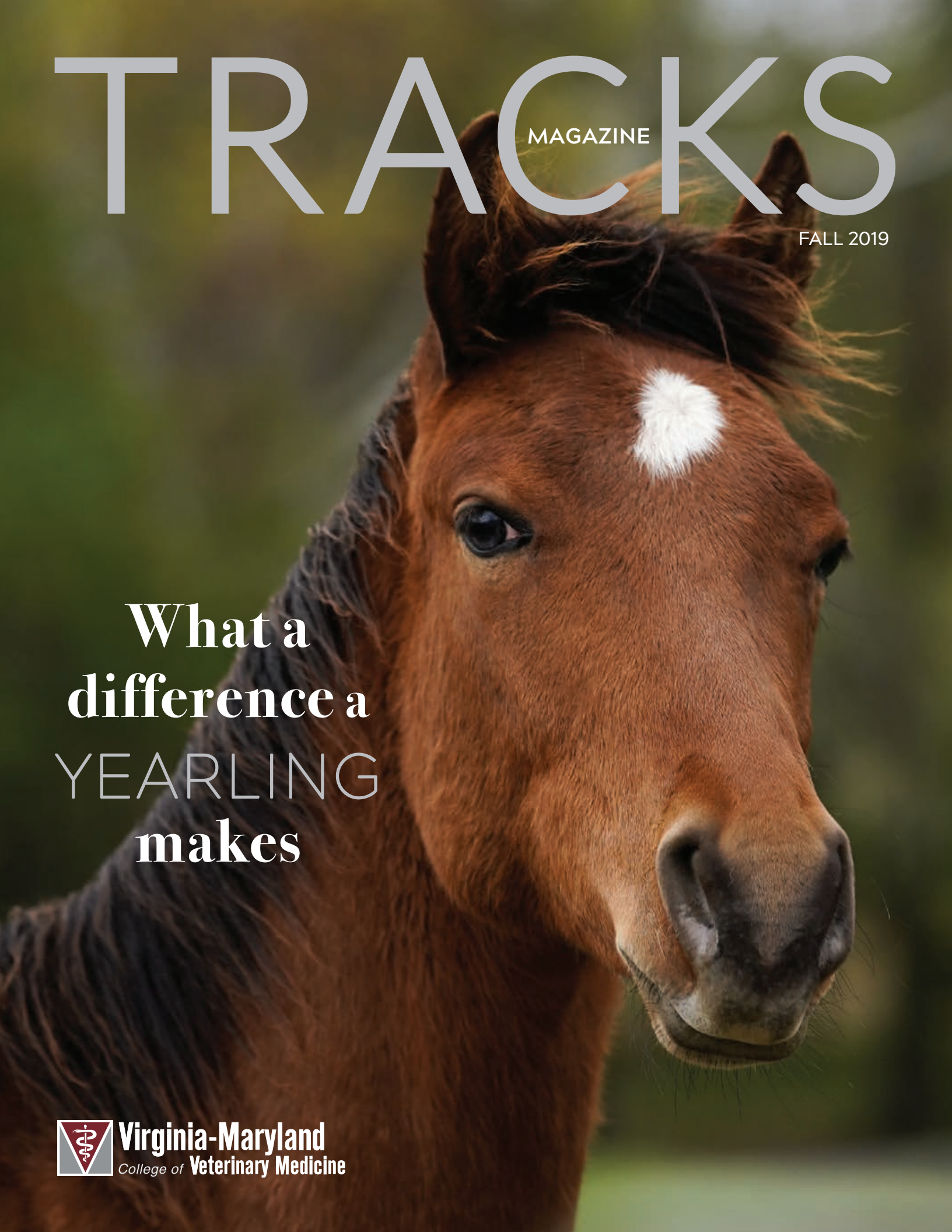


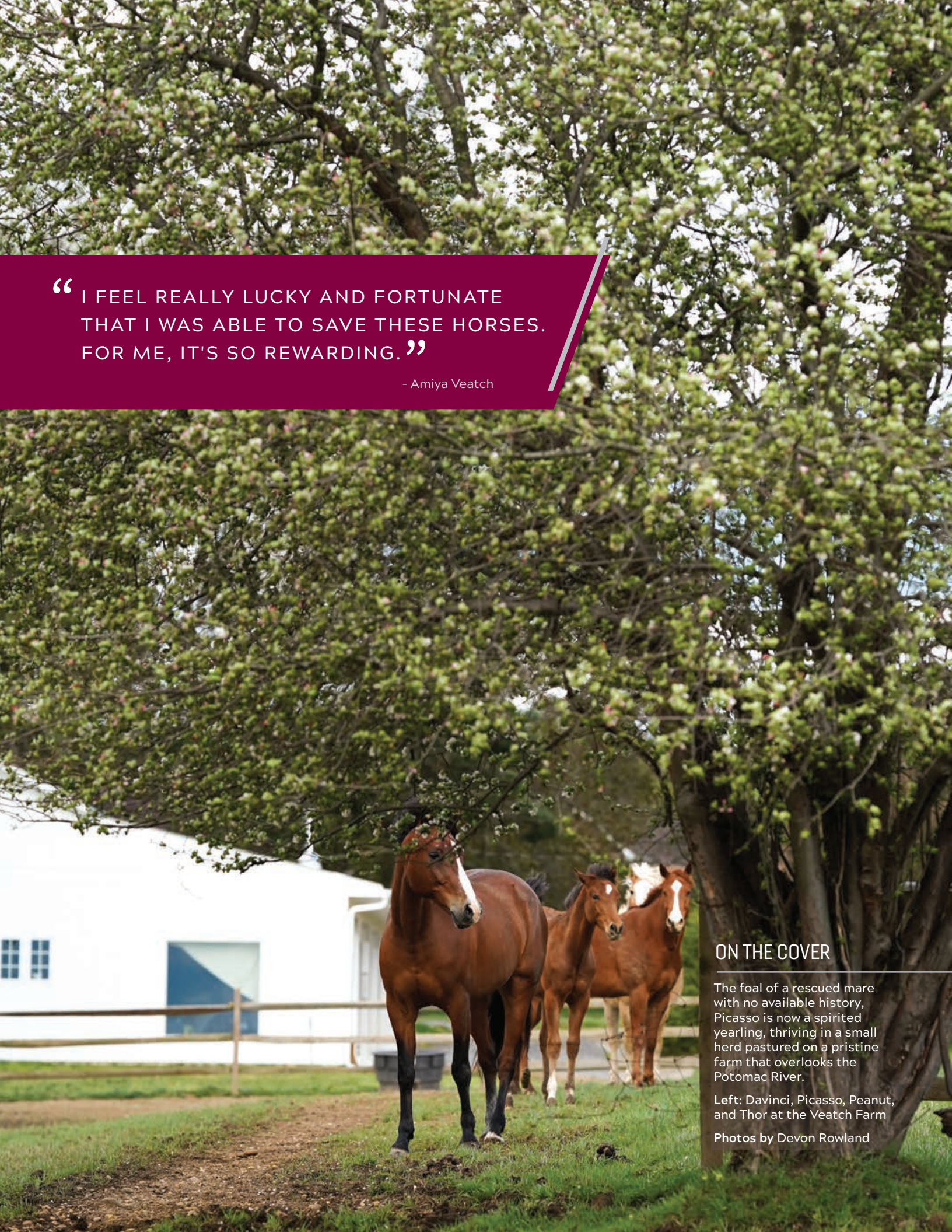
TRACKS

MAGAZINE

FALL 2019

What a difference a YEARLING makes

Virginia-Maryland College of Veterinary Medicine



> “I FEEL REALLY LUCKY AND FORTUNATE THAT I WAS ABLE TO SAVE THESE HORSES. FOR ME, IT'S SO REWARDING.”
>
> - Amiya Veatch

ON THE COVER

The foal of a rescued mare with no available history, Picasso is now a spirited yearling, thriving in a small herd pastured on a pristine farm that overlooks the Potomac River.

Left: Davinci, Picasso, Peanut, and Thor at the Veatch Farm

Photos by Devon Rowland

MESSAGE FROM THE DEAN

Interim Dean Gregory B. Daniel

In June, I had the opportunity to share with the Virginia Tech Board of Visitors an overview of the college's advancements in research, education, and service. Going forward, we are confident that our One Health focus will continue to play a central role in interdisciplinary and translational research across the university.

Along with our wide-ranging research strengths—in infectious disease and immunity, chronic inflammatory disease, neuroscience, epidemiology, and population health—the college has a growing clinical research program. Faculty in the Veterinary Teaching Hospital in Blacksburg and the Marion duPont Scott Equine Medical Center in Leesburg, Virginia, are advancing our knowledge through clinical research to improve health care for our patients.

Our companion animals also serve as models that facilitate both the development and the refinement of diagnostic technologies and treatments for human disease. Beyond ensuring that our animal patients receive leading-edge care, this practice ensures bidirectional transfer of knowledge and technology between animals and people.

Our dedication to working across disciplines is perhaps best exemplified by the construction of the college's newest facility, the Comparative Oncology Research Center (see page 24), slated to open next spring in Roanoke, Virginia. This state-of-the-art clinical and research hub, adjacent to the Virginia Tech Carilion School of Medicine, will be a vital component of the Virginia Tech Carilion Health Sciences and Technology Campus. The center's location is ideal, bringing together researchers across disciplines to investigate animal and human health, conduct translational oncology research, and advance comprehensive cancer care across species.

On the Blacksburg campus, there is a critical need to expand and remodel the Veterinary Teaching Hospital. In the 20-plus years since the facility's last expansion, our class size has grown, our specialty services have expanded, and our caseload has increased. On the heels of a feasibility study completed earlier this year, a funding model is being finalized. The planned expansion and renovation—to enhance clinical services, promote clinical research, and create a world-class learning environment for our students—will bring our facilities on par with new veterinary teaching hospitals at our peer institutions.

Similar attention is benefitting our Center for One Health Research, where upgrades will assist the basic research enterprise and allow us to advance our research in infectious disease.

At the college's Equine Medical Center (EMC), the Youngkin Equine Soundness Clinic is receiving patients, and plans for next year point to the construction of an indoor arena for the sports medicine program. The impact of these projects cannot be overstated, for they help us maintain superior diagnostic and clinical service programs, diversify the student experience, and support the needs of our patients, clients, and constituents.

Clinical training at EMC is one of a growing number of educational opportunities in the greater Washington, D.C., metro area, including a multitude of small animal, equine, and farm animal private practices, as well as unique training experiences through federal agencies and other D.C.-area partners in the public and corporate practice communities. One such opportunity, a new clinical rotation, places our veterinary students with the Humane Rescue Alliance (HRA) in Washington, D.C., where they develop essential skills in general surgical and primary care to an underserved population and learn about animal welfare and shelter medicine in an urban environment.

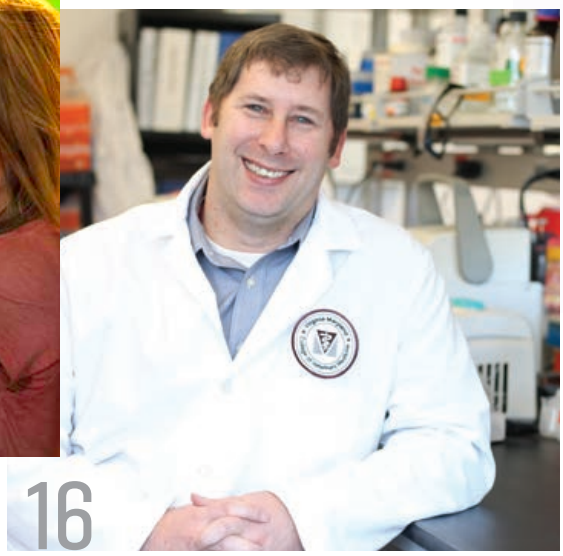
Our long-standing commitment to diverse, hands-on learning experiences—evident in the new partnership with HRA—was central to our revision of the college's doctor of veterinary medicine curriculum, which marks its fourth cohort with the incoming Class of 2023. Emphasizing the integration of courses, team-based learning, and training in the teaching hospitals and during clerkships, the tracking curriculum lets students focus on a primary area while pursuing individual career interests across a range of domestic animal species and private, public, and corporate practices.

