years.





THE CORNELL UNIVERSITY HOSPITAL FOR ANIMALS AMBULATORY AND PRODUCTION MEDICINE SERVICE HAS BEEN MAKING CALLS ON CLIENTS FOR 120 YEARS, STARTING IN THE YEAR 1896.

DR. ERRINGTON IN FIELD TREATING SEVERAL LARGE HORSES.



THEN AND NOW: MEANS OF TRANSPORTATION FOR CORNELL'S AMBULATORY SERVICE, IN 1955 AND CURRENT DAY.

First and Best

To be more specific, the Cornell University Hospital for Animals (CUHA) Ambulatory and Production Medicine Service has been making calls on clients for 120 years, starting in the year 1896 when Dr. Walter Williams, one of the first six faculty members of the College, developed the ambulatory clinic—the first of its kind in the United States. At that time, Williams was the only practitioner, and owners were responsible for arranging Williams' transportation to and from the patient.

In 1908, the clinic obtained its own horse and wagon, and eventually an automobile, expanding the service's reach and the caseload. During the first year of service, the clinic saw 351 cases. By 1930, they were seeing 15,936. The service's earliest faculty members, Dr. James Frost '07 and Dr. Denny Udall '01, were considered the founding fathers of livestock veterinary care, writing foundational textbooks studied by almost every veterinary student of the day. They would later be followed by Dr. Stephen J. Roberts '38—another author of definitive textbooks—and Dr. Francis H. Fox '45, the legendary diagnostician—which further bolstered the clinic's prestigious reputation. "In each era, the ambulatory clinic has been outstanding," says Dr. Maurice "Pete" White '75, professor emeritus of Population Medicine and Diagnostic Sciences. "It's a real jewel in the College's crown."

Today the clinic is comprised of five senior clinicians: Charles "Chuck" Guard '80, Mary Smith '72, Jessica McArt '07, Rodrigo Bicalho '08, and Daryl Nydam '97; one clinical fellow: Matthias Wieland; and three residents: Vinicius Machado, Antonia Domino, and Franco Leal-Yepes. The team sees the full spectrum of operations—from commercial dairy herds of 8,000 cattle to the hobby farm that has one or two horses. The one constant? White explains: "With ambulatory medicine, you get to be physical, you work with your hands," says White. "You're in a rich environment where there's so much to observe."

Part of Something Bigger

On Mondays, the service visits Sunnyside Farm, an outfit in Scipio, N.Y. that milks 3,900 cows every day and is the largest operation seen by the practice. Here, the service veterinarians spend most of their time doing pregnancy checks, but also treat animals for common dairy cow issues such as mastitis, ketosis, and displaced abomasum.

At the main entrance of Sunnyside, an enormous rotary parlor—looking like a futuristic merry-go-round, slowly rotates as it milks 100 cows at a time, with milking machines automatically detaching from the udders once the milk-flow drops to a certain level. With each cow producing roughly four gallons of milk per rotation, this carousel collects a significant amount of milk each time it rotates. Once the cows are milked, they leave the parlor and walk through a metal chute that splits into two paths. An automated gate reads RFID tags embedded in each cow's ear, sorting each animal so that those that are due for a pregnancy check are separated out from the herd.

This is where the ambulatory service comes in—their task, juxtaposed against all the high-tech equipment, seems shockingly old-fashioned: the vets and students insert their arms shoulder-deep into the rectum of the cow to feel around for signs of a growing embryo.

It's Gabrielle Woo's first day on the rotation. "I am not good at this," the rising fourth-year says as she gropes around inside the obliging bovine. "It takes me forever." She and the other student on the rotation, Jodi Joseph '17, are splattered with manure. "How do you manage to stay so clean?" Joseph asks resident Dr. Antonia Domino, whose blue coveralls are relatively unsullied. "First you learn how to do it right, then you learn how to do it quick, and then," Domino says, "you learn how to do it without getting dirty."



After these palpations, the cows are marked with fluorescent orange chalk as either pregnant or not (“open,” in veterinary lingo). Pregnancy success rates in dairy cows are (like humans) one-in-three. Open cows are then given a quick injection of prostaglandin or GnRH to synch the animal’s reproductive cycle and get them ready for fertilization once again. This information is entered into the dairy’s digital data management system, which tracks each animal’s fertility cycle and status; milk production over the months and years; milk protein and fat composition; medical history, and where she is at in her fertility cycle.

Cows that are close to calving are taken to a separate wing of the dairy where they give birth in deeply-bedded paddocks. Usually, the process goes just fine on its own, with the Cornell veterinarians only coming in for the rare emergency birth. No emergencies today—just a couple cows quietly laboring, and, in the next paddock over, some very fresh newborns still getting their sea legs under the warm glow of incubator lights.

Despite the commercial setting, the cows appear comfortable and content. Every surface, structure, and process is designed to keep the animals healthy and calm as possible. “I feel pride being connected to the food supply,” says Domino as she looks over the wet and wobbly calves. “We get to make sure things are safe and healthy for our cows, so that they can produce food that’s safe and healthy for us. It’s about being part of something bigger.”

Little Farms, Lots to Do

On the following Wednesday of the week, McArt goes out on the small farm calls, traveling along country roads between Seneca and Cayuga lakes. Today, McArt and the two students on rotation, Woo and Sarfaty, will be doing pregnancy checks for two Amish organic dairies—the same procedure they did at Sunnyside Farm, but on a more modest scale. Here, rather than ear tags with ID numbers, the cows have names, such as



“FIRST YOU LEARN HOW TO DO IT RIGHT, THEN YOU LEARN HOW TO DO IT QUICK, AND THEN, YOU LEARN HOW TO DO IT WITHOUT GETTING DIRTY.”

—ANTONIA DOMINO

“Holly,” “Shirley,” and “Tricky.” The team sets to work palpating the animals—Woo and Sarfaty try first to determine the status of the cow, with McArt following up to double-check. As it is, only a few of these cows are pregnant. The dairy farmer shakes his head; he had bred them to a new, untested bull—one that may not be used again, given his success rate.

Next task is de-horning several new calves, kept in a hay-filled pen. McArt gives the students full responsibility—which means chasing down the nimble animals and pinning them down to first inject them with a local anesthetic and then to cauterize the horn buds.

After another stop at a different Amish farm for more pregnancy checks and de-horning (and a few nerve-wracking close calls with stampeding heifers), the service team piles back into McArt’s red pick-up for their next call—a check-up for a calf that has been sick with a mystery respiratory illness for three months. On the drive over, McArt summarizes the case and quizzes the students. “She clears up once we give her antibiotics and anti-inflammatories, and her appetite remains good, but once she’s done with the treatment, her symptoms come back,” she says. “This is our third course of antibiotics, and the owners don’t want to do any more testing—what else can we do that will fix this calf?” She goes on to stress a key point about ambulatory and production medicine to the



LAUREN ROBERTS

students: “Is the test you want to run going to change what you’re going to do with this patient?” Even if they do determine what the primary issue is for the calf, there’s a good chance she’s now too stunted to ‘earn her keep’ as part of a dairy herd—meaning, in the tight-margined world of farming, the calf may need to be culled.

When they get to the calf pens, however, the ‘sickly’ calf is anything but. The fawn-colored youngster is bright and active, and not noticeably smaller than the others. After prying open the animal’s jaws to get a decisive look at her airway, McArt decides no treatment is needed. Even better, the calf seems healthy enough to remain in the herd. The team leaves the farm pleased, but puzzled. These medical mysteries, according to McArt, “are frustratingly frequent.”

Multiple Goals

Driving to their next call, McArt discusses how their service differs from a private practice. “We do pride ourselves on operating as close to a private practice as possible,” she says, “but we have a very different goal.” Namely, that of training the next generation of veterinarians. While a private practice veterinarian may get their work done with maximum efficiency, the Cornell Ambulatory Service takes more time; students are learning how to feel the difference between an open and a pregnant uterus, or how to chase down a flighty calf, all under the patient guidance of a seasoned teacher. “That’s my favorite part of this job,” says McArt. “I love being with students who ask questions about stuff—every two weeks I’m with people who find this new and exciting.”

The service has another mission—to facilitate research—and their next stop will do just that. They’ll be visiting Laughing Goat Fiber Farm, a long-time client that raises goats, sheep, and alpacas for wool. The owner, Lisa Ferguson, is letting the team gather blood samples from her animals for baseline data for a new hemocytometer in the clinical pathology service.



LAUREN ROBERTS

The relationship is mutually beneficial in many ways. Besides the routine care for her animals, every November, McArt sits down with her clients for a ‘herd meeting’ to help strategize farming goals. For Ferguson, they discussed improving her animals’ nutrition. “I told her that this year, she needed to record her newborn kid data,” says McArt. As a result, they tracked the weight of all the kids born on the farm, and found that the lactating does needed higher quality hay to produce more milk.

At the Laughing Goat Fiber Farm, McArt meets up with resident Dr. Vinicius Machado and his student, Elizabeth Koelmel ’17—all hands are on deck to collect the blood samples. The alpacas are relatively easy—despite a chorus of nervous humming sounds, the animals allow themselves to be cornered and pricked without much complaint.

Most of the Angora goats are similarly accommodating—the dozen or so animals are in a small paddock and despite the thick, woolly coats and long, twisting horns, the ambulatory team is efficient—until the final three goats. These last few are kept in a large pen in a separate meadow to encourage breeding between a buck two cashmere does, and said buck—an appropriately-named Fred Astaire—and another light-footed doe, prove impossible to catch in spite of the athletic attempts of Machado, Woo, and others to corner them.

Despite running in waist-high grass in full-body coveralls in July, everyone is smiling as they walk back to the trucks—overall, the day has been a success. After chugging down ice-cold water from the client and waving goodbye, the clinicians and students pack back into the pick-up trucks to get back on the road, just as their predecessors piled back in their horse-drawn buggy a hundred years ago. There’s little doubt that Cornell clinicians will be weathering the same mishaps, mischief, and muck with the same brand of resilience a hundred years from now.

EMERGEN



FY2016

CASELOAD

12,100

FY2016

REVENUE GROWTH

22.1%

CUVS HIGHLIGHTS:

NEW SPECIALTY

CUVS has recently added a **Sports Medicine & Rehabilitation service** in September 2016, making it one of the few institutions in the country to offer the service at a specialty level.

SAY “AHH!”

The clinic hired **Dr. Lisa Fink**, the first board-certified small animal dentist in Connecticut. Fink has a special interest in surgery for pets with oral cancer, and in performing root canal therapy to save functional teeth.

AWARD-WINNING

CUVS is well-loved within its community; it won 2016 **‘Best of Stamford’** award for Best Veterinarian, along with a five-star rating on **Yelp**.

KNOWLEDGE BASE

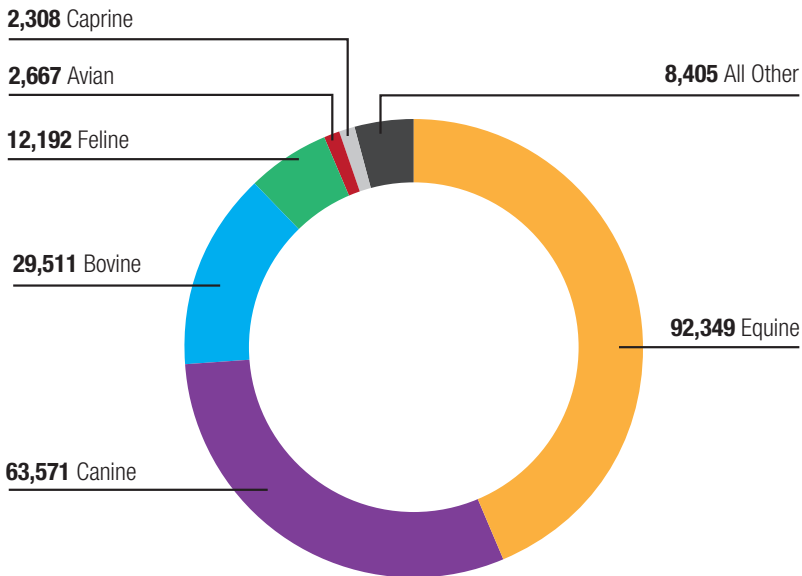
The clinic continues active continuing education for regional veterinarians, veterinary professionals and pet owners (averaging roughly two events per month), as well as a large annual CE event that draws 150–200 veterinarians each year.

LEARNING FROM THE BEST

CUVS continues to host Cornell veterinary students as well as other U.S. and international students for clinical externships—with outstanding feedback.



MORE THAN 200,000 ACCESSIONS



AHDC HIGHLIGHTS:

MAKING MOVES

The **Quality Milk Production Services (QMPS)** Western Laboratory has relocated. After 26 years in Geneseo in Livingston County, QMPS took advantage of the construction of the Wyoming County Agriculture & Business Center in the Village of Warsaw to move its Western operations. The Wyoming County region is the state's leading milk producer. The new and expanded laboratory space with new state-of-the-art instrumentation, including a MALDI-TOF, allows for more precise and timely microbial identification. These new advances enable farmers and veterinarians to apply pathogen based mastitis therapy, greatly reducing the need for antimicrobial usage.

LEJEUNE JOINS LEADERSHIP

On September 1 the AHDC welcomed **Dr. Manigandan Lejeune** as the new director of the Parasitology Laboratory. Dr. Lejeune brings expertise in both classical and molecular diagnosis of domestic animal and wildlife parasites to expand the role of parasitology services for AHDC clients in the Empire State and beyond. Dr. Lejeune received his veterinary degree at the University of Pondicherry in

India and his PhD from the University of Calgary. He is a Diplomate of the American College of Veterinary Microbiologists with Board Certification in Veterinary Parasitology. Lejeune's research interests include studying biodiversity of wildlife parasites and understanding host-parasite interactions.

ADVISING ON ANIMAL HEALTH

Dr. Belinda Thompson '81, clinical assistant professor and veterinary support services veterinarian with the AHDC, is serving a two-year term as committee member on the **Secretary's Advisory Committee on Animal Health**, which advises the U.S. Secretary of Agriculture on key issues in the field, such as preparation for potential outbreaks of foot-and-mouth disease in livestock, or avian flu in poultry. Thompson has also been invited to join the **New York State Antimicrobial Resistance Prevention and Control Task Force**. Task force members will work closely together on this complex problem under the direction of Department of Health Commissioner Howard Zucker.



GOOD NEWS FOR SHAR-PEIS

The AHDC will be the first in the nation to offer a **new genetic test for the Shar-Pei breed** that detects the gene for Shar-Pei Autoinflammatory Disease (SPAID). Dogs with a copy of the mutated gene from each parent are at extremely high risk for the disease, and this test will aid in reducing the presence of SPAID in the Shar-Pei population.



CARE
OUTREACH

OUTREACH HIGHLIGHTS:

BEYOND BORDERS

Shelter Medicine team members volunteered far beyond the New York area—Intern Dr. Jodi Boyd served as a volunteer veterinarian on a **Humane Society Veterinary Medical Association-Rural Area Veterinary Services** trip to treat pets of the Pine Ridge Reservation in South Dakota; Resident Dr. Tiva Hoshizaki joined the **ASPCA FIR** (Field Investigations and Response) team for a week on their large-scale intervention in a North Carolina cruelty case; **Dr. Elizabeth Berliner '03**, the Janet L. Swanson Director of the Maddie's Shelter Medicine Program, traveled to **Obihiro University of Agriculture and Veterinary Medicine in Japan** to collaborate on creating a university-based shelter medicine program.

SHARING SHELTER EXPERTISE

The College hosted the **13th annual ASPCA Cornell Maddie's® Shelter Medicine Conference**, which provides four learning tracks for over 450 attendees each July. Participants traveled from all over the world, including Israel and Papua New Guinea, to attend talks such as “Psychopharmacology in the Treatment of Behavior Problems in Dogs and Cats,” and “Fundraising Basics for Shelters.”

ADORABLE INVENTION

Dr. Elizabeth Berliner '03 began work on a collaborative project with Dr. Dan Fletcher, associate professor of emergency and critical care, and veterinary student Allison Lindsey to **design a nursing station for orphaned kittens** that still need to suckle milk. A working prototype was tested at the SPCA of Tompkins County this summer, with plans to create a more advanced model in the coming year.

SOUTHSIDE TURNS TWENTY

The student-run **Southside Healthy Pet Clinics** held nearly two dozen clinics this year, treating over 700 animals in need. The program also held two annual traveling clinics in Troy and Utica, N.Y., where volunteers treated over 100 pets at each location. The organization will be celebrating its **20th anniversary** this fall.

GLOBAL IMPACT

FARVets, the community outreach group founded and run by Dr. Paul Maza, had a record-setting year: The organization visited five countries: Bulgaria, Belize, Nicaragua, Mexico, and Thailand. It completed 638 sterilization surgeries, and treated 98 animals in wellness clinics.



COLLEGE OUTREACH BY THE NUMBERS:

- 80** STUDENTS IN THE SHELTER MEDICINE CLUB
- 1500** HOMELESS ANIMALS TREATED AT SPCA OF TOMPKINS COUNTY BY SHELTER MEDICINE TEAM
- 500** ANIMALS TREATED AT OTHER CLINICS IN THE REGION
- 24** EXPERT CONSULTATIONS TO REGIONAL SHELTERS
- 450** ATTENDEES AT THE ASPCA CORNELL MADDIE'S® SHELTER MEDICINE CONFERENCE
- 900** ANIMALS TREATED BY SOUTHSIDE AND TRAVELING HEALTHY PET CLINICS
- 638** STERILIZATION SURGERIES PERFORMED BY FARVETS VOLUNTEERS
- 98** ANIMALS TREATED IN WELLNESS CLINICS BY FARVETS VOLUNTEERS



FARVETS VOLUNTEERS AT WORK WITH THE LOCAL NGO, ALL FOR VILLAGES, ON THE SMALL ISLAND OF KOH PHAYAM, THAILAND, TO STERILIZE AND VACCINATE COMMUNITY DOGS AND CATS.



DIANA RYDZEWSKI '18 AND CUHA NURSING CARE ASSISTANT SAMANTHA SCHWALJE TEND TO A PUPPY AT A SOUTHSIDE HEALTHY PET CLINIC.



DISCOVERY

**“THERE IS NO DOUBT THAT IT IS JUST AN
AMAZINGLY EXCEPTIONAL TOOL THAT
REVOLUTIONIZED THE WAY WE DO SCIENCE.”**

—FRANCES CHEN, DVM/PHD STUDENT

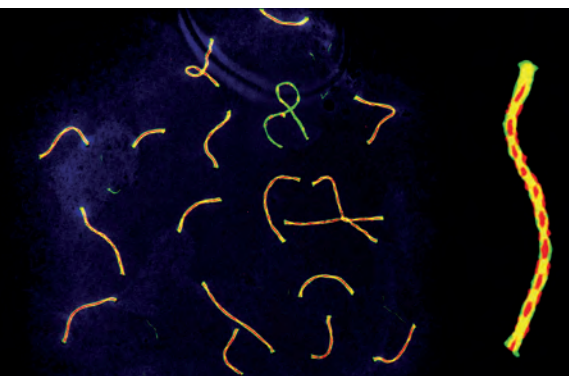
CRISPR AT THE COLLEGE: CVM SCIENTISTS PUT REVOLUTIONARY GENE EDITING TECHNOLOGY TO WORK

BY ELODIE GAZAVE

Fast, cheap, and easy—these three words come up again and again when describing one of the biggest game-changers in the scientific world. It's also been called a revolution—the greatest discovery in biology since the invention of genome sequencing or PCR (polymerase chain reaction)—yet most people have never heard of it. The innovation is CRISPR/Cas9, a cutting-edge genome editing technology that scientists at the Cornell University College of Veterinary Medicine have embraced. Dr. Sergiy Libert, assistant professor of cell and molecular biology at the College, likens CRISPR to the invention of the automobile. “Everyone has adopted it,” says Dr. Stephen Gray, postdoctoral researcher in the Department of Biomedical Sciences. “My project would not be possible without CRISPR,” says Frances Chen, DVM/PhD student in the field of comparative biomedical sciences. “There is no doubt that it is just an amazingly exceptional tool that revolutionized the way we do science.”

“WITH CRISPR, WE CAN MAKE MORE PRECISE CHANGES THAT DON’T COMPLETELY KILL THE GENE AND THE ENCODED PROTEIN, BUT SELECTIVELY DISABLE A PARTICULAR FUNCTION.”

—DR. ROBERT WEISS



Bacterial Hack

“The funny thing is that it started by people investigating how bacteria protected themselves from exogenous DNA,” says Gray, who works in the laboratory of Dr. Paula Cohen, professor of genetics at the College. This investigation led scientists to the bacterial immune system—where the CRISPR/Cas9 technology originates. CRISPR (or “Clustered, Regularly Interspaced Short Palindromic Repeats”) is a section of DNA made of repeated nucleotide sequences; Cas (“CRISPR-associated protein”) is its associated nuclease—a protein that cuts DNA. When a virus infects a bacterium, the Cas protein cuts a piece of the virus DNA and stores it between the repeat blocks of the CRISPR array—like a molecular police officer fingerprinting the ‘perp.’ This way, when CRISPR/Cas9 system encounters a new instance of the same virus, the CRISPR will already have the ‘fingerprints’ on file—matching the viral DNA sequence, and will guide the Cas enzyme to cut the DNA of the invader.

In 2012, Emmanuelle Charpentier (at Umeå University in Sweden) and Jennifer Doudna (at University of California, Berkeley) discovered that they could hack this double ability to recognize and cut DNA sequences to their advantage. They suggested that by integrating a sequence of their choice into the CRISPR/Cas complex, it was possible to “program” the Cas9 enzyme (a specific subtype of Cas proteins) to edit the

genome at a target site of their choosing. Today, it is the gene-editing tech of choice for scientists everywhere.

Total Knockout

Dr. Natasza Kurpios, associate professor in the Department of Molecular Medicine, uses CRISPR/Cas9 to delete a small piece of the genome to then see what role it was playing (a gene “knock-out”). Specifically, her group focuses on a long non-coding RNA they named *Playrr*, the role of which was unknown. Using CRISPR/Cas9, Kurpios’s team deleted a portion of the *Playrr*’s genetic code, rendering it inactive. Through this, they discovered that *Playrr* regulates a gene called *Pitx2* to control asymmetries within the dorsal mesentery, a section of the embryonic tissue that surrounds and supports the intestine. The interaction between *Pitx2/Playrr* provides an on-off switch system that dictates whether an embryo’s developing intestines should loop right, or left—thus directing gut rotation and internal organs into their correct position in the abdomen. Following up on this discovery, Chen, Kurpios’ graduate student, is now using CRISPR/Cas9 mice to map left/right and other anomalies that occur in embryos when she disrupts this critical master switch system.

Dr. Sergiy Libert recently used CRISPR for a similar knock-out strategy with another pair of interacting genes, *SIRT1* and *NR2A*, which he suspects influence the brain chemistry rooted in

anorexic behavior. Libert used CRISPR to knock-out NR2A, then crossed anorexic mice with CRISPR-deleted NR2A mice, hoping to see if the mice with anorexic tendency will increase their food intake. For Libert, using CRISPR was a no-brainer. “The beauty of CRISPR is that it is the cheap and quick, that it actually is quicker to make mice de novo than even to order [them] from another university.” If the team confirms the action of the gene, it would be possible to develop a supplemental therapy in anorexia treatments or to increase appetite in chemotherapy patients.

Surgical Precision, New Solutions

Dr. Robert Weiss, professor of molecular genetics, takes advantage of the surgical precision offered by CRISPR/Cas9 to alter a single amino acid. Weiss works on “9-1-1”, an emergency-response protein complex that attaches to damaged DNA and calls other proteins to repair it. “All these genes in this pathway are essential,” says Weiss. “So if you inactivate them in the mouse genome, the animals cannot survive. With CRISPR, we can make more precise changes that don’t completely kill the gene and the encoded protein, but selectively disable a particular function.” The 9-1-1 complex protects against genomic instability, which can lead to cancer, premature aging, or development disorders. However, Weiss also observed that when 9-1-1 is impaired, mice become resistant to tumor development. “It may be a bit counter-intuitive,” says Weiss, “but cancer cells experience a lot of stress.” For this reason, a cancer cell relies on the 9-1-1 complex even more than a normal cell does. The research group plans to develop drugs that disable the 9-1-1 complex in cancer cells and leave them unable to tolerate the stress.