There's much to be proud of in the college, and our prospects are certainly bright. As we enter a new academic year on this upward trajectory, we remain grateful for a solid community of supporters who bolster our charge to advance veterinary medical education and guide the profession forward.

Greg Daniel

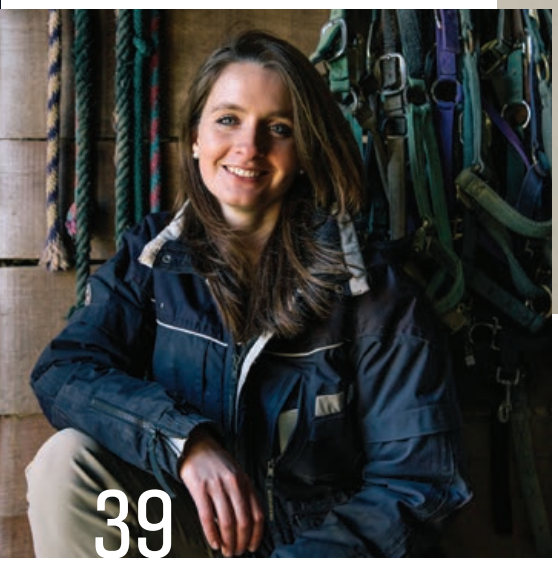
IN THIS ISSUE

AROUND THE COLLEGE



ONE HEALTH

AWARDS and ACCOLADES



ALUMNI NEWS

VA-MD College of Veterinary Medicine
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VIRGINIA TECH™

UNIVERSITY OF MARYLAND

College celebrates Class of 2019 commencement

Energy was high across campus in mid-May as Virginia Tech recognized its spring 2019 graduates. In addition to University Commencement in Lane Stadium, the veterinary college held ceremonies and receptions for graduates of its doctor of veterinary medicine (DVM), master of public health, and biomedical and veterinary sciences M.S. and Ph.D. programs.

Phillip Sponenberg, professor of pathology and genetics in the Department of Biomedical Sciences and Pathobiology, spoke at the DVM program's 36th Commencement, held for the fourth consecutive year in the Moss Arts Center's Anne and Ellen Fife Theatre.

In his address, Sponenberg, an internationally recognized expert in rare breeds conservation, urged students to practice kindness, which "is free to give and precious to receive [and] fills voids that otherwise might defeat us all."

Class President Tyler Lawnichak (DVM '19) and Vice President Carolyn Oehrig (DVM '19) presented the class gift: a dog run to be used by the college's teaching dogs. Oehrig expressed gratitude for assistance from the Class of 2020, the Virginia Tech Office of Sustainability, and the Virginia Tech Department of Building Construction, which made the project part of the curriculum for its bio-inclusive building design class and its sustainability and materials course. The run is expected to be completed next year.

AAVMC keeps focused on inclusion

At the Association of American Veterinary Medical Colleges (AAVMC) annual conference, faculty from the college's Office of Academic Affairs participated in panel discussions on developing a more diverse and inclusive student population.

"We should have the courage to address the hidden aspect of privilege within our admissions practices and embrace the value of multiple excellences other than hanging on to our historic perceptions of what merit and excellence look like," said Jacquelyn Pelzer, director of admissions and student services.

Class Vice President Carolyn Oehrig (DVM '19) presented the class gift to the college.

Hope Bradbury

> "KINDNESS ... is free to give and precious to receive [and] fills voids that otherwise might defeat us all."
>
> - Phillip Sponenberg
> Professor of pathology and genetics in the
> Department of Biomedical Sciences and Pathobiology

WELCOME, **NEW FACULTY**




CORNELIA DEAGLE was named an assistant professor in the Department of Population Health Sciences. Formerly an assistant professor in the Center for Clinical and Translational Research at Virginia Commonwealth University, she was most recently the director of Title V Maternal and Child Health and the Division of Child and Family Health at the Virginia Department of Health. A native of Richmond, Virginia, Deagle has worked in public health for more than 25 years. She earned a Ph.D. from the University of South Carolina Arnold School of Public Health.

FAWZY ELNADY, who earned a Ph.D. from Virginia Tech as a visiting scholar, has returned as an associate professor of anatomy in the Department of Biomedical Sciences and Pathobiology. A native of Egypt, he is noted for developing the "Elnady Technique," a modified form of plastination producing realistic and durable specimens that can replace the use of animals for teaching basic anatomy, embryology, pathology, parasitology, and forensic medicine.

DAVID WONG, who completed a three-year residency and earned a master of veterinary science from the college in 2003, was named the head of the Department of Large Animal Clinical Sciences. A diplomate of both the American College of Veterinary Internal Medicine and the American College of Veterinary Emergency and Critical Care, Wong arrived from Iowa State University, where he was professor of equine medicine and section chief of equine medicine and field services. For the past few years, he also served as a visiting specialist in both internal medicine and emergency and critical care at the college's Marion duPont Scott Equine Medical Center in Leesburg, Virginia.

JOANNE TUOHY joined the college as an assistant professor of surgical oncology in the Department of Small Animal Clinical Sciences. A diplomate of the American College of Veterinary Surgeons with a background in integrative cancer care and translational research, Tuohy is currently based at the Blacksburg campus, where she practices in the Veterinary Teaching Hospital. She was recruited to Virginia Tech to develop a surgery service that will be housed in the Comparative Oncology Research Center, a state-of-the-art clinical and research facility anticipated to open in spring 2020 in Roanoke, Virginia.

NEW FACULTY

Jan. 1 – Aug. 15, 2019

- **4** Biomedical Sciences and Pathobiology
- **2** Population Health Sciences
- **1** Large Animal Clinical Sciences
- **4** Small Animal Clinical Sciences

Moose, therapy dog and 'true animal hero'

Over the past five years, Moose, a 7-year-old therapy dog, has partnered with Trent Davis, counselor and coordinator of Virginia Tech's Animal Assisted Therapy at Cook Counseling Center. The two have participated in more than 5,000 individual and group counseling sessions and have completed countless hours of outreach.

Moose's work was put in the spotlight when he was named the Virginia Veterinary Medical Association's (VVMA) 2019 Animal Hero during the group's annual conference in Roanoke, Virginia.

First presented in 2004, the annual award is given to an animal that has performed a heroic act of service or provides daily outstanding service for humans. Moose not only embodies those qualities, but also highlights the VVMA's increased emphasis on mental wellness.

Trent Davis with Moose

Dan Mirolli

Born and raised at Guiding Eyes for the Blind in Yorktown Heights, New York, Moose was nominated by Heidi Garman (DVM '19), then a fourth-year veterinary student. She said Moose was an integral part of the school and had helped her personally overcome the loss of her own therapy dog, a yellow Labrador named Luke. "His entire life is dedicated to helping people," Garman said. "That's what makes him a hero to me."

Scholarship funding remains college priority

One of the most troublesome issues facing veterinarians today is student debt. In the U.S. alone, the debt-to-income ratio for veterinary medicine stands at a perilous 2:1—the highest of the health care professions. At Virginia Tech in 2018, doctor of veterinary medicine students borrowed an average of more than $143,000 over four years.

At the core of the veterinary college's efforts to ease students' financial burden—and the steep debt-to-income ratio they face upon graduation—donors responded enthusiastically to Virginia Tech's second annual Giving Day in mid-March. This dynamic 24-hour giving campaign brought to light a genuine, generous community committed to supporting the veterinary college and its students.

In keeping with the spirit of the day, the executive board of the Virginia Veterinary Medical Association pledged to give $1,600 after the first 50 gifts had been made. Similarly, longtime clients Linda Dorsey and Jim Satterwhite pledged to match every dollar up to $5,000 given to the college's Equine Medical Center in Leesburg, Virginia. In quick order, other supporters responded, and both challenges were fully met.

In the end, nearly 100 donors gave $32,220 to fund scholarships and enhance the college's academic programs, facilities, and equipment. As always, the support of donors is critical to the college's efforts to sustain excellence with each passing year.

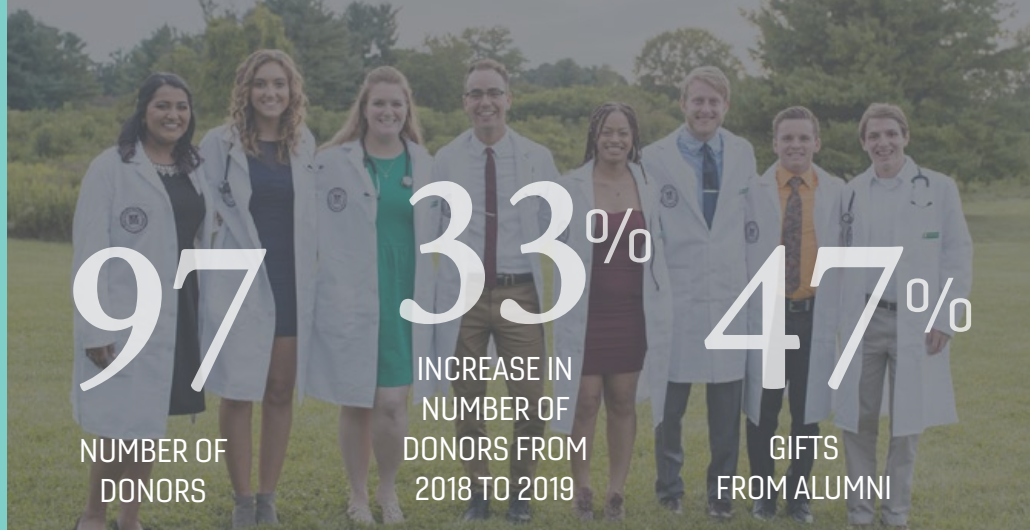
THANK YOU
to our generous donors on Virginia Tech's GIVING DAY on March 19-20

$2,863,031 Raised
6,674 Donors
24 Hours

$32,220 = VET MED

GIVING DAY VIRGINIA TECH

On Giving Day and every day, your gift to the Virginia-Maryland College of Veterinary Medicine at Virginia Tech makes it possible for the college to accomplish its essential mission to prepare the next generation of veterinary, public health, and biomedical research professionals who will improve the lives of animals, people, and communities.



97
NUMBER OF DONORS

33%
INCREASE IN NUMBER OF DONORS FROM 2018 TO 2019

47%
GIFTS FROM ALUMNI

Hope Bradbury

An EVENING of GRATITUDE

In March, the veterinary college hosted its second annual Evening of Gratitude, a special event to thank those who have generously supported students through scholarship funding. During the event, donors were introduced to the college's scholarship recipients.

"This generosity not only has a financial impact, but eases the students' stress levels and helps their mental wellness, which in turn allows them to focus on what they came here for: to join the greatest profession," said Jacquelyn Pelzer, director of admissions and student services. "I hope that by meeting with students personally, our donors will hear our students' stories and understand the importance of their continued support to the future of the profession."

"Every bit of support that donors give to this college makes it possible for people like me to not have to put the pursuit of our dreams over financial security," said Kelly Catanzaro (DVM '19), recipient of the Peter Eyre Student Leadership Award. "From the bottom of my heart, thank you. You are affecting not only my future, but the future of all those aspiring veterinarians by keeping the dream alive."

Opposite page, top: (From left) Veterinary college donor John Havran; Giulio Menciotti (Ph.D. '17), cardiology resident in the Department of Small Animal Clinical Sciences (SACS); scholarship recipient Lauren Dodd (MPH '19), clinical nutrition resident in the Department of Large Animal Clinical Sciences; and scholarship recipient Audrey Keebaugh, small animal internal medicine resident in SACS. **Top left:** Richard B. Talbot Award recipient Elizabeth "Libby" Majette (DVM '19) with college donors Richard Lee and Patricia Talbot. **Top right:** Scholarship recipient and student speaker Kelly Catanzaro (DVM '19). **Bottom right:** DVM Class of 2020 scholarship recipients (from left) Catherine Pouliot, Roberto Hernandez, and Solitaire Goldfield.