Instead of deleting pieces of the genome, Dr. Stephen Gray (the postdoc with the Cohen lab) uses CRISPR/Cas9 to insert a fragment of DNA in a gene called *CNTD1* to indicate where the CNTD1 protein is located in cells. Traditionally, researchers locate a protein in a tissue by immunofluorescence—in which a fluorescent marker is attached to an antibody that specifically recognizes the protein of interest. When Gray could not create antibodies to label CNTD1, he turned to CRISPR and inserted a small sequence of DNA that is recognized

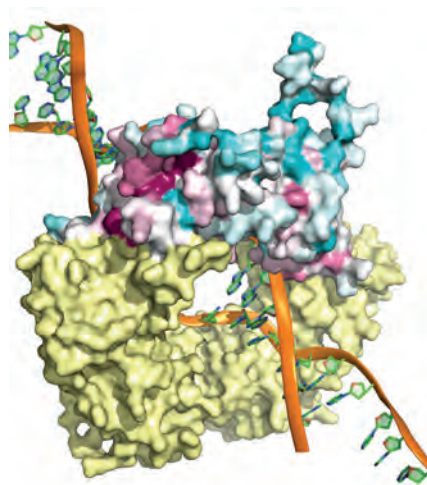
by existing antibodies into the genetic sequence of *CNTD1*. The protein derived from the CRISPR-modified gene can be recognized by a fluorescent antibody and be tracked within cells. Gray can investigate how CNTD1 plays a key role in sperm and egg formation by preventing aneuploidy, an abnormal number of chromosomes leading to Down syndrome, Klinefelter syndrome or Turner syndrome.

Activation and Interference

CRISPR’s applications go beyond genomic cutting and editing. CRISPR/Cas9 has been modified so Cas9 no longer cuts DNA but instead recruits regulatory proteins directly to specific sequences in the genome. These systems, called CRISPRa for activation, and CRISPRi for interference, can turn a target gene on or off on command. Dr. John Schimenti, professor of genetics, uses CRISPRa to increase the expression of a gene whose deficiency is linked to breast cancer. Cells that only have one, instead of two copies of the *ARID1A* gene will evolve into a tumor. The Schimenti group wants to use CRISPRa to boost the intact copy of *ARID1A* so that it produces more copies of the ARID1A protein to compensate for the missing copy. In cell culture, Schimenti’s lab already showed that incorporating a CRISPRa construct targeted at *ARID1A* in tumor cells slowed the growth of the tumor. The next step

will be to put CRISPRa into tumor cells, and put the cells into mice. Normally, mice injected with tumor cells develop cancer. Schimenti wants to see if tumor cells carrying CRISPRa will no longer form a tumor in mice. If this works, the next step will be to inject the *ARID1A* CRISPRa construct directly into mice that already have cancer to see if it inhibits the growth of tumor cells. “Now, that’s a whole different story because they are many cells in a tumor,” says Schimenti.

Dr. Scott Coonrod, Judy Wilpon Professor of Cancer Biology at the Baker Institute, uses both CRISPRa/CRISPRi and the classical CRISPR/Cas9 to study Tamoxifen resistance in breast cancer. Tamoxifen blocks the actions of estrogen, a hormone that stimulates breast cancer cells. However, “You give Tamoxifen to women, but these cancer cells are smart,” says Coonrod, explaining that these cells turn to other signaling mechanisms to keep proliferating. “A big question in this field is what is causing Tamoxifen resistance,” says Coonrod. With CRISPRa and CRISPRi, Coonrod can turn on and off genes that are suspected in causing Tamoxifen resistance. Coonrod also uses CRISPR/Cas9 to create a double knock-out mouse—simultaneously disabling two related genes potentially involved in breast cancer. “Because these two genes are found next to each other on the same chromosome, this would be almost impossible to do without CRISPR. Using traditional methods, you would have to cross thousands of mice containing one mutant gene with mice containing the other mutant gene to eventually one day get a double knock-out through breeding. So this makes it much, much more feasible to do.” Indeed, the consensus is clear—a technology that didn’t exist five years ago has become indispensable—accelerating research in a wide range of fields. Undoubtedly, College scientists will take the tool to even greater heights in the next five years.



THE WEISS LAB USES CRISPR TECHNOLOGY TO STUDY THE 9-1-1 PROTEIN, PICTURED HERE, ENCIRCLING DNA AT SITES OF DAMAGE TO PROMOTE REPAIR AND PROTECTION AGAINST HARMFUL ALTERATIONS OF THE GENOME (IMAGE BY PEI XIN LIM AND ROBERT WEISS).

DIRECTOR TRANSITIONS

On September 1, 2016, the Baker Institute and the Cornell Feline Health Center welcomed a new director, **Dr. Luis M. Schang**. Schang, formerly a professor of biochemistry and medical immunology at the University of Alberta, brings an international reputation in research to his new position at Cornell, and says he looks forward to helping the Institute continue to build upon its proud history in excellence in veterinary science and education

Schang took on the role as former director Colin Parrish, PhD, returned full-time to his position as a faculty member at the Institute.



DR. LUIS M. SCHANG AND PUP



MUTTLOVE PHOTOGRAPHY

DISCOVERY

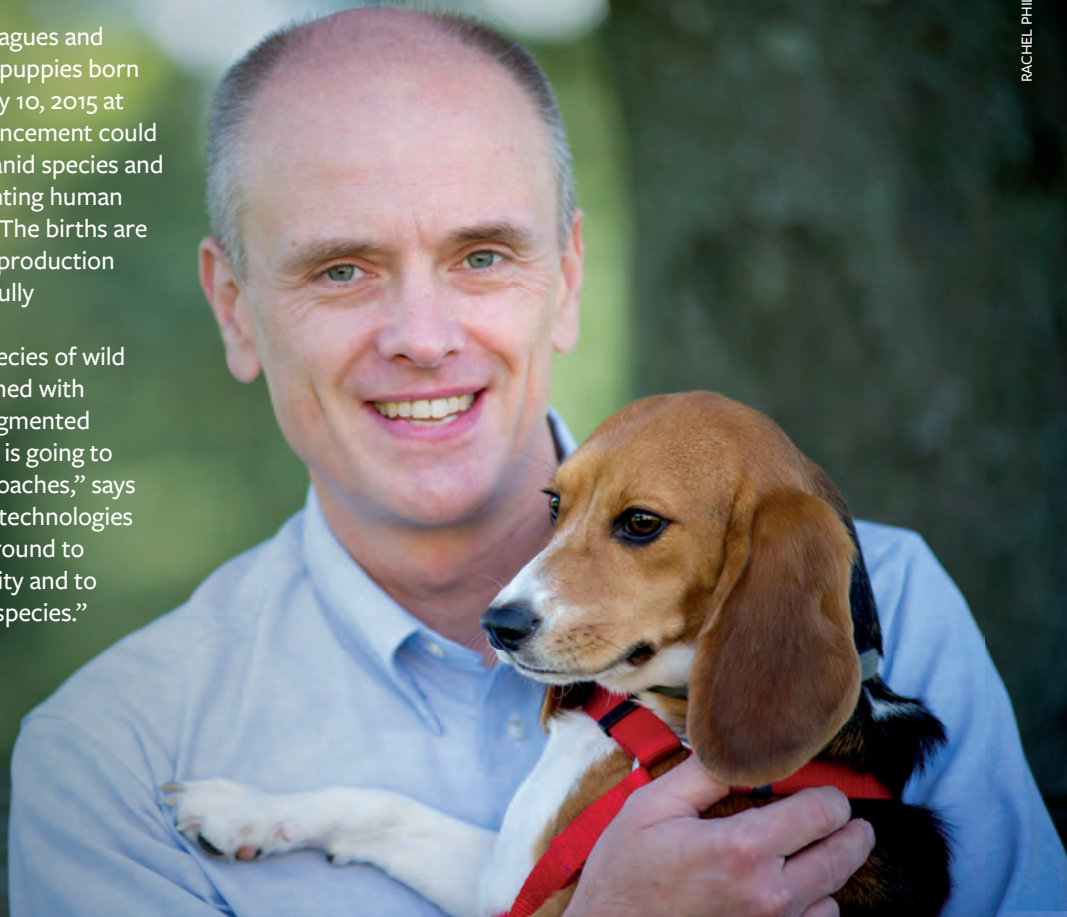
THE BAKER INSTITUTE FOR ANIMAL HEALTH

WORLD'S FIRST PUPPIES BORN BY *IN VITRO* FERTILIZATION

Dr. Alex Travis and his colleagues and students welcomed the first puppies born by *in vitro* fertilization on July 10, 2015 at the Baker Institute. The advancement could help preserve endangered canid species and opens new means for preventing human and canine genetic diseases. The births are the first time this assisted reproduction technique has been successfully accomplished in a dog.

“Right now about five species of wild dogs and wolves are threatened with extinction, and managing fragmented populations of these animals is going to require more hands-on approaches,” says Travis. “We’re going to need technologies such as IVF to move genes around to maintain their genetic diversity and to improve the health of these species.”

DR. ALEX TRAVIS WITH RED, ONE OF THE FIRST PUPPIES BORN BY *IN VITRO* FERTILIZATION.



RACHEL PHILLIPSON

PARRISH SELECTED FOR FULBRIGHT AWARD

John M. Olin Professor of Virology and former Institute Director **Dr. Colin Parrish** has won an award from the Fulbright Scholar Program. For six months, he will work as a Visiting Professor at the University of Glasgow's Centre for Virus Research, collaborating with several other scientists on projects ranging from surveys of viruses in wild animals from Asia and Africa to studies of ancient parvoviruses that persist as genetic fossils in the genomes of modern animals.



DR. COLIN PARRISH WITH IVF PUPPY.

SIMILARITIES BETWEEN DOG AND HUMAN ALLERGIES

Dr. Elia Tait Wojno and her team studied blood samples from dozens of canine patients at the Cornell University Hospital for Animals, including dogs with allergy symptoms and dogs without allergies. They found that allergic dogs have a specific type of immune cell in their blood, cells also found in allergic humans and mice; this means that human treatments for these types allergies could also work for dogs.

DR. ELIA TAIT WOJNO WITH
HER BORZOI, HANK.