THE COLLEGE THANKS YOU

Your support of our students, research, teaching, and clinical care is humbling. Contact us to learn how you can help:

Office of Advancement
540-231-0465 | cvmadvancement@vt.edu

Make a gift online at
vetmed.vt.edu/development

Veterinary college's summer research program opens alternative career paths to DVM students

By Leslie Jernegan (M.F.A. '19)

Now in its 13th year, the college's Summer Veterinary Student Research Program (SVSRP) is addressing the high demand for veterinarians with biomedical research backgrounds—and inspiring career reconsiderations in the process.

Funded by the National Institutes of Health (NIH), Boehringer Ingelheim Veterinary Scholars Program, and the college, the program provides hands-on, mentor-guided biomedical research and translational research experiences, building opportunities for the 12 selected students by orienting them with adaptable skills applicable across numerous career options.

In keeping with the college's expansive One Health approach, the program's research experiences highlight the dynamic interdependence of animal, human, and environmental health as a crucial aspect of veterinary medicine and biomedical research.

"The program is the only one of its kind to provide valuable research experience during the students' doctor of veterinary medicine (DVM) program," said Professor of Immunology Ansar Ahmed, the program's director and the college's associate dean of research and graduate studies. "In the program's 13 years, more than 175 DVM students have had opportunities to gain One Health-focused research experience."

As part of the 11-week program this summer, students participated in short courses, ranging from humane care and the use of laboratory animals to proposal writing and research ethics. With the help of funded travel, students also met with professionals in research and policy positions at the NIH, U.S. Department of Agriculture, Food and Drug Administration, and Walter Reed National Military Medical Center in Washington, D.C., in addition to attending weekly breakfast seminars with DVM scientists from federal governmental agencies, academia, and industry who chose to pursue biomedical research careers.

Perhaps the pinnacle—and, for many applicants, the main attraction—of the program's curriculum is the nine weeks of mentor-guided laboratory training in animal models of disease.

That experience is specifically what attracted Alex Safian, a second-year student from Thousand Oaks, California, who was mentored by Professor of Parasitology Anne Zajac in the Department of Biomedical Sciences and Pathobiology.

"Boy, did this program really open up the scope of veterinary medicine," said Safian, who studied anthelmintic resistance in parasites. "Seeing the full scale of what veterinarians can really do is something special that this program offers."

Safian envisions his career moving him into a small animal internal medicine residency program, particularly one with a research component. "I think it's wise to research something in the specialization of the field I would be going into," he said, "just because of my zeal for it."

For Kate Bukovec, a second-year student and Virginia Tech alumna from Robbinsville, New Jersey, the exposure to career options outside of private practice was eye-opening.

"I've always loved the combination of animals and science, so veterinary medicine seemed like the most obvious career choice," she said. "I was never crazy about the idea of working in private practice, though, and I didn't know what other career options existed."

Because of the program, Bukovec, who helped develop a novel *ex vivo* protocol in mouse muscle that mimics the length-change and force produced by human muscle during gait, said her desire to pursue a residency in comparative animal medicine has been solidified. She was mentored by Robert Grange, associate professor of molecular and cellular science in the College of Agriculture and Life Science's Department of Human Nutrition, Foods, and Exercise.

"This program exposed me to the wide array of diverse jobs and careers for DVMs, which was instrumental to my making this decision," she said. "Thanks to the program and Dr. Ahmed, I've already started networking with a number of comparative animal medicine programs across the country."

Besides the program's off-campus networking opportunities, students similarly appreciated the exposure to communities and opportunities found right within the college.

"I really enjoyed working closely with my mentor and her lab members," said Pennsylvania native Nick Pietrobono, who completed his first year of veterinary school and spent the summer working with Usutu virus. "They were all very helpful when I ran into any errors, as well as great at teaching me new techniques and introducing me to different labs in the building and to people they knew outside of the lab," said Pietrobono, who was mentored by Assistant Professor of Molecular and Cellular Biology Nisha Duggal in the Department of Biomedical Sciences and Pathobiology.

The culmination of the program allowed students to present their work to fellow participants and faculty members, both at the college and at the National Scholars Symposium, a gathering solely for DVM summer research scholars. This year, the symposium was held in Worcester, Massachusetts.

Taschua Jeboda of Delaware said that she was proud to show off her research, both to her peers on campus and in Massachusetts. "I had a very positive experience presenting," she said. "It was wonderful to be able to learn about research projects from other researchers and bond with students from other veterinary schools."

With plans to graduate next spring, Jeboda, who was mentored by Ahmed, said that it was her goal to explore and understand the pathophysiology of a disease—in this instance, lupus. "I learned how to work toward a goal with the understanding that my results may not reflect my expectations," she said. "But I also learned that the work I put into my pursuits is still valuable, even if mistakes occur or results are inconclusive."

Because of its strong follow-up program, which ensures research options for program alumni, many former trainees have entered advanced training programs, such as residencies or doctoral study. In fact, in a recent poll, 66 percent of program alumni, Ahmed said, reported going on to choose a career path other than private practice after graduating with a DVM.

"Even though the program has ended, I'm still going into my mentor's lab," said Bukovec, who is now writing a manuscript with the lab. "The summer program provided me with the opportunity to perform research, collect data, network within other professions, and write a scientific paper. I could not have imagined a more professionally fulfilling summer."

> "The program is the only one of its kind to provide valuable research experience during the students' doctor of veterinary medicine program."
>
> - Ansar Ahmed
> Professor and associate dean of research and graduate studies

Top left: Ansar Ahmed (far right) and the DVM students who participated in the Summer Veterinary Student Research Program. **Right:** Nick Pietrobono (DVM '22) and mentor Nisha Duggal, assistant professor of molecular and cellular biology in the Department of Biomedical Sciences and Pathobiology.

SAVING YODA

While working in Colorado last year, veterinarian Jessica Villm was practicing her ultrasonography skills on her 6-year-old tabby cat, Yoda. Although she discovered stones lodged in his left ureter, he was not ill, and she could not afford surgery to remove the stones at that time.

After beginning a residency in the college's Small Animal Clinical Sciences, Villm had occasion to recheck Yoda's ureters and kidneys with ultrasonography. Not only were the stones still present in his ureter, bloodwork indicated that Yoda was in kidney failure.

Unlike in people, lithotripsy to break up the stones is not an option in cats, and surgical stone removal introduces extensive complications. In response, Villm's colleagues on the internal medicine service recommended a novel treatment that had recently surfaced in veterinary care: inserting a subcutaneous ureteral bypass (SUB) device.

Veterinary Teaching Hospital (VTH) internist David Grant, who has a special interest in kidney and urinary tract diseases, contacted his friend and alumnus Justin Ganjei (DVM '11) about Yoda. A staff surgeon at Veterinary Surgical Centers in northern Virginia, Ganjei agreed to return to Blacksburg to work with VTH surgeon Sabrina "Bini" Barry and Grant so that the three could collaborate on the fluoroscopy-guided surgical treatment.

In December 2018, Ganjei surgically placed the SUB device in Yoda, effectively teaching Barry the procedure. Yoda recovered well, and a sonogram a month later revealed that his kidney distention had dramatically decreased and his kidney was much healthier.

Case closed: Ganjei's knowledge, abilities, and generosity speak to the nature of the college's alumni, always eager to give back to their alma mater.

Clockwise from top left: Sabrina Barry (left), clinical associate professor of small animal surgery in the Department of Small Animal Clinical Sciences (SACS), and Justin Ganjei (DVM '11) perform the surgical procedure on Yoda.

Jessica Villm, SACS internal medicine resident, and her cat, Yoda. A postoperative radiograph of Yoda reveals the SUB device: the white tubing traveling from the kidney down to a round metal hub and then continuing back to the bladder. The hub allows a needle to be inserted to collect urine samples to ensure that urine is flowing from the kidney to the bladder.

Justin Ganjei (DVM '11) and (right) David Grant (chemistry '94, M.S. '03), associate professor of internal medicine in SACS.

TECH SPECS

Each spring, the college recognizes excellence among faculty, staff, and students. Meet this year's Outstanding Technician Award recipients, who were selected by the DVM Class of 2019.

TAMI QUESENBERRY

Licensed Veterinary Technician
Small Animal Community Practice
(aka "Mama T" to students)

Favorite animal?
I'm a dog person. At an early age, I would go to the library searching for books illustrating all the dog breeds and would spend hours trying to trace or draw them. Dogs bring me joy, and I'm intrigued by all the different personalities among the different breeds. That said, I really love the challenge of working with the little, cranky ones.

Best shoes for work?
Those that can handle an average of 12,000 daily steps on concrete floors. Roller skates would be ideal on many days.

If you could invent a holiday to be observed at the veterinary college, what would it be?
Probably something along the lines of "Repurpose for a Purpose." I'm a huge fan of turning something old into something new. In addition, I'm passionate about paying it forward. The vet school is full of creative, caring people. Time allotted to bring talents together to provide a better, more meaningful life for a shelter (or rescue) animal would be valuable to students, staff, faculty, and the recipients in a very unique way.

SHARON MCMAHON

Licensed Veterinary Technician
Small Animal Clinic, surgery

Favorite animal?
Otter. Life should be as fun as they make it look.

Best shoes for work?
Keen

One item you can't live without during the workday?
Bifocal contact lenses

If you could invent a holiday to be observed at the veterinary college, what would it be?
"Rottweiler Day" — I've had five Rottweilers and will have more; they are wonderful.

HOMERS

Tami and her husband, Zane, a local contractor, conceived Homers (Humane Outdoor Mobile Emergency Relief Shelters), built using sustainable materials by modifying reconditioned 55-gallon plastic barrels. In early May, the volunteer group constructed 100 emergency dog shelters for dogs enduring crisis living conditions in underserved rural counties. Learn more on the group's Facebook page (Homers Outreach), or go to **video.vt.edu/media/homers**.

Feline weight-loss study

Because implementing weight-loss plans can be challenging for cats and pet owners alike, Assistant Professor of Clinical Nutrition Megan Shepherd, clinical nutrition resident Lauren Dodd, and study sponsor Purina set out to discover how owners' perceptions of their cat's quality of life were influenced by adding food toys to the cats' weight-loss regimen.

Forty-four overweight cats were enrolled and randomly assigned to groups with or without food toys. Wearable activity monitors were used on some cats to record changes in their activity levels. Each cat was given a customized weight-loss plan, including weight-loss food and low-calorie treats. By completing monthly questionnaires, owners recorded their perceptions of their cat's quality of life.

Ian Atkins

The research team's hypothesis—that cats in the food-toy group would be perceived to have a better quality of life—was not proven. Interestingly, quality of life also was not tied to the amount of weight each cat lost or the cat's "success" in the program.

The team did discover, however, that weight loss seemed to improve the cat's daily functioning: mobility, grooming, and overall mood. Since weight gain, typically, is gradual, many of the owners hadn't realized just how much the added pounds had affected their cat's quality of life.

It was also discovered that Purina's Fortiflora probiotic product was useful in getting cats to eat vegetables as a low-calorie snack. This finding has high clinical relevance because veterinarians and owners can implement this "diet hack" to help cats lose weight.

VIDEO: **vetmed.vt.edu/fatcat**

Equine center's **INDOOR ARENA** on track for

SPRING UNVEILING

> "Since the horse is our central focus and the facilities are key, there's this collaborative aspect as we can bring the specialists from the hospital to the horse and have them work within the same space."
>
> - Michael Erskine (DVM '88)
> Director, Marion duPont Scott Equine Medical Center

Come fall, Virginia Tech's Marion duPont Scott Equine Medical Center (EMC) will host a groundbreaking for another addition to its hospital campus in Leesburg, Virginia.