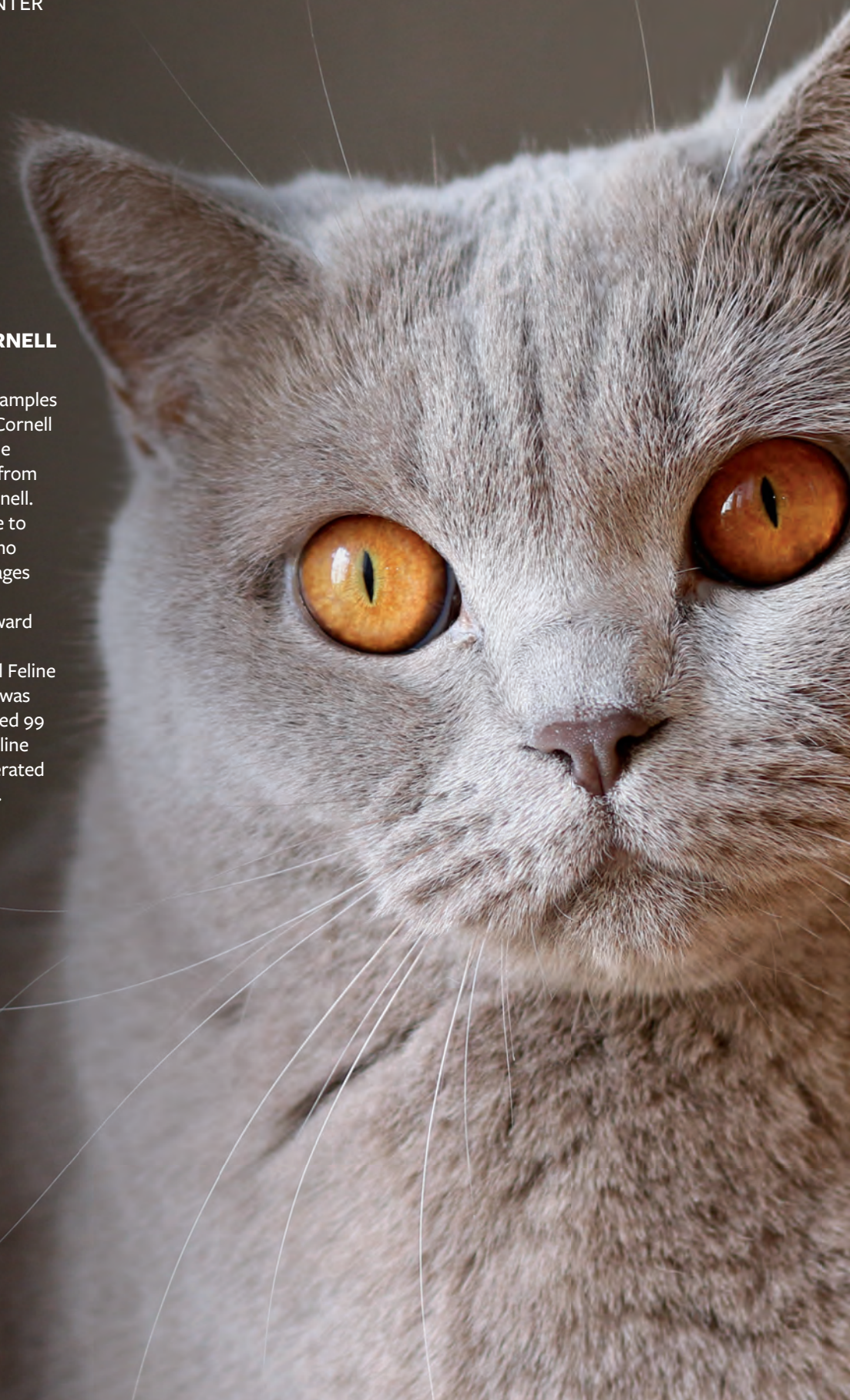
DISCOVERY

CORNELL FELINE HEALTH CENTER

THE FELINE BIOBANK ADVANCES SCIENCE AT CORNELL AND AROUND THE WORLD

The Feline Biobank collects DNA samples from hundreds of patients at the Cornell University Hospital for Animals, the Community Practice Service, and from healthy cats recruited outside Cornell. These DNA resources are available to scientists across the University, who can then use them to explore linkages between genes and specific feline diseases, and push the science toward prevention and cures.

With support from the Cornell Feline Health Center, the Feline Biobank was able to participate in a project called 99 Lives, which collects and shares feline genome sequences and has accelerated discovery in feline genetic disease.





DR. LENA DeTAR

RACHEL PHILIPSON

USING IMMUNE SYSTEM “TOOLS” AS A TREATMENT FOR INFECTION

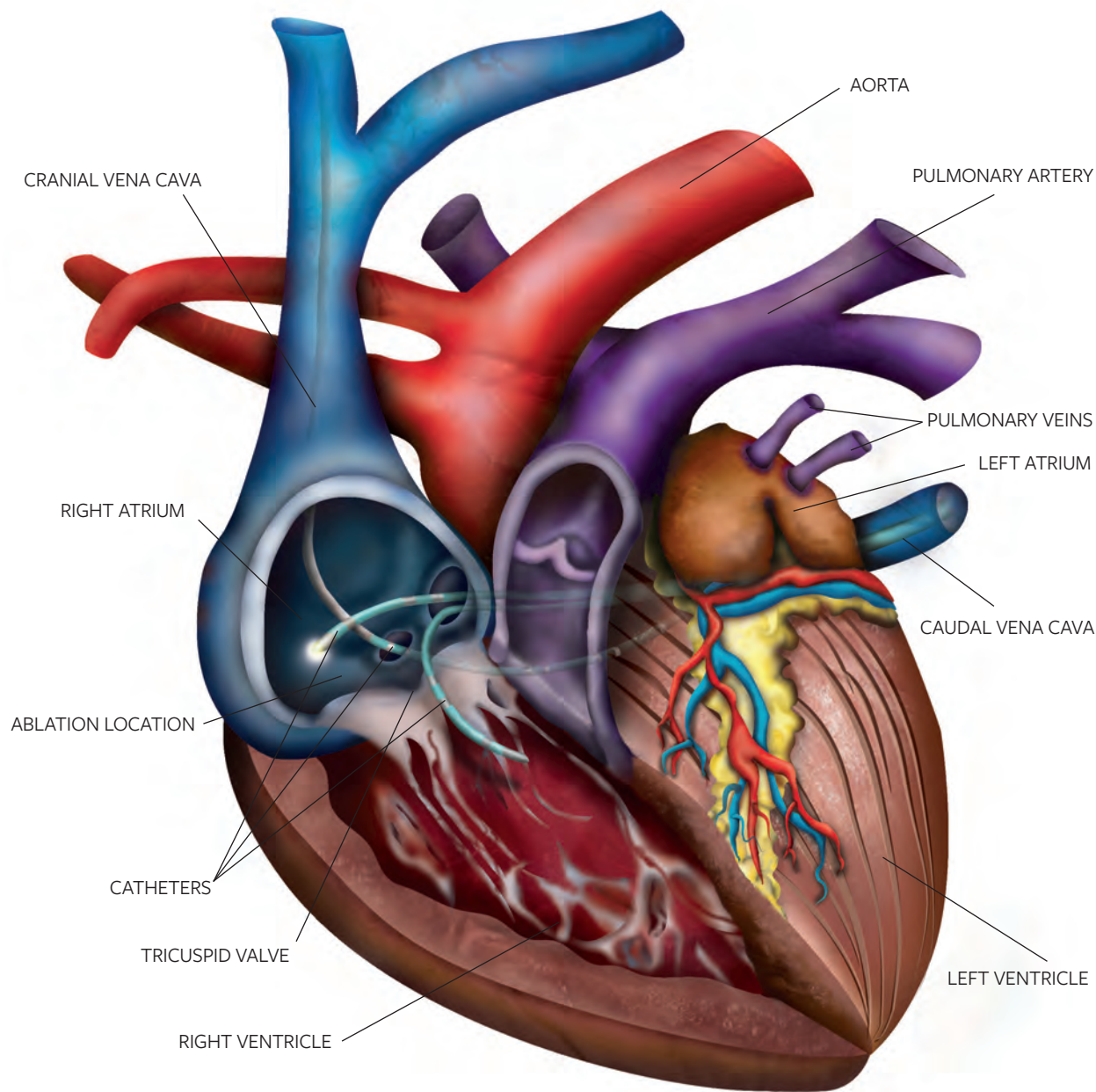
Dr. John S.L. Parker and his team are developing a system for harnessing the weapons of the feline immune system to fight infections or cancer. After cataloguing a cat’s antibodies produced in response to a feline calicivirus (FCV) immunization, they created cat-specific antibodies that could boost immunity and treat FCV infections. They’re also developing cat-specific antibodies that can attack cancer cells, which they aim to test in feline lymphoma patients at the Cornell University Hospital for Animals. Parker hopes to identify and reproduce antibody responses to many different types of viruses for future use as therapy for a wide range of infections.

HELPING CATS THROUGH SUPPORT OF MADDIE’S® SHELTER MEDICINE PROGRAM

Recently, the kind bequest of Ms. June Lanciani allowed The Cornell Feline Health Center to support the recruitment of a new faculty member in the College’s renowned Maddie’s® Shelter Medicine Program. **Dr. Lena DeTar** joined this wonderful team in summer 2016 after completing her residency at the Oregon Humane Society near Portland.

At Cornell, DeTar will be involved in teaching veterinary and veterinary technician students about shelter medicine practices while providing veterinary care for the many cats, dogs, and other animals at humane shelters in Central New York.

“Working in shelter medicine allows me to do veterinary medicine while also contributing to the social causes that I’m committed to—helping people who don’t have a lot of money, helping animals, and helping communities” says DeTar.



LEIGH NELSON

A DETAILED LOOK AT A CANINE HEART DURING A CARDIAC ABLATION PROCEDURE.

CARDIOLOGISTS' EXPERTISE ENABLES RARE CARDIAC ARRHYTHMIA ABLATION AT CUHA

Clinician scientists at the College are performing a rare procedure only offered in fewer than five veterinary centers around the world. Canine cardiac ablations require precise positioning of catheters within the heart and use local heating to destroy specific, malfunctioning areas of that organ. Thanks to the training and expertise of **Dr. Roberto Santilli**, an Italian veterinary cardiologist and adjunct professor of cardiology at Cornell, and the generous support of the Hatfield Family Fund, College cardiologists Dr. Romain Pariaut, Dr. Sydney Moïse, Dr. Bruce Kornreich '92, and Residents Dr. Flavia Giacomazzi and Dr. Eva Oxford '12 are able to successfully perform the complex technique on eligible canine patients.

CAN A “HEDGEHOG” HELP CATS WITH CANCER?



Feline oral squamous cell carcinoma (OSCC) is a devastating tumor that is highly resistant to therapy. Cats diagnosed with OSCC have short survival times as current therapies are largely ineffective. While this tumor is the most common oral tumor in cats, the mechanisms contributing to its pathogenesis are poorly understood. **Dr. Angela McCleary-Wheeler**, assistant professor of oncology, will be examining the role of a signaling pathway called “Hedgehog” in this cancer by evaluating the expression of pathway genes and target genes in feline OSCC cell lines. An inhibitor targeting the Hedgehog pathway will be used to treat the OSCC cells and evaluate the subsequent effects on target gene expression, cell proliferation, and survival. The results from this study will provide a foundation for the design of new clinical trials testing therapeutics targeting this pathway in feline OSCC.

DR. ALAN NIXON RECOGNIZED FOR CAREER ACHIEVEMENT

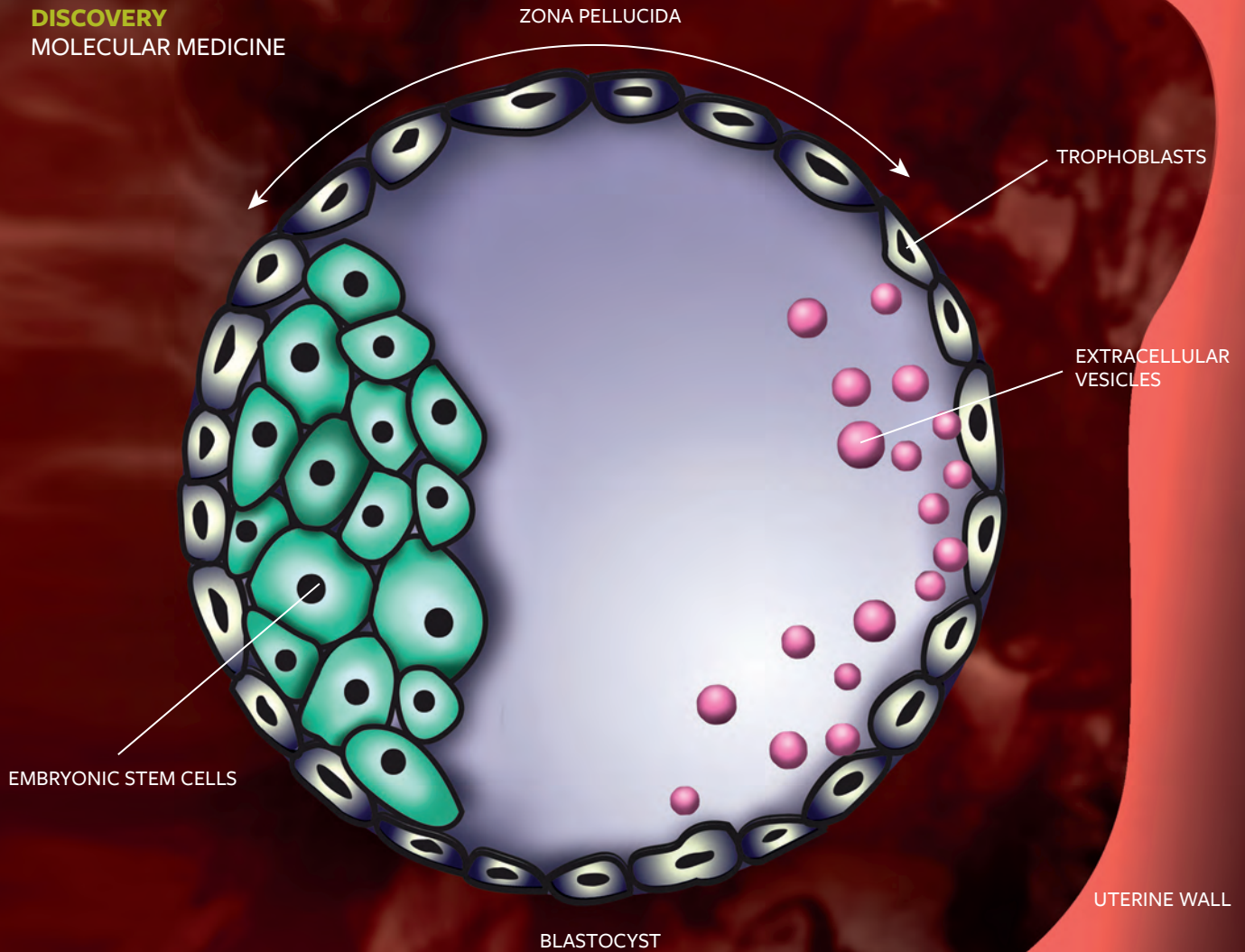
Dr. Alan J. Nixon, professor of orthopedic surgery, received the **2015 American College of Veterinary Surgeons (ACVS) Founders’ Award for Career Achievement**. According to the ACVS, “Dr. Nixon is one of the foremost equine orthopaedic clinician- scientists of his generation,” citing his founding of the Comparative Orthopaedic Laboratory and JD&ML Wheat Orthopaedic Sports Medicine Laboratory at Cornell. The ACVS also noted his work in equine bone marrow-derived mesenchymal stem cells; gene therapy; and his pioneering work in cartilage healing.

GILBERT’S FINAL YEAR AT CORNELL MARKED BY AWARDS



DR. ROBERT GILBERT

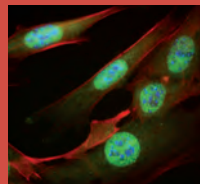
Dr. Robert Gilbert, professor emeritus of theriogenology, retired this year after receiving several accolades for his clinical and research expertise at Cornell. Gilbert was named 2015 Theriogenologist of the Year by the American College of Theriogenologists; the 2015 Youth Advocate Award from the New York State Horse Council; and became a Fulbright Specialist. The South African transplant is probably best known for his work on postpartum uterine disease in dairy cows, which expanded the knowledge of epidemiology and pathogenesis of the condition, and culminated in the development of a vaccine against metritis, currently in trials.



EMBRYOS USE MICROVESICLE MESSENGERS TO PROMOTE PREGNANCY

The discovery that cells form and shed membrane-enclosed packages, called extracellular vesicles (EVs), to communicate with their neighboring cells has been attracting a good deal of attention. A recent study in *Nature Communications* by Senior Research Associate **Dr. Marc Antonyak** and coworkers has uncovered a surprising connection between this unique form of cell communication and pregnancy. They showed that embryonic stem cells in the developing embryo shed EVs that promote implantation and increase the chances of a successful pregnancy, raising the exciting possibility that EVs could be used to treat infertility.

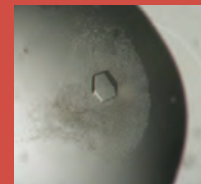
GLUTAMINE GLUTTONS: CANCER CELLS' ALTERED METABOLISM BECOMES TARGET FOR NEW THERAPIES



Goldwin Smith
Professor of
Pharmacology and
Chemical Biology
Richard Cerione
and his research

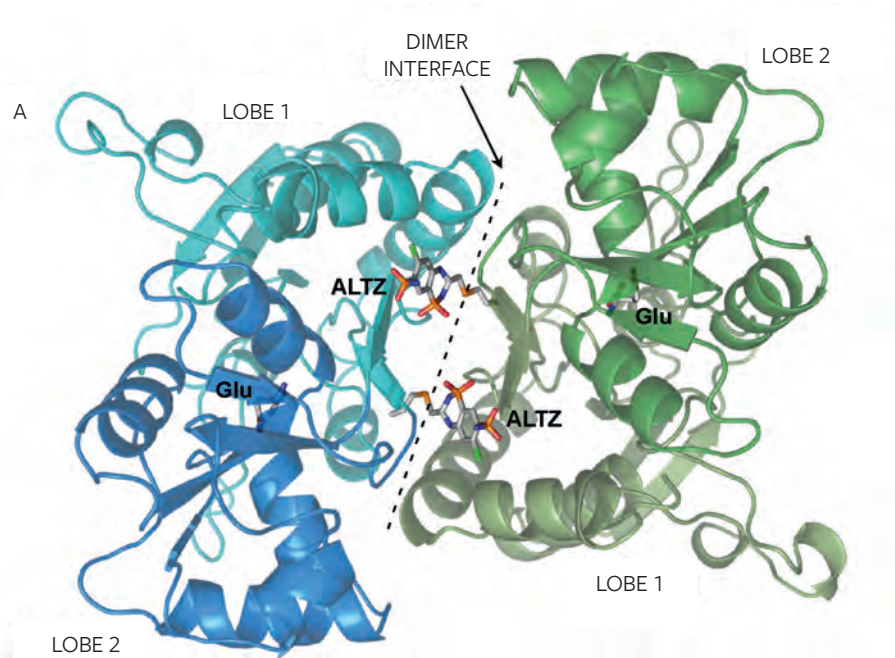
team recently published a study in *Nature Communications* that reveals how highly aggressive breast cancer cells alter their metabolism to fuel continuous growth. A protein called c-Jun instructs these cells to grow and divide and also reprograms their metabolism, leading to increased dependence on the amino acid glutamine. Small molecules targeting glutamine metabolism selectively kill the aggressive cancer cells, and are being investigated as novel therapeutic agents.

PUZZLING THROUGH PANNEXINS



Pannexins are membrane channels widely distributed throughout the human body and play important roles in inflammatory response and neurotransmission. However, little is understood about what activates pannexin channels, how they open and close, and what cellular events accompany these changes. Under a grant with the NIH, Assistant Professor **Toshimitsu Kawate** is studying the mechanisms of how pannexin channels open and close, which may lead to the design of novel pharmacological agents to treat inflammatory and neurological diseases.

AMPED-UP AMPA RECEPTORS HOLD KEY TO NEURODEGENERATIVE DISEASE



A CRYSTAL STRUCTURE ILLUSTRATES A GLUTAMATE RECEPTOR BOUND TO A DRUG THAT MAY BE ABLE TO IMPROVE MEMORY.

The overactivity of a type of brain receptor, the AMPA receptor, contributes to the pathology in stroke, epilepsy and depression. In special cases, enhancement of its activity can improve memory and may be beneficial in dementia. Professor **Robert Oswald** has received a grant from the National Institute of Neurological Disorders and Stroke to understand the structure, dynamics, and function of important drug-binding sites on this and related receptors to develop new therapeutic agents.

SERVICE SUPERSTAR KNOWN FOR ESTABLISHING SUPPORT NETWORK

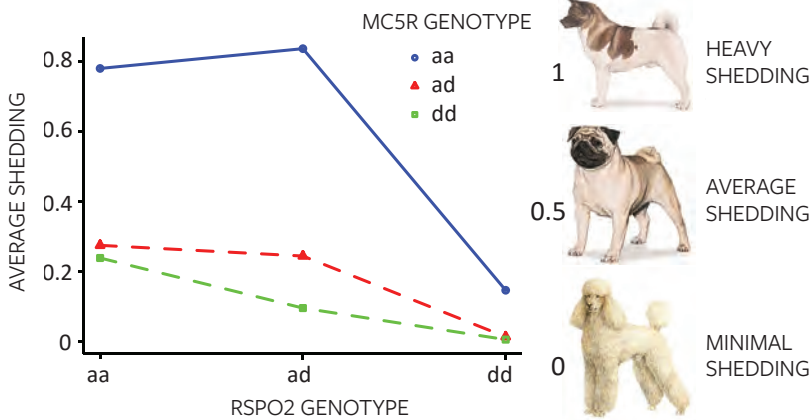


Associate Professor **Clare Fewtrell** received the College of Veterinary Medicine Academic

Service Award on May 5, 2016. Among her many accomplishments in service to the College and University was the establishment of the **College Peer Support Network**, a program that “seeks to sustain an environment in which all members of the College community can thrive by providing avenues to raise, explore, and address issues that affect their ability to work or study effectively.” Fewtrell also worked to increase representation of specialty track faculty in shared governance.

LEIGH NELSON

LARGEST STUDY OF CANINE GENETICS



DOG DNA DISCOVERIES

Assistant Professor **Adam Boyko** and colleagues published the largest study of canine genetics to date in **Nature Communications**, analyzing 4,200 dogs and 180,000 genetic markers, and contributing a significant step toward efficiently mapping genes responsible for complex diseases in dogs. Additionally, since dogs share more than 350 diseases with humans, the information also accelerates understanding of human genetic diseases. This research has also formed the basis of canine genetic testing technology commercialized by **Embark**, a start-up founded by Boyko and his brother that has been featured on the *Today Show*, *Bloomberg* and *GenomeWeb*.



ASSISTANT PROFESSOR ADAM BOYKO COLLECTING SAMPLES FROM STRAY VILLAGE DOGS.



SYMPOSIUM SUCCESS

In May, the **Center for Reproductive Genomics** held its second symposium featuring speakers from throughout the country, along with trainee members of the Cornell community. The event was a huge success, attended by researchers across the Ithaca and Weill-Cornell campuses, as well as colleagues from neighboring institutions.

GUT CHECK

Assistant Professor **Bethany Cummings**' journal paper in **Gut** revealed why bariatric surgery leads to remission of Type 2 diabetes. Previously a mystery, the exact mechanism, relates to the increase in bile acid concentrations that occurs after surgery. Along with the increase in bile acid concentrations is a corresponding increase in signaling through a bile acid receptor called TGR5. Signaling from TGR5 was found to regulate several metabolic outcomes, including: glucose homeostasis, inflammation and liver insulin signaling.

ANALYZING ARID1A

PhD candidate **Nithya Kartha** and **Dr. John Schimenti**, professor of genetics, have garnered a grant from the **Breast Cancer Coalition of Rochester** to investigate the use of genomic therapies for breast cancer patients. Their work will examine defects in the gene known as *Arid1a* (see page 41), which have been found to cause breast cancer tumor growth, and will develop precision genomic techniques to treat breast cancer patients with *Arid1a* mutations.



DR. DAVID RUSSELL

IMMUNE SYSTEM SABOTAGE

Recent research from **Dr. David Russell's** lab discovered a Catch-22 when it comes to treating *Mycobacterium tuberculosis*, one of the leading infectious disease killers worldwide. In the absence of an effective vaccine, chemotherapy is required to kill the bacterium in the cells of infected individuals. However, Russell's team discovered that immune activation of host cells actually induces *M. tuberculosis* to develop tolerance to front-line antibiotics. This suggests that the bacterium exploits the immune response during infection to persist, but also implies that appropriate modulation of the immune response could enhance the activities of existing drugs. The study appears in the April 2016 issue of the **Journal of Experimental Medicine**.



MASTER OF PROFESSIONAL STUDIES PROGRAM APPROVED

The College and the Department of Microbiology and Immunology will be offering a **Master of Professional Studies in Veterinary Medical Sciences** program, with plans to launch courses in Spring of 2017. The first concentration to be offered will be Veterinary Parasitology. The program is designed for professionals seeking to enhance their careers with specialized, hands-on training.