The Stephen and Jane Hale Indoor Arena—made possible by Amy and Frank Batten, who furnished half the cost, followed by a number of donations, including a generous final matching gift from the Hales—demonstrates the power of philanthropic partnerships to enhance the center's ability to treat sport horses.

Marking the final component of EMC's "New Horizon" operational plan, the new facility is "a springboard for continued progress as we implement our new strategic plan," said Michael Erskine (DVM '88), the center's director and Jean Ellen Shehan Professor.

Released in 2014, the plan focused on advancing the center's sports medicine capabilities to benefit equine athletes by integrating lameness evaluations, advanced imaging, therapeutic podiatry, and other modalities, such as acupuncture. The initiative also outlined the recently renovated Youngkin Equine Soundness Clinic, as well as an updated farrier shop, both now receiving patients.

Upon completion of the indoor arena, which will aid lameness evaluations by allowing specialists to observe horses exercising on various surfaces, the facilities will sit adjacent to one another, connected by a breezeway.

From a broader perspective, Erskine and Director of Major Gifts Stacey Ahner point out that the interconnected facilities support a multidisciplinary approach, allowing horses to be evaluated by different specialists, all at the same site. "Since the horse is our central focus and the facilities are key, there's this collaborative aspect as we can bring the specialists from the hospital to the horse and have them work within the same space," Erskine said.

What's more, the new facilities serve as a visual marker of the work happening within EMC, such as advanced CT imaging, regenerative medicine, and podiatry. "The complex is a way to make it readily apparent to people that this facility is worthy of these patients," Ahner said.

As EMC prepares to commemorate its 35th anniversary, an official groundbreaking for the indoor arena will be held on Nov. 8, and a celebration honoring the career of Professor Emeritus of Equine Surgery Nathaniel A. White II will be held earlier that week. Meanwhile, the indoor arena is anticipated to be completed in the spring.

Architectural renderings of the exterior and interior of the Stephen and Jane Hale Indoor Arena, furnished by Blackburn Architects, P.C.

Integrative care

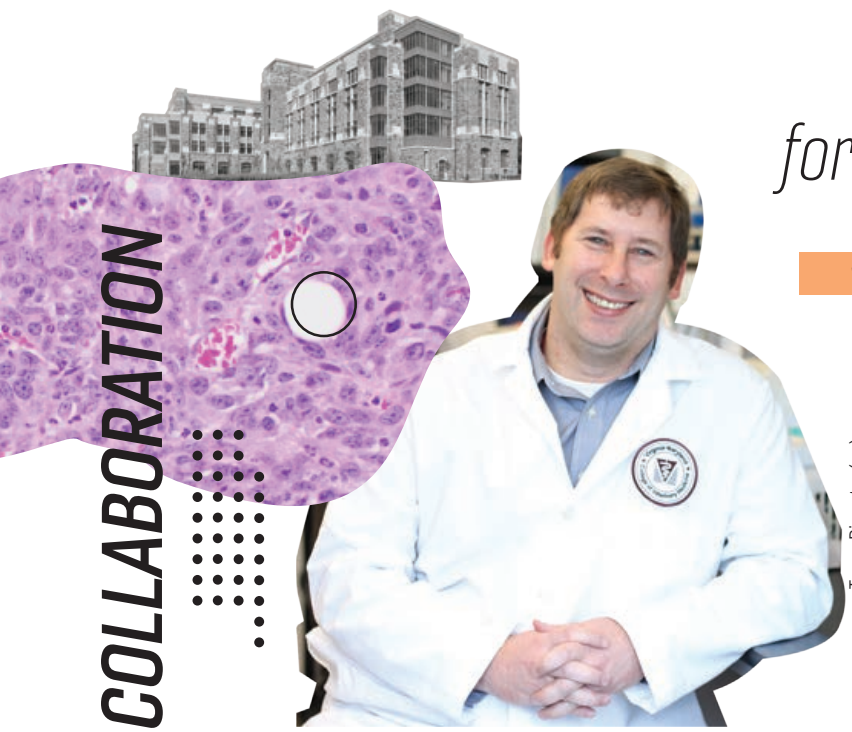
Stella, a 9-year-old Oldenburg/Thoroughbred cross mare in good physical condition, visited the Equine Medical Center's Youngkin Equine Soundness Clinic for a routine lameness evaluation. Her owner, Diane, reported that the mare, who regularly competes in dressage and equitation, was reluctant to accept the bit on occasion.

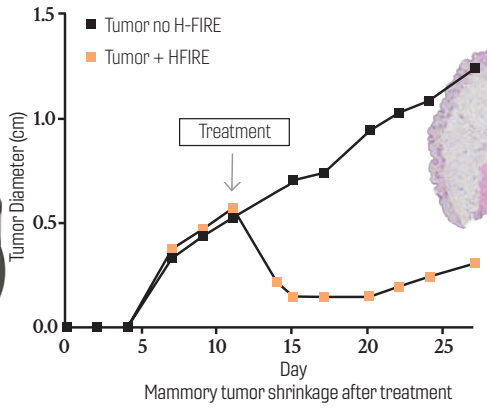
Because a full physical exam revealed mild lameness with associated back soreness, recommendations for treatment included a dental exam, adjunct therapy—acupuncture, chiropractic, shockwave—for the mare's sore back, pharmaceutical options, and therapeutic shoeing to relieve foot pain. Before returning home, Stella enjoyed an acupuncture session.

EMC's sports medicine team evaluates Stella's gait.

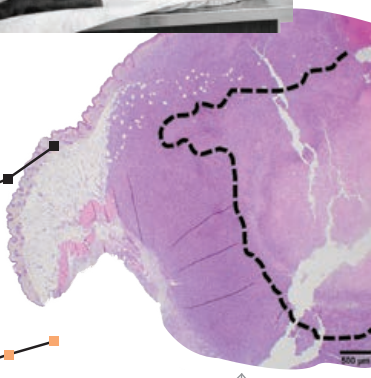

Sharon Peart

COLLABORATION *for a* CAUSE





Mammory tumor shrinkage after treatment



Area of necrosis (outlined in black) in mammary tumor

By Leslie Jernegan (M.F.A. '19)

As busy as Irving Coy Allen is, siloed research gives him pause. In his thinking, if one is working at a large research university that's rich with expertise and inspiration, why tackle humanity's greatest challenges—say, cancer—alone?

An associate professor of inflammatory disease in the veterinary college's Department of Biomedical Sciences and Pathobiology, Allen has made a point throughout his career to reach out and weave together Virginia Tech's experts to conduct unprecedented health research.

Most recently, Allen and researchers from the veterinary college and the College of Engineering are collaborating to study tumor ablation and immune system activation. Simply put, their goal is to advance cancer treatments.

The team's first of a planned series of papers, which addresses breast cancer mortality rates and inadequate treatments for metastatic disease, has been well received. Together, the team is examining mammary tumor ablation with high-frequency irreversible electroporation, or H-FIRE, a second-generation modality that uses high-frequency bipolar electric pulses.

Based on the team's findings, the new technology is proving to be an effective tumor ablation strategy that not only induces immunological cell death, but also promotes systemic anti-tumor immunity.

H-FIRE, Allen explained, is based on IRE, a technology developed by Professor of Biomedical Engineering and Mechanics Rafael Davalos that utilizes electric pulses to induce cell death. Although H-FIRE is still in the early phases of investigation, IRE is currently being evaluated in preclinical and clinical trials for tumor ablation in a variety of cancers, including pancreatic cancer. Significantly, several lines of evidence suggest that IRE is effective in immune system activation.

"H-FIRE is a method to treat cells with electricity that doesn't cause them to explode, but causes their membranes to open up. Essentially, they leak, so it's a way to destroy cells of a particular kind, using electrical properties," Allen said. "But that is beyond me. That's what the engineers tell me."

Although he is an immunologist, Allen says he's equally as comfortable designing different types of animal models for human application–and therein lie his contributions.

"Engineers would show up at my door with this model and would detail what they think it does. Literally, they'd say, 'So, I developed this, and I think it can cure cancer. Can you show me how?' And we would work together to figure out what the device does and how it works."

Many times, Allen said, the engineers had developed a drug or unique delivery system, so they would work together to come up with ideas for the types of models in which they would want to test their components.

According to Allen, his background in drug discovery establishes his credibility in the role. "My experience gave me the chance to say, 'Okay, I've done this before. We can plug your drug, your device, into the same model and see what happens. Through word of mouth, I guess,

I began collaborating with engineering groups, and these partnerships are beginning to bear fruit. Last year, we had five or six publications on nanoparticle drug-delivery, different types of drugs targeting cancer."

In the eyes of Margie Lee, head of the Department of Biomedical Sciences and Pathobiology, Allen's work will flourish in the coming years. "In his short time here, Dr. Allen has become a leader in interdisciplinary research teams in which immunology is a cause, treatment, or diagnostic tool for disease," she said. "His approaches are contributing to innovative ways to diagnose and treat cancer, and his contributions are likely to improve lives."

HAPPENSTANCE BREEDS INVENTION

Surprisingly, Allen's collaboration with the IRE research team was born of happenstance: He was intrigued by a story shared by Sheryl Coutermarsh-Ott, then a doctor of veterinary medicine (DVM) student whose dog, Autumn, had been diagnosed with histiocytic sarcoma. In response, clinicians at the college offered experimental treatment.

A member of the clinical team was John Rossmeisl, Dr. and Mrs. Dorsey Taylor Mahin Professor of Neurology and Neurosurgery (pictured with Coutermarsh-Ott and Autumn on page 16), who was conducting research on IRE as part of Davalos' project.

Coutermarsh-Ott agreed to the treatment, later telling Allen that, within a few days, not only had Autumn's local tumor disappeared, but so had the metastatic lesions—the sources that often lead to death. "That got my attention," Allen said. "I was like, 'Wait, wait, wait. Tell me more about this. You did what?'"

Seven years later, after the treatment had effectively cured Autumn of that cancer, she died of old age. Meanwhile, Coutermarsh-Ott, who completed her DVM in 2011, joined Allen's research team as a doctoral student, earning her Ph.D. in 2017. She is now an assistant professor of anatomic pathology in the Department of Biomedical Sciences and Pathobiology.

"One of the ways that IRE works is through initiating or engaging the immune system, which falls into my wheelhouse: developing a novel model and studying the immune system components driving that clearance," Allen said.

The results have been promising. The team's latest paper discusses how local mammary tumors in mice begin to decrease and ultimately disappear when treated with IRE. The truly amazing finding, however, is that the metastatic tumors, such as those in the lungs, also decrease due to the unique way that the treatment stimulates the immune system.

Part of the process, Allen said, is mapping how the immune system becomes engaged and how researchers can make that process more reproducible in humans, especially those with cancers that are much more difficult to cure.

"What's nice about this treatment strategy is that it doesn't matter what type of cancer is being treated, even though it was tested with a model mimicking metastatic human breast cancer," Allen said. "And the treatment is non-thermal, which is significant when treating breast cancer, for example, because it's important that the breast not develop a lot of scarring that makes mammograms more difficult to read. In the end, it's a no-heat, less-scarring local treatment that also may be very effective at treating metastatic disease."

THE NEXT GENERATION OF INNOVATION

As the next generation of IRE, H-FIRE negates some of the technology's previously noted limitations, such as the need to administer a muscle relaxant before treatment.

"The side effects are far fewer, and the recovery time much less," Allen said. "To be honest, some of these treatments could even be done as an outpatient."

> **"H-FIRE is a method to treat cells with electricity that doesn't cause them to explode, but causes their membranes to open up."**
>
> - Irving Coy Allen, associate professor of inflammatory disease

In highly vexing cancers, such as breast cancer and pancreatic cancer, the tumors are immunosuppressive, which is problematic. H-FIRE, however, turns a tumor into one that's more inflammatory.

"We usually think of inflammation as bad, but it's actually good," Allen explained. "It's how our immune system gets educated, gets turned on. By making a tumor visible to the immune system, not only can the immune system attack the local tumor, it will find and attack all those little metastatic tumors that the surgeon can't even see, but that will otherwise show up weeks to years later. Although this is not necessarily everything, it's certainly a piece of the puzzle to get a better outcome."

Up next, Allen said, is applying the procedure to other cancers, including glioblastoma. To that end, Davalos and Rossmeisl have secured funding from a nearly $10 million National Institutes of Health grant. Their work will focus on applying such discoveries to both veterinary and human patients.

"We can cure any kind of cancer in mice and have gotten really good at doing that," Allen said. "Applying our findings to human care becomes the challenge."

MPH capstone projects showcase One Health research

Each year for their final assignment, the college's graduating master of public health (MPH) students prepare a capstone project that addresses a public health problem and approximates professional health practices, pulling together expertise they've been exposed to both within and outside the program.

The students also submit a 250-word abstract for a chance to present their research to an audience of fellow students, faculty, staff, family, and friends. Of the 26 graduating MPH students who submitted capstone abstracts, degree candidates Dylan Allanson, Shelby Borowski, Travis Oishi, and Kayla Septer were chosen by a faculty committee to share their work at the spring MPH Capstone Presentations on May 15 at the veterinary college.

Not only did the selected projects demonstrate the students' fluency in the college's transdisciplinary One Health approach, they also aligned with the MPH program's mission to train public health leaders who undertake work that promotes, protects, and ultimately improves the health of humans, animals, and the environment—in Appalachia and across the commonwealth, the nation, and the globe.

Top: MPH graduating students (from left) Shelby Borowski, Travis Oishi, Kayla Septer, and Dylan Allanson were selected to present their capstone projects.

"Research is key to unlocking new and better solutions ... to reverse the tide."

- Kimberly Horn

Helping Appalachians trapped by the opioid epidemic

Kimberly Horn, a research professor at the Fralin Biomedical Research Institute at VTC and in the college's Department of Population Health Sciences, is co-principal investigator on a grant to create the Opioid Research Consortium of Central Appalachia.

The grant from the Patient-Centered Outcomes Research Institute will help several universities, led by Virginia Tech, unite scientists, health care providers, and communities to confront the opioid problem in the epicenter of the epidemic.

"Everyone responds to the crisis according to their expertise, from first responders to treatment specialists to researchers, and there is so much we can learn from each other if we have better ways to share," said Horn. "Research is key to unlocking new and better solutions ... to reverse the tide."

Susan West Marmagas (fourth from left) with MPH students

Susan West Marmagas Public Health Scholarship

Honoring the memory of Susan West Marmagas, a professor and founding member of the Public Health Program, a new scholarship will support public health students who embody Marmagas' commitment to community well-being.

A Blacksburg native who joined the Virginia Tech faculty in 2008, Marmagas was a key player in establishing both the Public Health Program and the Center for Public Health Practice and Research. Along with teaching community health education courses and leading an interprofessionalism course on public health and medicine at the Virginia Tech Carilion School of Medicine, she served as the Public Health Program's assistant director and interim director before being named its director in 2017.

Throughout her career, Marmagas was an advocate for students and communities, most notably addressing the environmental factors affecting the health of women and children. She focused on engaging health professionals and scientists in protective public policy and conducting interdisciplinary research on human and environmental health in and beyond Central Appalachia.

To support the scholarship, which targets public health students with financial need, primarily from Appalachia and committed to improving health in rural Appalachian communities, go to publichealth.vt.edu/giving.html.

New undergraduate public health degree program welcomes first cohort

Virginia Tech's new B.S. in public health (BSPH), administered through the Public Health Program within the college's Department of Population Health Sciences, welcomed its first cohort in the fall. Housed within a renovated Wallace Hall, the BSPH program is positioned to evolve the college's overarching commitment to One Health.

Well-integrated with the veterinary medical and graduate degree programs, the college's newest degree adds to the Public Health Program's breadth of choices, which includes the graduate certificate in public health and the master of public health (MPH) as a standalone program, as part of the college's dual degree program, and as part of an accelerated undergraduate-to-MPH degree for Virginia Tech students.

The Public Health Program recognizes the dynamic interdependence among the health of humans, animals, and the environment. All students within the program work to examine contributing factors to controlling and preventing disease, in addition to the promotion, enhancement, and maintenance of health.

College receives $3.1 million NIH grant to advance flu vaccine work

Xiaoping Zhu

Edwin Remsberg

In the race to create a universal flu vaccine not dependent on predicting strains of flu, the Department of Veterinary Medicine at the University of Maryland College of Agriculture and Natural Resources has been awarded a $3.1 million grant from the National Institutes of Allergy and Infectious Diseases within the National Institutes of Health (NIH).

The funding comes on the heels of the department's previous work in this area, particularly the development of a technology for an intranasal vaccine that could be used in place of an injection into muscle tissue.

"The current vaccine for seasonal flu provided only about 20 to 30 percent protection in recent years, which is low," said the grant's principal investigator, Xiaoping Zhu, associate dean and department chair. "Many people complain that they get the vaccine, but still get infected. I am glad our college can be an important player in the effort to solve this issue."

FIGHTING the GOOD FIGHT

By Leslie Jernegan (M.F.A. '19)

Kathy Hosig's tenacity for combating diabetes and serving her community has been garnering attention—so much, in fact, that she found herself hopping up and dancing in response to the opportunities she has received, overjoyed that her professional dreams are being realized.

An associate professor in the Department of Population Health Sciences, Hosig also serves as director of the Virginia Tech Center of Public Health Practice and Research (CPHPR) and Extension Public Health Specialist and State Program Leader for Health. Her efforts in the prevention of childhood obesity and Type 2 diabetes address education and collaboration, with a particular focus on underserved populations.

Collaborating with faculty from the Department of Human Nutrition, Foods, and Exercise (HNFE) and the Department of Food Science and Technology in the College of Agriculture and Life Sciences, and with Sophie Wenzel, CPHPR associate director, Hosig has worked to construct an outreach program to fight the growing health threat—particularly for the state's rural communities, where residents suffer from the highest rates of chronic diseases associated with morbidity, mortality, and social and financial costs.

The group's project, "Master Food Volunteer continuing education programs: A model for volunteer capacity," led by master of public health graduate and HNFE doctoral student Kristina Jiles, supports the expansion of Virginia Cooperative Extension's (VCE) Master Food Volunteer program to serve the state's Balanced Living with Diabetes (BLD) program. With this expansion, more volunteer training was needed.

> "We're building their capacity, training them to work with the kids on their nutrition and physical activity. And that's pretty huge."
>
> - Kathy W. Hosig
> Associate professor in the Department of Population Health Sciences

Kathy Hosig

Thanks to the scholars' development of the continuing education program, volunteers have access to more information about diabetes, the BLD curriculum, best practices for food demonstrations, and principles of food safety. Team members believe that their process can serve as a prototype for creating continuing education programs for volunteers while increasing program capacity, volunteer retention, and statewide impact.

Another focus of Hosig's work with obesity and diabetes prevention is programming for youth. Piggybacking on a former National Institutes of Health grant for a community-based, Type 2 diabetes education program, Hosig was awarded a five-year $2.25 million grant from the U.S. Department of Agriculture to work with the same network of congregations from the Baptist General Convention of Virginia (BGCVA), which had requested programming to help their kids and grandkids prevent diabetes and heart disease.

The program also builds a research base to document the impact of VCE programs on public health issues facing local communities. Delivered in partnership with VCE and BGCVA, the nine-week program integrates goals of preventing and reducing childhood obesity through improved parenting practices and home environment. Over the course of the grant, Hosig expects at least 24 churches to participate, each with at least ten families with at least one child, age 6 through 11, taking part.

"Because we're working with families and young children, our work has the potential to change the trajectory of what happens with those families and young kids, which will go on for generations," Hosig said. "And we're working with the churches at the same time to change their health environment, so future families who come through those churches also will be affected because we're building their capacity, training them to work with the kids on their nutrition and physical activity. And that's pretty huge."

In October 2018, Hosig was awarded a $2.5 million grant from the Centers for Disease Control and Prevention to promote evidence-based policies, systems, and environment strategies for obesity prevention in Petersburg, Virginia. Collaborators include VCE, Virginia State University, the Crater Health District, and the Petersburg City Library's Healthy Living and Learning Center.

Making a case for Central Appalachia

An associate professor of environmental health in the Department of Population Health Sciences, Julia Gohlke is leading a transdisciplinary team of experts from colleges across Virginia Tech to examine birth outcomes in Central Appalachia and their association with environmental change between 1990 and 2015.

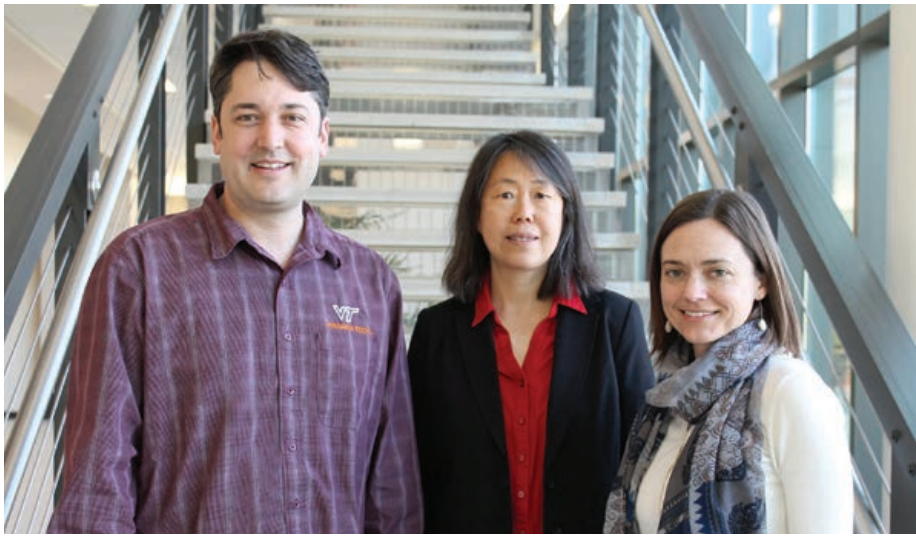
The team—Associate Professor of Geography Korine Kolivras; Charles P. Lunsford Professor of Civil and Environmental Engineering Linsey Marr; Associate Professor of Biological Systems Engineering Leigh-Anne Krometis; biological systems engineering student Ethan Smith; geography graduate student Molly McKnight; Assistant Professor of Statistics Shyam Ranganathan; and statistics doctoral student Christopher Grubb—is uniquely equipped to investigate associations between adverse birth outcomes and pregnant women living in air or watersheds of active surface mines.

Although previous studies have examined birth outcomes and associated them to the amount of mining within the county of birth, Gohlke says that these findings—while an appropriate first step—can be confounding. In response, the team is examining spatially and temporally resolved relationships using changes in surface mine boundaries and address-level birth records to examine the rate of adverse birth outcomes within the same geographical area during three periods: pre-mining, active mining, and post-mining.

The team is making the case that the rural landscape of Central Appalachia and its long history of resource extraction offer a unique opportunity to develop methods for examining health outcomes associated with resource extraction that may be applicable to rural areas across the U.S. and beyond.

A year into a two-year National Institutes of Health R21 grant, the team hopes its research will aid in defining the underpinnings of health inequities in Central Appalachia, ultimately leading to improvements in research, policy, and practice.

BOHEMIA to assess ivermectin MDA



Virginia Tech researchers (from left) Roger Schürch, Kang Xia, Cassidy Rist, and Douglas Pfeiffer (not pictured) were awarded a $1.4 million grant to undertake the economic and environmental impact assessments for BOHEMIA.

A multidisciplinary team of Virginia Tech researchers has been awarded a $1.4 million grant from Unitaid to undertake the economic and environmental impact assessments for BOHEMIA (Broad One Health Endectocide-based Malaria Intervention in Africa), a four-year project that will conduct two clinical trials in different eco-epidemiological settings in eastern and southern Africa: Tanzania and Mozambique.