DR. AVERY AUGUST

AUGUST AWARDED

Dr. Avery August, professor of immunology and chair of the department, has won the **2016 Ruth Kirschstein Diversity in Science Award** from the American Society for Biochemistry and Molecular Biology for his advocacy and mentoring of underrepresented minorities in the sciences.

SBIR SUCCESS

Professor of Parasitology and Immunology **Ted Clark**, in partnership with the **Tetragenetics Inc.**, an early stage biotech company he founded, will collaborate with the **NIH-funded Tetrahymena Stock Center at Cornell** on an **NIH Phase II Small Business Innovation Research grant** to provide a powerful protein expression platform to non-profit, academic and government research laboratories at reasonable costs. The technology, developed by Clark and colleagues at the University of Georgia and University of Rochester, uses genetically altered strains of the protozoan *Tetrahymena thermophila* to overexpress genetically engineered proteins—with numerous applications in basic research and drug development.

DISCOVERY

POPULATION MEDICINE AND DIAGNOSTIC SCIENCES

NEW FACULTY MEMBER TACKLES WILDLIFE CONSERVATION



DR. STEVEN OSOFSKY

This summer the Department of Population Medicine and Diagnostic Sciences welcomed **Dr. Steven A. Osofsky '89**, as the new Jay Hyman Professor of Wildlife Medicine. Osofsky's primary focus is on addressing science policy gaps in order to create enabling environments within which wildlife conservation, at landscape scales, can be both socioculturally acceptable and economically rational. In addition, Osofsky will be faculty for the new **Master of Public Health program**, working with experts from several other Cornell colleges to address the issues that arise at the interface of free-ranging wildlife, agriculture, and human health and livelihoods.



GRÖHN GARNERS GRANT TO EXAMINE ANTIMICROBIAL STEWARDSHIP

Dr. Yrjö Gröhn, James Law Professor of Epidemiology, and colleagues at Texas A&M University received a grant from the **National Institute of Food and Agriculture** to develop a new antimicrobial stewardship model for stakeholders in beef and dairy production systems. Their first task is to determine how long it takes for antimicrobial resistance genes in the gut bacteria of cattle to return to a pre-treatment level. Current regulations require cattle that are treated with antimicrobials to enter a withholding period before their milk or meat can be used for human consumption. "Our assumption is that resistant bacteria and genes in an animal's gut microbiome stay longer than these specified withholding times," says Gröhn. New findings by Gröhn's research group could inform improved standards for preventing antimicrobial resistance in the beef and dairy industries.



GENOMICS FOR JAWS

Professor of Evolutionary Genomics **Michael Stanhope** and his research group are developing the first comprehensive gene repertoire for several shark species. This effort promises to open up new understanding of these charismatic creatures—from historical population dynamics, to actionable information for conservation management of threatened shark species. "We will also identify many of the genes associated with the unique biological characteristics of these organisms," says Stanhope, "including those that may have human biomedical implications." Early results suggest genes involved in the immune system of sharks are evolving under adaptive selection pressure, including genes involved in various types of human cancer.



**Cornell Dairy Center of Excellence
EXPANDS ITS REACH**

Under the leadership of **Dr. Craig Altier**, professor and chair of the Department of Population Medicine and Diagnostic Sciences; Dr. Daryl Nydam '97, associate professor of ambulatory and production; and colleagues at the College of Agriculture and Life Sciences, **Cornell's Dairy Center of Excellence** has launched several new efforts. A brand new website (dairy.cornell.edu) gives users a comprehensive look at the Center's purpose and participants; a twice-monthly seminar series covered a broad range of dairy industry topics such as herd health and food safety; and the spring symposium gave attendees in-depth information on integrated approaches to sustainable dairy production.

WEARING A LAB COAT THAT WAS TIE-DYED BY HIS FIVE-YEAR-OLD SON, ADAM FRANCISCO, RESEARCH ASSISTANT IN THE LIBERT LAB, EXAMINES SAMPLES OF CANINE FIBROBLASTS FROM THE LIQUID NITROGEN CRYO STORAGE.

GRANT DOLLARS ARE
UP BY:

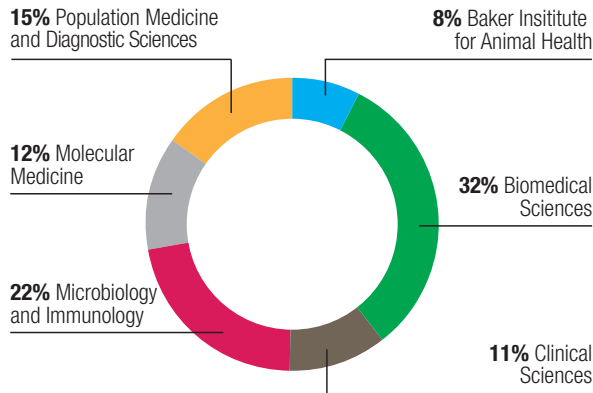
12%

TOTAL NUMBER OF
GRANTS IS UP BY:

16%

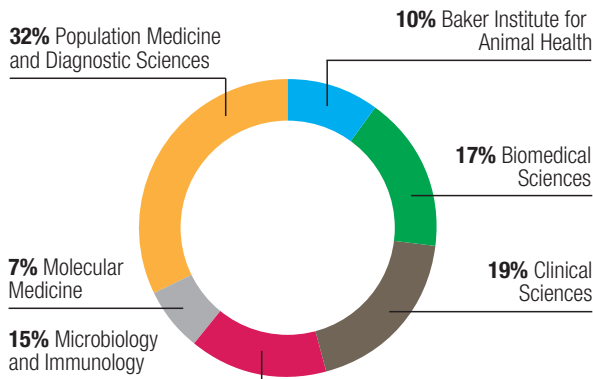
RESEARCH FUNDING WON DURING FISCAL YEAR 2016

DOLLARS AWARDED, BY UNIT/DEPARTMENT



Baker Institute for Animal Health	\$ 2,236,552
Biomedical Sciences	\$ 9,345,610
Clinical Sciences	\$ 3,138,931
Microbiology and Immunology	\$ 6,438,831
Molecular Medicine	\$ 3,691,342
Population Medicine and Diagnostic Sciences	\$ 4,429,805
Total	\$29,290,071

NUMBER OF AWARDS, BY UNIT/DEPARTMENT



Baker Institute for Animal Health	21
Biomedical Sciences	38
Clinical Sciences	42
Microbiology and Immunology	33
Molecular Medicine	16
Population Medicine and Diagnostic Sciences	70
Total	220

NOTEWORTHY NEW AWARDS

Alexander Nikitin, NIH, National Cancer Institute: Neuroendocrine Mechanisms of Prostate Cancer Progression: \$348,145

Kristy Richards, NIH, National Cancer Institute: (Pqd5) A Novel Genetic Strategy to Predict Efficacy of Anti-CD20 Antibodies: \$540,881

John Parker, NIH, National Institute of Allergy & Infectious Disease: Mechanisms of Virus-Mediated Compartmentalization of the Host Translational Machinery: \$364,025

Richard Cerione, NIH, National Cancer Institute: The Roles of a Unique GTP-Binding Protein/Crosslinking Enzyme in Disease: \$400,259

Dorothy Ainsworth, NIH: The Horse as a Sentinel for Human Reproductive and Neurodevelopmental Disorders Associated with Environmental Chemical Exposures: \$236,146

Avery August, NIH-National Institute of Allergy & Infectious Disease: Controlling Th17 Cells and Responses in Airway Inflammation by Tyrosine Kinase ITK: \$232,500

IMPACT

CONSERVATION CONNECTIONS:

ENGAGED CORNELL GRANT ENABLES NEW COLLABORATIONS WITH JANE GOODALL INSTITUTE

BY OLIVIA HALL



“TO SEE THE CONCEPT OF ONE HEALTH IN ACTION IS REMARKABLE. IN ORDER TO HELP ENDANGERED SPECIES, IT REALLY DOES TAKE A VILLAGE, AND MY EXPERIENCE WITH BCFS AND JGI HAS GALVANIZED MY DESIRES TO WORK IN THIS FIELD.”

—RACHEL GATES DVM '18

This summer, Mariacamila Garcia '17 befriended a chimpanzee. Working at the Jane Goodall Institute's Tchimpounga Chimpanzee Rehabilitation Center in the Republic of Congo as part of a Cornell Conservation Medicine Program (CCMP) collaboration, the animal sciences major helped care for Youbi, a severely malnourished female. “After a while, Youbi became very attached to me,” Garcia recalls. “She would groom me, give me her special chimp greeting, and sometimes take naps on my lap. It was a remarkable experience that I will never forget.”

Garcia was one of five undergraduate and DVM students participating in an Engaged Cornell grant in Conservation Medicine that was awarded to the CCMP last year (see 'Scopes 2015 annual report issue). This year, the projects were put into action. Paired up into multidisciplinary teams, they spent eight weeks in the field to gain hands-on research experience and explore how wild animals, humans, and the environment they live in are interconnected—a concept known as One Health.

While Rachel Gates DVM '18 and Allison Killea '18 conducted studies at Budongo Conservation Field Station (BCFS) in Uganda of water sources shared by chimpanzees and humans, Angie Rivera DVM '18 and Deidra Wirakusumah '17 researched trypanosomiasis, the animal form of sleeping sickness that affects water buffalo living around Indonesia's Ujung Kulon National Park and may pose a threat to the endangered Javan rhinoceros.

“Primates and rhinos are perfect examples of flagship species, species that people really get excited about,” says Dr. Robin Radcliffe, senior lecturer in the Department of Clinical Sciences who heads the CCMP. “For both, the biggest issues are human challenges, such as increasingly living in islands of habitat instead of undisturbed forests and, especially in primates, sharing the same diseases.”

An Engaged Curriculum Grant allowed the CCMP to expand its work in this area, which has primarily taken place in Indonesia, to include the African projects in partnership with the Jane Goodall Institute (JGI), a non-governmental organization founded in 1977 by renowned conservationist and 1996–2002 A.D. White Professor-at-Large Jane Goodall.

“We share the goal of helping to train the next generation of conservation leaders,” Radcliffe explains. “And we agree that they have to not only understand behavior but also consider the idea of One Health in any work that's done.”

IMPACT FEATURE STORY

Thanks to the grant, the first crop of competitively selected students benefited from a new and enriched learning experience that tied preparatory coursework in language, culture, and research to engaged work in the field, as well as to a follow-up course upon their return.

“The College of Veterinary Medicine’s response to the inaugural Engaged Curriculum Grant request for proposal demonstrates the broad diversity of veterinary-based disciplines and creativity in approaches to community-engaged learning,” says Vice Provost Judy Appleton, who oversees the Engaged Curriculum Grants and other initiatives in support of Engaged Cornell. “Through the Conservation Medicine grant, we see a prominent example of how to integrate engaged student learning within the context of biodiversity and societal needs.”

Working closely and sharing findings with local communities is a key component of the program. “These partnerships are based on mutual respect and common sense courtesy, and it takes a very long time to develop the level of trust that you need to be effective,” says Radcliffe, describing a lesson he hopes participants will take away from their summer. “Also—and this is really hard to teach in a classroom—students see what it’s like to work in a developing country with bureaucracy and levels of management. Some might discover that this aspect of fieldwork isn’t for them.”



DR. GOODALL WITH MARIACAMILA GARCIA '17 WHO TRAVELED TO THE CONGO TO WORK WITH CHIMPANZEES AT THE JANE GOODALL INSTITUTE'S TCHIMOUNGA CHIMPANZEE REHABILITATION CENTER.

Rachel Gates, for one, is not only undeterred but more enthusiastic than ever: “This summer has broadened my horizons about the veterinary profession,” she says. “To see the concept of One Health in action is remarkable. In order to help endangered species, it really does take a village, and my experience with BCFS and JGI has galvanized my desires to work in this field.”

Radcliffe is in conversations with Jane Goodall to make a plan for sustaining the program beyond its two years of curriculum grant funding and ensuring that many more students will have the opportunity to engage in this life-changing experience in the future.

CORNELL CONSERVATION MEDICINE PROGRAM PARTICIPANTS IN UJUNG KULONG NATIONAL PARK, INDONESIA.