For two consecutive years, ivermectin will be distributed in mass drug administration (MDA) campaigns to humans and livestock in order to kill the mosquitoes that transmit malaria, an effort that ultimately seeks to reduce the disease's transmission.

Leading the grant's economic impact assessment and serving as principal investigator is Cassidy Rist, assistant professor in the Department of Population Health Sciences. "We plan to take a One Health approach to ensure that the impact of ivermectin MDA across human, animal, and environmental health sectors is adequately captured and used to supplement the primary efficacy and safety outcomes of the trial in policy and wider implementation development."

At the conclusion of the team's work, Rist believes that this approach will provide a more detailed, One Health-based understanding of the full costs and benefits associated with ivermectin MDA in humans and livestock.

X.J. Meng awarded NIH grant renewal

University Distinguished Professor of Molecular Virology X.J. Meng—widely considered one of the world's leading scientists studying hepatitis E virus (HEV), porcine circovirus type 2, and porcine reproductive and respiratory syndrome virus—received a five-year National Institutes of Health RO1 grant totaling nearly $2 million. Continuously renewed three times since 2002, the grant will allow Meng and his lab team to strengthen their life-altering research.

Annually infecting more than 20 million people worldwide, according to the World Health Organization, HEV causes more than 44,000 deaths per year. Describing the virus as a public health pathogen, Meng said that a significant clinical problem has gained attention in recent years: the development of chronic hepatitis E among immunocompromised people, as well as the high mortality rate, reaching up to 25 percent, among infected pregnant women.

With his team of co-investigators, including Professor of Immunology and Associate Dean of Research and Graduate Studies Ansar Ahmed, Associate Professor of Theriogenology Sherri Clark-Deener, and Clinical Professor of Anatomic Pathology Tanya LeRoith, along with two new postdoctoral associates and a graduate student, Meng will examine the underlying mechanism of high mortality among pregnant women caused by HEV, for which there is not yet a widely available vaccine. The team aims to gain information from the project in order to devise effective strategies for the prevention and treatment of HEV-associated fulminant hepatitis failure during pregnancy.

"Dr. Meng continues to bring national and international recognition to our college for his groundbreaking research in zoonotic viral diseases," said Gregory B. Daniel, the college's interim dean. "As a physician working with animal diseases for the betterment of both, he epitomizes the One Health concept in both his training and his research."

> "As a physician working with animal diseases for the betterment of both, Dr. Meng epitomizes the One Health concept in both his training and his research."
>
> - Interim Dean Gregory B. Daniel

MAJOR RESEARCH GRANTS

Department of Biomedical Sciences and Pathobiology

December 2018 - July 2019

Delineate the Mechanisms of Hepatitis E Virus-associated Fulminant Hepatitis During Pregnancy
Principal Investigator (PI): X.J. Meng; Co-Investigators (CO-I): Ansar Ahmed, Sherrie Clark-Deener (Department of Large Animal Clinical Sciences, DLACS), Tanya LeRoith Award Total: $1,984,407 | Duration: 5 years | Funding Agency: National Institutes of Health (NIH)/National Institute of Allergy and Infectious Diseases (NIAID)

Determinants of Prolonged Zika Virus Shedding in Semen
PI: Nisha Duggal | Award Total: $432,037 | Duration: 2 years | Funding Agency: NIH

Development of Novel Porcine Models of Orthotopic Pancreatic Cancer for FUS and Histotripsy Tumor Ablation Applications
PI: Irving Coy Allen; Co-Principal Investigators (CO-PI)/CO-I: Eli Vlaisavljevich (College of Engineering), Kiho Lee (College of Agriculture and Life Sciences), Sherrie Clark-Deener (Department of Large Animal Clinical Sciences, DLACS), Sheryl Coutermarsh-Ott, Chris Byron (DLACS) | Award Total: $100,000 | Duration: 1 year | Funding Agency: Focused Ultrasound Foundation (FUS)

Employing Novel Porcine Models of Orthotopic Pancreatic Cancer to Evaluate Histotripsy Based Tumor Ablation Strategies
PI: Irving Coy Allen; CO-PI/CO-I: Eli Vlaisavljevich, Kiho Lee, Sherrie Clark-Deener, Sheryl Coutermarsh-Ott, Chris Byron | Award Total: $427,815 | Duration: 2 years | Funding Agency: R21 NIH: National institute of Biomedical Imaging and Bioengineering

Food Animal Residue Avoidance Databank: Virginia Component
PI: Jennifer L. Davis | Award Total: $150,000 | Duration: 1 year | Funding Agency: U.S. Department of Agriculture (USDA)/National Institute of Food and Agriculture (NIFA)

Meis1 Negatively Regulates Blood Flow in Hindlimb Ischemia
PI: Jia-Qiang He | Award Total: $483,000 | Duration: 3 years | Funding Agency: NIH/National Heart, Lung, and Blood Institute

Mobile, Real-time, Metagenomic, and Targeted Genotyping of Viruses in Swine and Poultry
PI: James Stanton (University of Georgia); CO-PI: Kevin Lahmers; CO-I: Tanya LeRoith, Thomas Cecere | Award Total: $233,447 | Duration: 3 years | Funding Agency: USDA/NIFA

Neural Migratory Deficits in Congenital Heart Disease
PI: Paul Morton | Award Total: $474,330 | Duration: 3 years | Funding Agency: NIH/National Institute of Neurological Disorders and Stroke (NINDS)

Novel Cellular and Molecular Regulation of Collateral Remodeling in Ischemic Stroke
PI: Michelle Theus; CO-I: Hehuang Xie, John Matson (College of Science) | Award Total: $1,733,852 | Duration: 5 years | Funding Agency: R01 NIH/NINDS

Prevalence, Genotyping, and Subtyping of Hepatitis E Virus in Market Weight Pigs in the United States
PI: X.J. Meng; CO-I and key participating faculty/staff: Harini Sooryanarain, C. Lynn Heffron, Tanja Opriessnig (University of Edinburgh) | Award Total: $119,643 | Duration: 1 year | Funding Agency: National Pork Board

Understanding Arbovirus Emergence and Changing the Approach to Intervention
PI: James Weger-Lucarelli | Award Total: $500,000 | Duration: 2 years | Funding Agency: Defense Advanced Research Projects Agency (flow-through Institut Pasteur)

Understanding the Mechanism of Neurological Sequelae Associated with Hepatitis E Virus Infection
CO-PI: X.J. Meng, Wen Li; CO-I and key participating faculty: Harini Sooryanarain, Tanya LeRoith, Sherrie Clark-Deener (DLACS) | Award Total: $424,683 | Duration: 2 years | Funding Agency: NIH/NIAID

SCRAPPY McDANIEL FIGHTS OFF CANCER

Experts in the latest advances in the diagnosis and treatment of cancer, the college's oncology clinicians are dedicated to advancing health care in both animals and humans.

by Mindy Quigley

Scrappy McDaniel is every bit as feisty and determined as his name suggests. Since he was first diagnosed with a sarcoma in his spleen more than six years ago, the 11-year-old miniature schnauzer has fought cancer three times.

Scrappy's owner, Jeremy McDaniel, a nurse practitioner from Hurricane, West Virginia, was already equipped with medical knowledge and so became Scrappy's staunchest ally during the pet's long treatment journey.

"With the first tumor, Scrappy did really well after the chemotherapy and basically returned back to his normal self," said McDaniel. "It was a slower-growing sarcoma, so we were hoping that surgical removal and follow-up chemotherapy would cure it."

The sarcoma, however, had other ideas. Three years after that initial surgery, the cancer cells popped up again, this time as two tumors in Scrappy's liver. Another round of surgery and chemotherapy beat the cancer back once again.

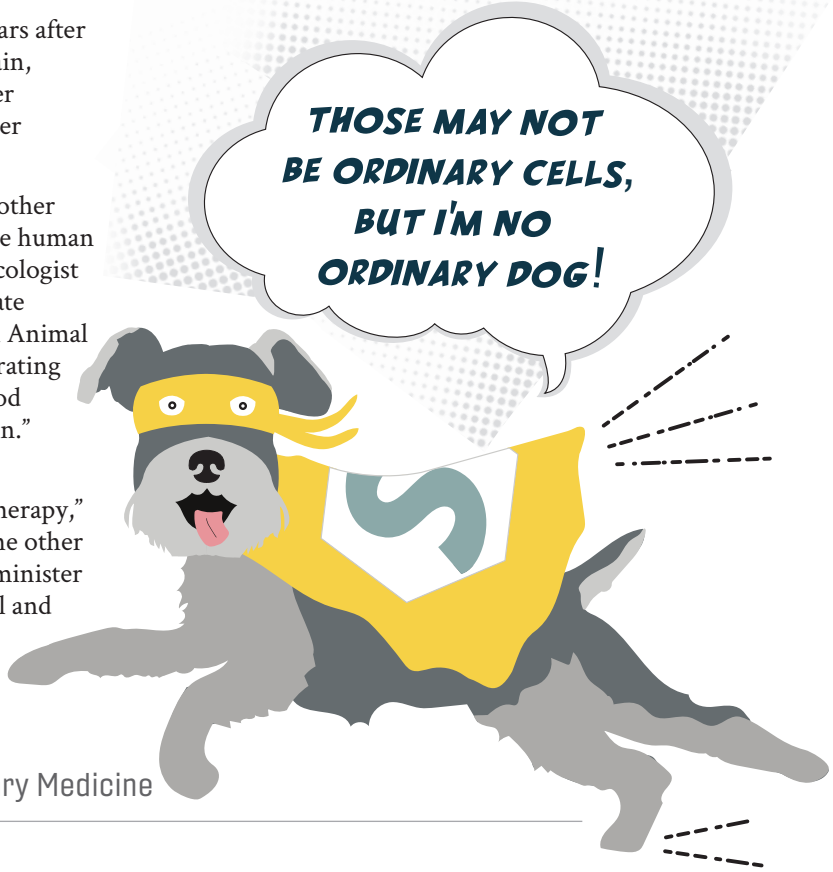
That time, however, doctors were armed with another cancer-fighting tool in the form of a new drug: the human chemotherapy agent oxaliplatin. According to oncologist and lead study investigator Shawna Klahn, associate professor of oncology in the Department of Small Animal Clinical Sciences, "Given Scrappy's history of tolerating chemotherapy well, we felt that he would be a good candidate for our Phase I clinical trial of oxaliplatin." (See "Stages of a Clinical Trial" on page 27).

"The drug is in widespread use in human chemotherapy," Klahn added, "and with the help of Scrappy and the other dogs in our study, we found that it was safe to administer to our canine patients." Following the clinical trial and the new round of treatment, Scrappy and his owner enjoyed two more cancer-free years.

Now, doctors suspect that the sarcoma is back, in the form of a nodule on Scrappy's lungs. For the time being, the tumor's size has remained stable, and McDaniel has elected watchful waiting. "Scrappy will have another CT scan soon to monitor another spot in his lungs," he said. "We've been lucky so far, so we're hopeful that the lung mass won't become a problem."

Klahn feels that there's reason to be hopeful. "Scrappy has beaten the odds time and again," she said. "With newer, better treatments coming available all the time, we hope cancer success stories like his will become more common."

With a new fight ahead of him, Scrappy will once again have a chance to live up to his name.



NEW WEAPONS FOR THE BATTLE

RADIATION

The newest weapon in our utility belt!

Although radiation therapy has long been part of the standard-of-care treatment options for many forms of human cancer, this therapy has never before been available for veterinary patients in Southwest Virginia.

Beginning in summer 2020, however, the veterinary college's Comparative Oncology Research Center (CORC) will offer radiation therapy for pets.

The center, which is currently under construction on the Virginia Tech Carilion Health Sciences and Technology Campus in Roanoke, Virginia, will have a state-of-the-art linear accelerator that can provide stereotactic radiation therapy with extreme precision, meeting criteria that certify it for human use.

The facility where the linear accelerator will be housed—nicknamed "The Vault"—will feature concrete walls with an average thickness of 6 feet, special shielding, and other elements designed to allow this powerful therapy to be delivered safely. More than 400 cubic yards of concrete were used for the floor and foundations of the treatment facility.

SAFETY MEASURES FOR CHEMOTHERAPY

It's commonly known that chemotherapy can be hard on a patient's body; in both humans and animals, the range of side effects can include gastrointestinal problems and fatigue. Less frequently discussed are the potential risks faced by those who administer these powerful agents.

As more veterinary practices have begun to offer chemotherapeutic treatment, Klahn felt that it was important to raise awareness about the potential risks to care providers. "Compared to the kind of high-dose exposure that cancer patients receive, research has shown that chronic low-level exposure to chemotherapy actually may have increased risk," she explained.

In response, not only did Klahn collaborate with six experts nationwide to draft a consensus statement for the American College of Veterinary Internal Medicine, she has been working closely with the CORC construction team to ensure that the chemotherapy delivery suite will meet stringent safety guidelines.

Even though the college's Veterinary Teaching Hospital already has safety guidelines in place, the purpose-built space at the Roanoke facility will advance the safety protocol, and Klahn is confident that CORC will be a national model for the safe handling and administration of chemotherapy. "Everything from the physical space to policies for training staff, storage and disposal of drugs, and the way we discharge pets will be rock-solid," she said.

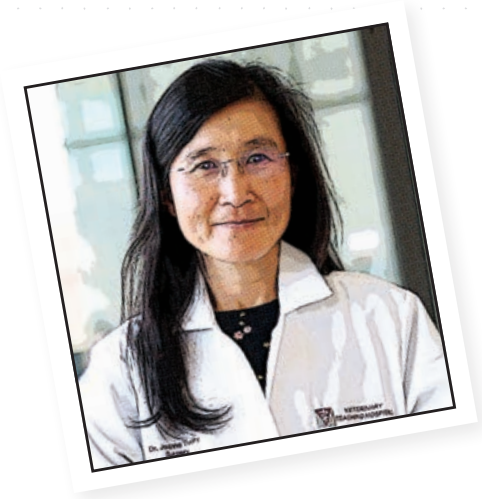
NOVEL DEVICES IN THE ANTI-CANCER ARSENAL

Virginia Tech researchers have been at the forefront of anti-cancer therapies, using a host of new devices that are designed to be more effective and cause fewer side effects.

In an ongoing clinical trial at the college, veterinarians have treated 14 dogs with High-Intensity Focused Ultrasound (HIFU), a non-invasive technology that uses ultrasound waves to target cancer. In humans, HIFU has been shown to activate the immune system, which can prompt the destruction of cancer cells. In turn, the veterinary trial is testing whether focused ultrasound will also activate the immune system in dogs with solid tumors, such as carcinomas and sarcomas.

In partnership with Virginia Tech's Department of Biomedical Engineering and Mechanics, veterinary oncologists have helped lead the development of high-frequency irreversible electroporation (H-FIRE), a technique that uses electrical pulses to kill cancer cells. Less invasive and disruptive than traditional surgical methods, H-FIRE has been used successfully in equine and canine studies across a variety of tumor types. Tech researchers plan to continue this work with a new round of funding next year. (Learn more about H-FIRE on page 16.)

VET MED'S NEWEST CANCER FIGHTERS



Two new faculty members have joined the veterinary college's cancer-fighting team. Joanne Tuohy, an oncologic surgeon with a background in integrative cancer care and translational research, was recruited to Virginia Tech to develop an oncology surgery service, which will move to CORC in 2020. Ilektra Athanasiadi, a radiation oncologist, will helm the new Varian Edge linear accelerator that will be housed at CORC. They join the college's current oncology team of more than a dozen specialist faculty, residents, interns, laboratory researchers, and technicians.

JOANNE TUOHY

Assistant Professor of Surgical Oncology

Special Skills

- Research expertise in extending survival time in dogs with osteosarcoma
- Ph.D. in comparative biomedical sciences (immunology)
- Bachelor's degree in Greek and Latin, magna cum laude

Toolkit

- Positron emission tomography-computed tomography (PET-CT), which provides sophisticated imaging that can help in diagnosis and surgical planning

Why She Fights

"Veterinary oncology has tremendous comparative, translational potential to benefit human cancer patients, as well as pets."

ILEKTRA ATHANASIADI

Assistant Professor of Radiation Oncology

Special Skills

- Studying radiation-induced brain injury to find drugs that can protect normal brain tissue during irradiation
- Palliative radiation therapy protocols to alleviate pain and maintain quality of life
- Stereotactic radiation therapy

Toolkit

- Linear accelerator

Why She Fights

"My mother, a veterinarian who owns a small animal practice in Greece, taught me that veterinary medicine is a devotion to and passion for animals, not just a job."

CORC ON THE HORIZON

Illustrative of the veterinary college's dedication to working across disciplines to achieve optimal health for people, animals, and the environment, the Comparative Oncology Research Center (CORC) will be a vital part of the Virginia Tech Carilion Health Sciences and Technology Campus, which is adjacent to the Virginia Tech Carilion School of Medicine in Roanoke.

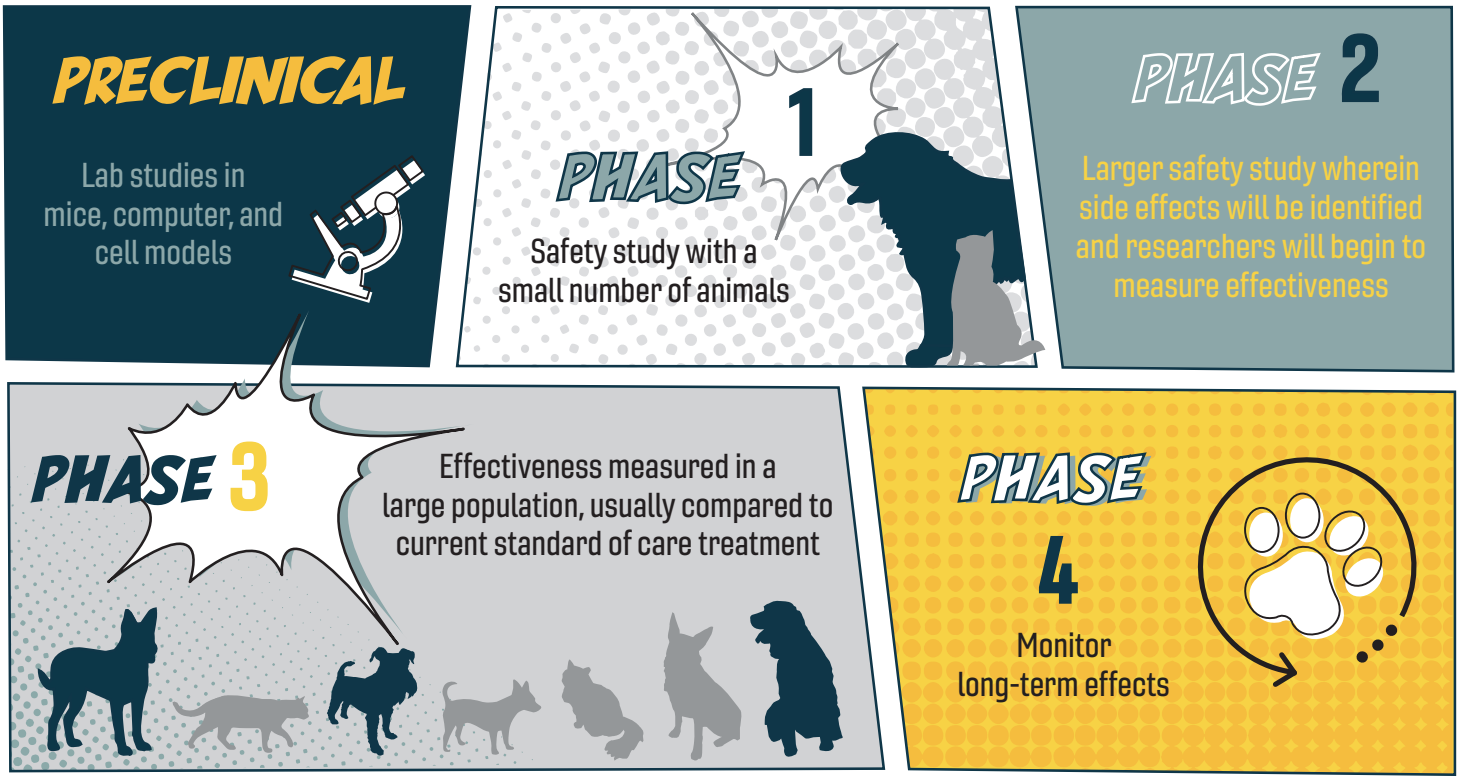
A state-of-the-art clinical and research hub, the new center stands to capitalize on a strikingly rare opportunity to integrate researchers across disciplines investigating animal and human health, conducting translational oncology research, and advancing comprehensive cancer care in pets and people alike.

> CORC presents the extremely exciting potential of becoming a renowned veterinary oncology center and a center for translational oncology research.

- Joanne Tuohy
Assistant professor of surgical oncology in the Department of Small Animal Clinical Sciences

STAGES OF A CLINICAL TRIAL

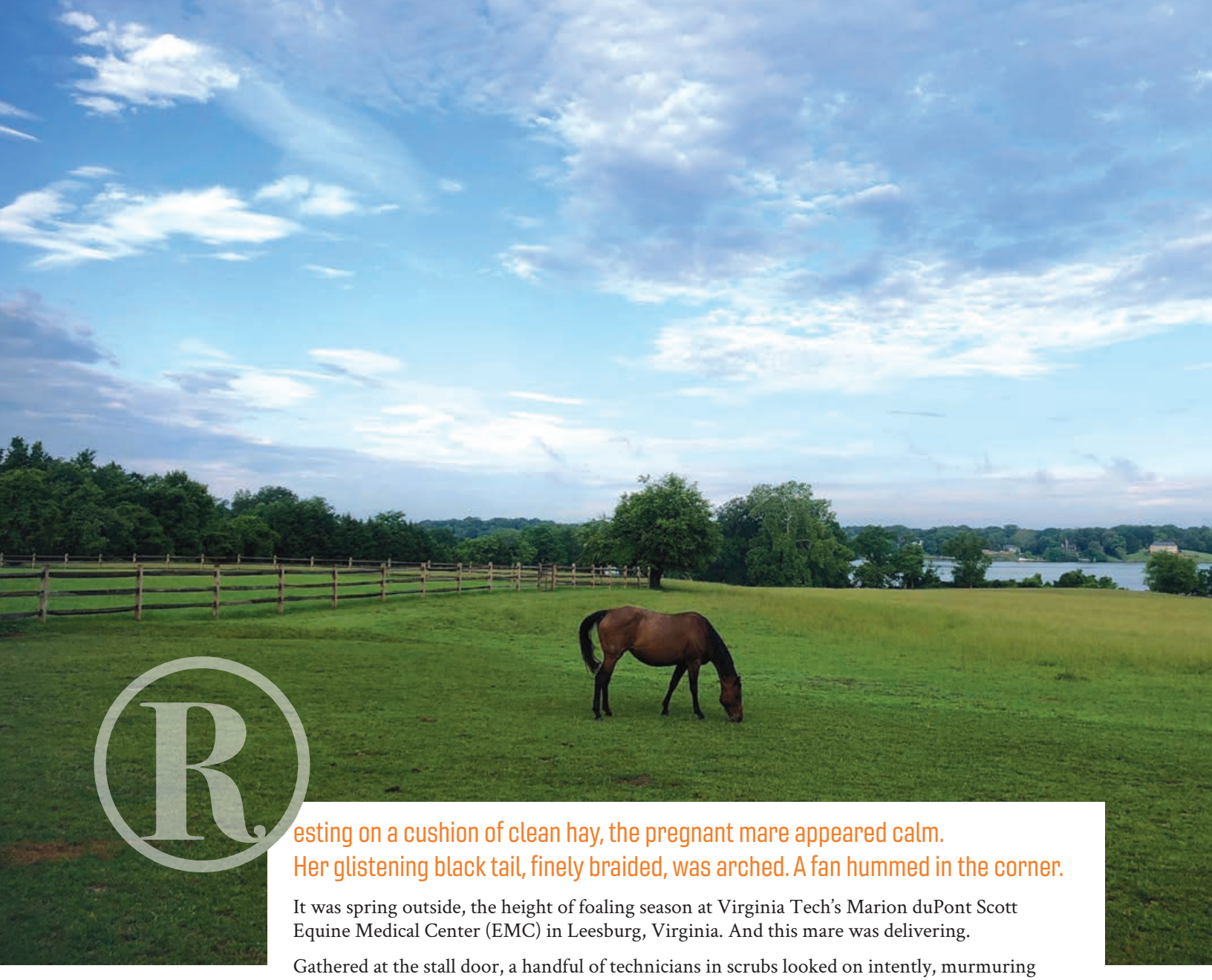
If a new therapy completes all phases of this lifecycle in veterinary medicine, the findings can provide good preclinical data to begin a Phase I human clinical trial.