“WE SHARE THE GOAL OF HELPING TO TRAIN THE NEXT GENERATION OF CONSERVATION LEADERS, AND WE AGREE THAT THEY HAVE TO NOT ONLY UNDERSTAND BEHAVIOR BUT ALSO CONSIDER THE IDEA OF ONE HEALTH IN ANY WORK THAT’S DONE.”

—ROBIN RADCLIFFE

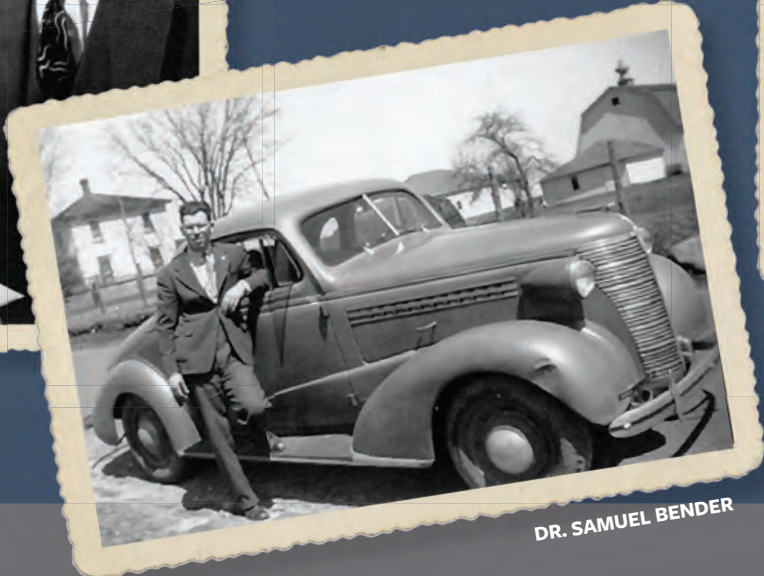




CAROLINE KENNEDY MEETS TEX



DEAN HAGAN



DR. SAMUEL BENDER



DR. SAMUEL BENDER '41: THE CENTENARIAN VETERINARIAN





**DR. BENDER'S VETERINARY HOSPITAL,
RIVERDALE, N.Y.**

“BACK WHEN I STARTED WE DIDN'T EVEN HAVE PENICILLIN.”

—Dr. Samuel Bender '41



Times have changed a bit since Dr. Samuel Bender '41 was a veterinarian. “Back when I started, we didn’t even have penicillin,” he says. “Our practice depended a lot on how to take care of the animal until nature healed them.”

He recalls what one of his Cornell professors, Dr. Howard J. Milks, professor of therapeutics and small animal diseases, would tell his students: “Now boys, nature will heal 90-some percent of your cases . . . medicine will heal a small percent, and there’s some cases where nothing will heal it.”

Patient outcomes are good deal brighter now—and Bender has gone from Cornell DVM student to Cornell celebrity; this June he came to his 75th reunion as the oldest graduate school alumnus in attendance. “It’s really something to see how much things have changed,” he says.

Farm Boy

Bender spent much of his childhood on a “hardscrabble farm,” in Nassau, N.Y. “We had no electric lights, no running water, and about 10-12 cows I would have to milk in the morning before school.” As for crops? “We grew a lot of rocks.” Surrounded by all kinds of farm animals and pets, it was “only natural” that Bender be inclined towards veterinary medicine. He studied chemistry at Kansas State University, and after graduation, he started working at the veterinary practice of a close high school friend of his, Harry Zweig (whose eponymous foundation, the Harry M. Zweig Memorial Fund for Equine Research, supports ongoing research at the College) who encouraged Bender to also pursue veterinary medicine.

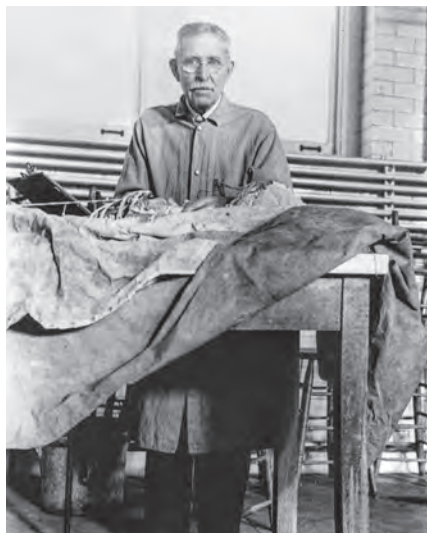


CORNELL VETERINARY STUDENTS WITH HORSE ON CAMPUS, 1942

Cornell Days

Bender was eager to follow Zweig's advice, and applied to Cornell—but got impatient waiting to hear a response. “So I hitchhiked up to Ithaca [from Nassau], stumbled into James Law Hall, looking for Dean Hagan's office,” Bender says. “I wandered around until I eventually found his private office and saw some young guy typing away at a type writer. I casually started talking to him, and after a while I realized—this was Dean Hagan himself!” Luckily, Hagan told Bender that he would get an interview, and shortly thereafter, Bender garnered one of the 40 coveted spots for the Class of 1941.

Bender says the College faculty were what impressed him most. “They gave so much,” says Bender. “They really instilled good habits and good thought processes in you. I appreciated them very much.” That included Dr. Grant Sherman Hopkins, a professor emeritus of anatomy at the time, who, while retired, would still come to the College anatomy room and examine specimens for his



DR. GRANT SHERMAN HOPKINS, 1942

research. He'd also serve as a willing consultant for struggling students. “We'd go over to him and say, ‘my book doesn't match what I see in the specimen!’, and he'd say ‘well now. . . let's see here. . .’ and point out exactly what was in the book. The book was right, of course, and we were wrong,” says Bender.

Bender has seen a lot of medical breakthroughs since his days at Cornell; he clearly remembers a time before X-rays. “Prior to that we were doing fluoroscopy, where you had to do everything by hand, and it exposed us to a great deal of radiation,” Bender says. He also marvels at the multitude of diagnostic tools available in modern day veterinary medicine. “All we had was our own brains to figure out the condition back then. Sometimes we'd hold our finger up to see which way the wind was blowing, and that would determine our diagnosis,” he jokes.

Making a Living

Bender's first job out of veterinary school was as a federal meat inspector in Chicago—working at a rate of 100 cattle or 300 hogs an hour. The pacing and monotony of the job wasn't to his taste, so he traveled back east with his wife Shirley to take job as a meat and milk inspector in the small town of Tupper Lake, N.Y. There, “I was lucky if I saw two hogs a month, and I got

the same amount of money from the government,” says Bender. “It was a nice way to make a living, although I did find I wasn’t busy enough.” From there, they moved again—this time with a baby boy in tow—to the town of Greenwich, N.Y., “which had more cattle than people.” There was no position waiting for Bender, so he simply “hung up a shingle and waited for farmers to call me.” Call him they did; Bender ran a successful mixed-animal practice in Greenwich for several years.

However, Bender “had married a New York City girl,” who was beginning to feel isolated living in the remote upstate



DR. AND MRS. BENDER ON THEIR TRAVELS

town. While taking care of the home and a baby, she also fielded incoming calls from clients to direct Dr. Bender’s next appointment, and was single-handedly washing the considerable loads of laundry produced by an ambulatory veterinarian. “She didn’t weigh more than about 95 pounds soaking wet, and she was washing my muddy overalls every day.” Eventually, enough was enough for Mrs. Bender. “And I had to make a decision of whether I loved cows more than I loved my wife,” Bender says.

High-Class Clientele

A few months later, Dr. Bender and his wife had moved out of the boondocks and down to the Bronx, where he started a practice in the affluent Riverdale neighborhood. Here, the clientele was very different from upstate. “Treating the four legged animals was no problem,” says Bender. “The problem was getting used to the two legged animals! There were times when I would wonder, ‘are they crazy, or am I crazy?’” Aside from being a little high-maintenance, many of

his clients were famous: Mrs. LaGuardia, the former mayor’s widow; Robert Morgenthau, former District Attorney for Manhattan; and Clarence B. Jones, Martin Luther King Jr.’s counsel and advisor all brought their pets to Bender’s practice.

Bender also notes that he treated Carolyn Kennedy’s pony—long distance, that is. ‘Tex’ had apparently slipped on the Whitehouse steps, getting a nasty gash on his leg that would not heal. A friend of the Kennedys’, who was also a client of Bender’s, called him up for advice. Bender happened to have a fifteen-year old bottle of scarlet red oil he’d used as a large-animal antiseptic in his practice upstate. “I checked it over to make sure it was still good, and sent it down to Washington,” says Bender. “They said that Carolyn’s pony’s wound healed up wonderfully after using that!”

Golden Years

Since retiring in 1984, Bender spent his golden years traveling the world with his wife, road-tripping around Europe and sight-seeing in Asia. Sadly, Shirley Bender passed away two years ago, but the memories Dr. Bender has of his 73-year marriage with her remain vibrant—from viewing ancient cave paintings in France, to wandering the narrow streets of Fez, Morocco. “We loved having adventures, just the two of us.”

Bender now lives in a retirement residence in Rhode Island, close to his daughter, where he socializes with retired professors from Brown and Harvard, goes to the gym for one hour each morning, and swims laps in the pool twice a week. His advice for longevity? “Stay away from doctors,” the old animal doctor says with a laugh. He does attribute his long life in part to genetics; his father lived to age 95, and his grandfather 98. Whatever the secret is, Bender seems to have cracked the code on making the most of life, even into old age. “I’m a hundred years old, and I still have a little something left!”



CAROLINE KENNEDY GREETES TEX, A PONY GIVEN TO HER AS A GIFT FROM VICE PRESIDENT LYNDON B. JOHNSON. SOUTH LAWN, WHITE HOUSE, WASHINGTON, D.C.



“THEY REALLY INSTILLED GOOD HABITS AND GOOD THOUGHT PROCESSES IN YOU. I APPRECIATED THEM VERY MUCH.”

—DR. SAMUEL BENDER ON CVM FACULTY



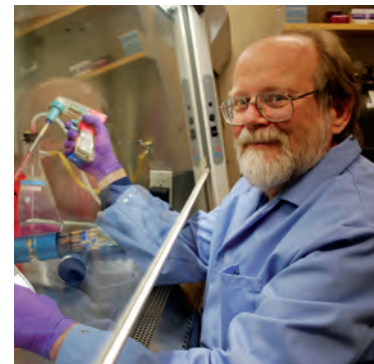
DR. ROBERT R. MARSHAK

SALMON AWARD FOR MARSHAK

Dr. Robert R. Marshak, a 1945 DVM graduate of the Cornell University College of Veterinary Medicine, has been named winner of the 2016 **Daniel Elmer Salmon Award for Distinguished Alumni Service**. During his career, he served as professor and chair of the Department of Medicine at the University of Pennsylvania’s School of Veterinary Medicine, and later as dean of that school from 1973 to 1987. He was at the forefront of encouraging female student applicants to the School and hiring women as faculty. With Cornell CVM Dean Edward Melby ’54, he established the first specialty of aquatic veterinary medicine in 1978. In 1990, Marshak was inducted into the prestigious **National Academy of Medicine**, one of very few veterinarians selected for that honor. In a 2011 entry to his blog, Veterinary Legacy, Dean Emeritus Donald Smith described Marshak as “perhaps the most influential dean of the second half of the 20th century.” Marshak served on the Cornell CVM Advisory Council from 1977 to 1980, and served as a member of the Advisory Council of the Baker Institute, for more than 20 years, playing a key role in the development of the Baker Institute as a premier site for animal health research.

ALUMNI HIGHLIGHTS

- **Dr. Mark Helfat ’77** was elected Chair of the Board of Directors of the American Veterinary Medical Association.
- **Sheila Allen ’76, DVM ’81** will step down as dean of the University of Georgia College of Veterinary Medicine in December after 11 years to become the Association of American Veterinary Medical Colleges’ senior accreditation advisor.
- **Dr. Thomas Graves ’91** has been named dean at Midwestern University College of Veterinary Medicine in Arizona.



KAREL “TON” SCHAT, PHD ’78

- **Bruce Calnek, DVM ’55, MS CALS ’56** and **Karel “Ton” Schat, PhD ’78** were inducted into American Association of Avian Pathologists Hall of Honor. Calnek and Schat are known, among many other things, for their work in describing the pathogenesis of Marek’s disease and for developing and testing the vaccine against it.



DANIELLE BUTTKE DVM ’09, PHD ’10

- **Danielle Buttke DVM ’09, PhD ’10** received the National Association of Federal Veterinarians Salmon Award, which was named after Daniel Salmon, and is “presented annually to recognize outstanding contributions and notable service in the public’s interest by a veterinarian federally employed in any human health, environmental health, or animal health discipline.”

ENSURING THE FUTURE

The following funds were established in 2015–2016, ensuring the future of veterinary research, education, and care.

- Benson Fund for Feline Research
- ClancysCure
- Alexander de Lahunta DVM '58, PhD '63 Academic Scholarship
- Good Ol' Dog Fund for Geriatric Canine Medicine
- Edward Park DVM '02 Memorial Scholarship
- Shirley Sperber Endowed Fund for Indigent Felines
- Edith and Douglas Wilson Scholarship Fund
- Edith and Douglas Wilson Endowment Fund
- Jeffrey A. Winton and James G. Modica Professional Scholarship

CAYUGA SOCIETY

During the past year, the following people have shared with us that they have included or made additional contributions to the College of Veterinary Medicine through their estate plans:

- Roger Batchelder DVM '46
- Ms. Helen Blohm CALS '72
- Mrs. Bonnie L. Coble Hotel '60
- Alexander de Lahunta DVM '58, PhD '63
- Mr. George R. Goldner and Ms. Nancy Krieg
- Dr. Mark Maller
- Ms. Elizabeth A. Mermigos
- Mrs. Jane C. Ponty
- Keith P. Richter CALS '78 DVM '81
- Mr. Prescott Miller Story CALS '68 and Kathleen A. Thornhill CALS '71
- Mr. Ron and Mrs. Ivy Lenz Timpe ILR '71
- Mr. S.F. Weissenborn A&S '49, MBA '50

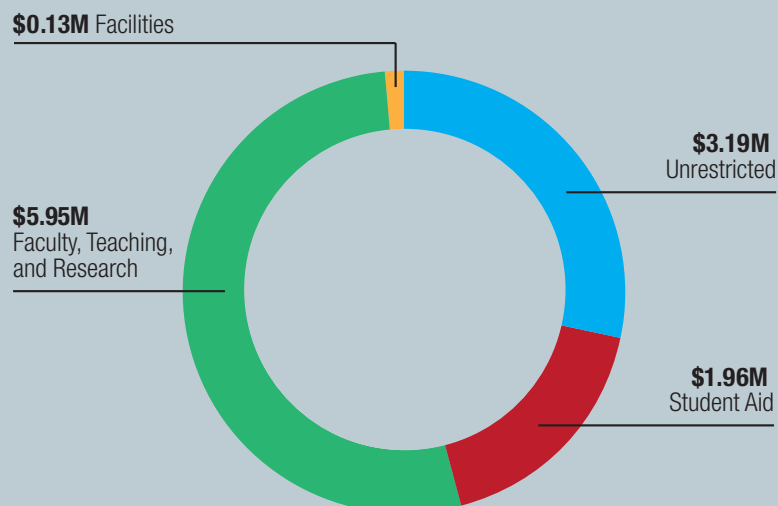
THE IMPACT OF GIVING

- **Janice Halliday bequest:** First introduced to the Baker Institute for Animal Health when her veterinarian, Dr. Niel Pieper DVM '32 made memorial gifts in memory of her beloved dogs, Halliday left the majority of her estate to Baker in memory of her parents, J.W. and Elise K. Halliday to support animal health research.
- **Edith and Douglas Wilson Funds:** this generous bequest from Mr. and Mrs. Wilson created the Edith and Douglas Wilson Scholarship for veterinary or graduate students as well as support for the Cornell University Hospital for Animals.
- **Sammons Memorial Scholarship:** Originally endowed in memory of Dr. Myrl Lyn Sammons '73 by his wife and classmate, Dr. Lenora Sammons '73, this scholarship for students with an interest in bovine medicine, which was Sammons' passion, grew significantly through a bequest from Lyn Sammons' father, Howard.
- **Petco Foundation & Blue Buffalo Foundation Cancer Treatment Support Fund:** This three-year grant will help with the cost of cancer treatment for dogs and cats, reducing the financial burden on families pursuing treatment for their pets.

- **Betty Lee bequest:** This gift, made in memory of Lee's beloved Maltese, Chilly, to support canine health discoveries was also made in honor of Lee's veterinarian, Dr. Lewis Berman '57.
- **Helen Putre Trust:** Helen Putre, a long-standing friend of the Feline Health Center, established this trust to benefit training for students with an interest in feline health and medicine.
- **Richard Schechter Equine Recovery Challenge:** Horse enthusiast and friend of the College Richard Schechter has committed challenge funding to support College

researchers to study and improve equine anesthesia recovery. One of Schechter's horses, a retired champion hunter named Good Point, died due to complications with anesthesia recovery. This untimely loss ignited Schechter's interest in this issue, and his passion for finding a solution. "I think that Cornell is uniquely qualified to work on this issue," says Schechter. "Not only is it one of the best veterinary facilities in the world, but you also have the ability to bring in anesthesiologists and surgeons from Cornell's medical school to add their insight."

NEW GIFTS & COMMITMENTS / PLEDGES FY16: \$11.23M

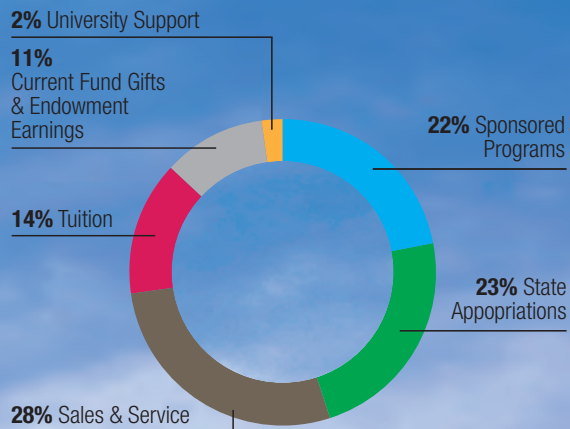


FINANCIALS

This past fiscal year, the College saw a budgeted deficit due to a planned use of existing balances. This draw-down supported investments in startup funds for faculty renewal (see page 5 for a list of new hires), which has been an institutional priority both at the College and at the University level. Looking ahead to Fiscal Year 2017, we are projecting a more balanced budget. Additionally, clinical and diagnostic service revenues and external research funding had marked increases in Fiscal Year 2016 and are on positive trajectories for Fiscal Year 2017 as well.

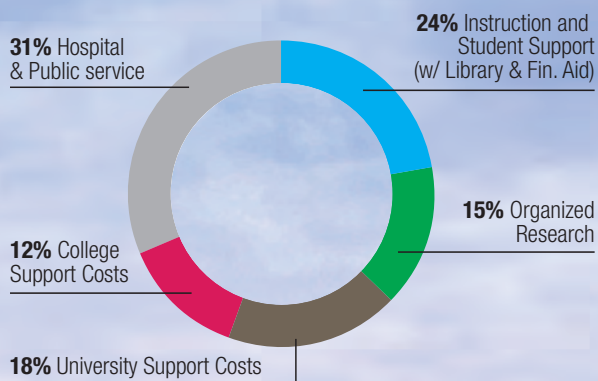


REVENUES



Sponsored Programs	\$	34.3
State Appropriations	\$	34.7
Sales & Service	\$	42.8
Tuition	\$	20.8
Gifts & Endowment Earnings	\$	17.5
University Support	\$	3.1
Fiscal 2016 Operating Revenues	\$	153.3 million

EXPENDITURES



Hospital & Public Service	\$	48.9
Instruction and Student Support (w/Library & Fin. Aid)	\$	37.1
Organized Research	\$	23.4
University Support Costs	\$	27.9
College Support Costs	\$	19.2
Fiscal 2016 Operating Expenditures	\$	156.5 million

ENDOWMENT MARKET VALUE



Program Support	\$	104.3
Position Support	\$	39.5
Student Aid	\$	44.0
Fiscal 2016 Endowment Market Value	\$	187.9 million

2016 COLLEGE OF VETERINARY MEDICINE VOLUNTEER LEADERSHIP

ADVISORY COUNCIL

David Behnke, ex-officio
Kelly Considine
Elizabeth Dole '82, DVM '86
Ann E. Dwyer, DVM '83
Paul Gould '67, chair
Richard C. Grambow '55, DVM '67, emeritus
Ann C. Harris '82, DVM '83, emeritus
Paula Kennedy
Mitchell E. Kornet '76, DVM '79
Elizabeth Lynch '90, DVM '95, emeritus
John M.B. O'Connor
Scott E. Palmer
Robert Paul
Brian I. Rind, DVM '65
Thomas Scavelli DVM '82
Elizabeth Stone
Lucy C. Tidd, '91, DVM '95
Judy Wilpon
Susan Wylegala, DVM '88

ANNUAL FUND

Kimberly Kahn DVM '09, Young Alumni
Annual Fund Chair
Mitchell E. Kornet '76, DVM '79, Annual
Fund Chair

ALUMNI ASSOCIATION EXECUTIVE BOARD

Susan Ackermann, DVM '86, President
Larry Bartholf, DVM '65
Jerry Bertoldo DVM '77
Jon Bertoldo, DVM '94
W. James Brown, DVM '86
Timothy Butterfield, DVM '73
Eric Christensen '95, DVM '99
Mara DiGrazia-Weigand '92, DVM '96
Patricia Erickson '92, DVM '97
Patricia Grinnell, DVM '97
Ann Huntington DVM '77
Stacy Kenyon, DVM '99
Malcolm A. Kram, DVM '74, Immediate Past
President
Edward Mackillop, '00, DVM '04
Pasquale Meleleo, DVM '08
Maritza M. Morimoto, '96, DVM '01, Secretary
Mark Olcott, DVM '95, Vice President
Mari M. Perez-Bruno, DVM '87, Treasurer
Richard Reid '88, DVM '92
Don Schlafer '71, DVM '74
Edward E. von der Schmidt III DVM '79, Past
President
Donald Schwytzer, DVM '77
Marina Tejada DVM '10
Brett Tillou, DVM '04
Georgette Wilson, DVM '93

BAKER INSTITUTE/FELINE HEALTH CENTER ADVISORY COUNCIL

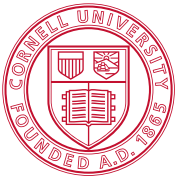
David Behnke, Chair
Joanne Bicknese '75, DVM '78
Albert C. Bostwick, emeritus
W. Bradley Davis, DVM '83
Susanne R. Handler
Richard P. Henry '65, DVM '68
William J. Kay
Joseph H. Kinnarney, DVM '80
Donald C. Powell, DVM '69
Gene M. Pranzo, emeritus
Margaret A. Reed
Keith P. Richter '78, DVM '81
Mark Rosen
Linda Rossi
Andrew G. Sage, emeritus
Gayle Watkins
Judy Wilpon
Jan A. Witkowski

Corrections:

Summer 2016 issue, page 10, "Cornell Students Take National Role in Diversity Leadership": we incorrectly listed Eva Maria Quijano Cardé's last name as "Carde." Her last name should have appeared as "Quijano Cardé."

Summer 2016 issue, pages 48–49, "Cats for Comfort: Program Connects Cats with Seniors": one of the women featured in the story was incorrectly listed as "Sophia Sleh." Her name should have appeared as "Sophia Steh."





Cornell University
College of Veterinary Medicine

Box 39
Ithaca, NY 14853

NON-PROFIT ORG.
U.S. POSTAGE
PAID
CORNELL
UNIVERSITY

CORNELL STUDENTS AND RESIDENT WITH THE AMBULATORY CLINIC CHASE AFTER A RELUCTANT GOAT. (SEE PAGE 20 FOR FULL STORY.)