What a difference a YEARLING makes

By Juliet Crichton

Mike Chirieleison



Resting on a cushion of clean hay, the pregnant mare appeared calm. Her glistening black tail, finely braided, was arched. A fan hummed in the corner.

It was spring outside, the height of foaling season at Virginia Tech's Marion duPont Scott Equine Medical Center (EMC) in Leesburg, Virginia. And this mare was delivering.

Gathered at the stall door, a handful of technicians in scrubs looked on intently, murmuring in wait.

In one graceful movement, the bay mare shifted her weight and rose. Her tail twitched, swishing from one side to the other, then settled.

A single brown leg, its tiny hoof sheaved in white, protruded from the mare's birth canal. The delivery wasn't progressing.

The attending veterinarian, Krista Estell, a clinical assistant professor of equine medicine, gave the word: "Can we get this baby out, kiddo?" The mare remained motionless, her head bowed, as four clinicians entered her stall, the metal door clanking behind them.

Estell walked directly to the mare's rear. Wearing blue surgical gloves, she planted her feet, bent her knees, and grasped the leg, straight as a string, with both hands. She pulled downward.

Next to her, equine medicine resident Megan Marchitello swiped the mare's tail aside and grabbed the foal's other leg, now visible. A technician stood at the mare's head, a gloved hand lightly on her muzzle.

Leaning back, Estell counted in rhythm as the two women tugged: "One, two, three; one, two, three; one, two, three." They squatted with each pull. "Down; one, two, three; down; one, two, three."

"C'mon, Momma," Estell chirped. The foal's hindquarters appeared. "Now we're cooking. Good job, Mommy."

After a few seconds, Estell gave the command: "Okay, I need someone to catch this foal. Get some towels ready."

At once, the stall swirled with activity. Two technicians grabbed towels; another three swung open the stall's door and entered. They circled the mare in a choreographed routine, then crouched around her, holding up towels as if offering gifts.

With a flourish, the foal burst out in one fluid thrust and was lowered to the hay. "Okay, let's sit baby up. Take Mommy a step forward," Estell said, directing the technician positioned at the mare's head.

The team surrounded the new foal and briskly cleared away the translucent birth pouch. With the towels, they formed a soft ledge along the foal's back, a cradle of support.

"Okay, everyone out," Estell said. The women moved in unison. "Good job," one of them whispered before she stepped through the stall's doorway.

His regal legs folded, the foal shook his head rapidly back and forth, and touched his nose to the hay, discovering its smell.

And then the mare leisurely turned and lowered her head. She sniffed her new foal from head to toe and back again, and began licking his flank, over and over.

His name would be Picasso, and he would become, as Estell later described him, "a strapping weanling."

THE RESCUE

Named Mona Lisa because a scar beside her lip makes her look as if she's smiling, the mare belongs to Amiya Veatch, a member of the EMC Advisory Council and the wife of Virginia Tech alumnus Jeffrey Veatch (finance '93), who currently serves on the university's board of visitors.

One morning at the couple's home overlooking the Potomac River in Alexandria, Virginia, Amiya was drinking coffee and watching the news. A story about some abandoned horses in southeastern Maryland caught her attention.

In March 2018, acting on a report received from operators of a news helicopter for a TV station in nearby Salisbury, the Wicomico County Sheriff's Office and the Wicomico County Animal Control discovered some 100 horses barely alive, roaming among dead horses in varying states of decay, on a 150-acre property on Maryland's Delmarva Peninsula.

A longtime rider and horse owner, Veatch immediately picked up the phone and called Wicomico County Animal Control. She was told that her help wasn't needed. About a month later, however, a neighbor forwarded her an email from a rescue organization and urged her to respond.

"I followed up," Veatch said, "but they were being a little protective … because they were getting so much media attention." Once the organization agreed to let her visit, she said that her instinct told her to take her horse trailer.

Opposite page: Mona Lisa grazing in the riverside pasture.

Shortly after arriving at the Veatch farm, (clockwise from bottom left) an emaciated Peanut outside the barn; pregnant Mona Lisa; Peanut and Mona Lisa in the paddock. Photos by Amiya Veatch.

Stacey Ahner

> "YOU'RE NEVER SURE WHAT YOU'RE GOING TO GET IN THESE RESCUE SITUATIONS, ESPECIALLY WHEN THE MARES HAVE BEEN NEGLECTED OR HAVE EXPERIENCED POOR NUTRITION."
>
> - Krista Estell
> Clinical assistant professor
> of equine medicine

Devon Rowland

Peanut, Picasso, and Thor

The group was caring for about 35 rescued horses. "I walked around and visited all of them," Veatch said. She selected a young chestnut first, whom she would name Peanut because of his size.

"Peanut was the most emaciated horse I had ever had contact with, and he was the only one that actually came up to me. He stood right next me, and he was so weak. I have small hands, but when I put my hand on his chest, it was wider than his chest," Veatch recalled. She turned and told the rescue group, "This one's coming with me."

She then visited several pregnant mares in a paddock. "In my mind," she said, "that was the only way I could get more horses in my two-horse trailer."

Among the Appaloosas was a lone bay mare. The first Appaloosa that Veatch selected—"probably the most emaciated who needed the most help"—refused to board the trailer for nearly an hour.

Veatch returned to the paddock and looked at the bay mare, who had the best conformation of the group. "I called her Momma at the time," she said. "It took us about 45 minutes to get her in the trailer. Peanut was so small, weak, and emaciated that we literally picked him up and just placed him beside her."

SANCTUARY ON THE RIVER

On their farm in Fort Washington, Maryland, across the river from their home, the Veatches already had two geldings in a beautifully renovated barn: august Denver's Davinci, Amiya's main mount; and an older palomino, Thor, with an impressive white mane. The pair freely roamed the waterfront pasture, accompanied by a lively barn dog, Dex, himself an adopted stray.

Like statesmen, the geldings accepted the newest members of the herd graciously. "It was so rewarding to see them thrive in the pasture, especially Peanut," Veatch said. "A day after he'd arrived, he collapsed,

and I thought he was dying. He was so weak that he could hardly walk. It was weeks before I saw him actually trot."

In the meantime, Veatch was eager for her rescued mare to deliver.

"I'll say I had a really big epiphany. At the time, my son was around 6 months old, so I was getting up in the middle of the night to check the baby monitor—and the horse monitor," Veatch said.

Not knowing when Mona Lisa would give birth, much less if the delivery would go smoothly, she simply couldn't justify her watch. "I just came to the realization that I was not prepared or equipped to deliver a foal in my barn," she explained. In short order, Mona Lisa was loaded onto the trailer and driven to Leesburg.

Veatch's epiphany was on the mark. Under EMC's watchful eye, Mona Lisa didn't foal for another three months.

QUALITY OF CARE

At EMC, Mona Lisa was enrolled in the center's Foaling Out Program. "It's a really great program that's specific to mares, both high-risk mares and normal, healthy mares whose owners just want a little extra TLC and monitoring," said Estell, an equine internal medicine specialist. "The mares stay here in the hospital, and we monitor them daily. Skilled technicians are present 24 hours a day to keep a close watch on them, particularly as the mares get closer to delivery."

Mona Lisa's primary caretakers were Estell and Elizabeth MacDonald, a clinical instructor of equine medicine, who were assisted by the center's residents and interns, as well as a new shift of technicians every eight hours.

Although all of the mares enrolled in the Foaling Out Program are attended primarily by EMC's internal medicine service, the center's theriogenology (reproduction and breeding) service is available for consultation, as is the surgery and anesthesia team, which can assist at a moment's notice if the mares need help during foaling.

Devon Rowland

Amiya Veatch

"There are definitely special considerations for mares that have no history available, like Mona Lisa," noted MacDonald. "She was very skittish and difficult to handle when she first arrived, probably because she wasn't used to being handled on a regular basis. So, bringing her here was helpful. We were able to work with her every day, get her to start to trust us a little bit more, and get her into a routine that was comfortable for her. She began to realize that things weren't as scary as she'd thought."

In the absence of a medical history, the clinicians carefully checked the mare's body condition and assessed if she was growing appropriately for her stage of gestation. In addition to administering the appropriate vaccines, the team ordered an ultrasound to evaluate if Mona Lisa's fetus and placenta were healthy.

And then the wait was on.

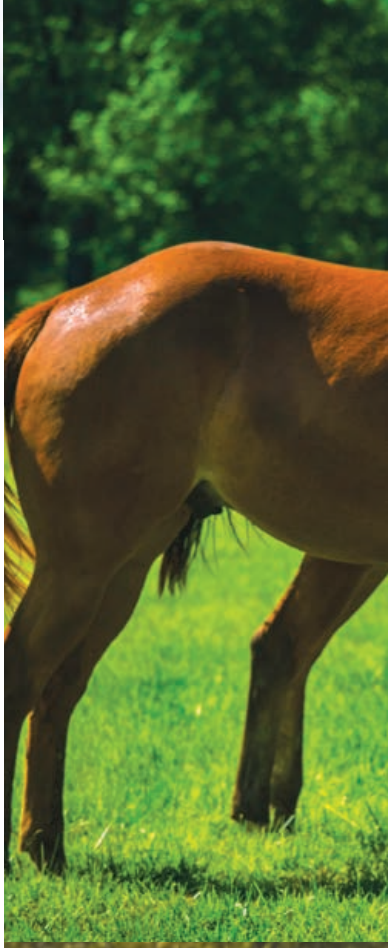
IT'S A BOY!

As soon as Mona Lisa started showing signs of labor, the entire team was mobilized. Because the mare did require assistance during the birth, her time in the Foaling Out Program proved to be indispensable.

"Her foaling went pretty well," Estell said, "but the foal got stuck about halfway out of the birth canal. Since we had established that relationship with her, we were able to help her deliver her foal."

"She trusted us to enter the stall and look after her foal," added MacDonald. "It was safer for her and safer for us to be able to assist her—and also safer for us to then go and evaluate the foal once it was on the ground."

Besides delivering, in Estell's assessment, a "nice, spunky, healthy colt," Mona Lisa tolerated the birth, along with the swarm of staff in her stall, like an old pro.



"You're never sure what you're going to get in these rescue situations," Estell said, "especially when the mares have been neglected or have experienced poor nutrition. But that foal hit the ground just full of fire and has grown to be a strapping weanling."

Mona Lisa also took to motherhood quite naturally, without incident.

"We never know if mares are going to enjoy being mothers or not, and she seemed to love her foal," MacDonald said. "She did so well that there was no need for any aftercare, except routine, close monitoring to make sure she started passing manure, she had an appetite, and she continued to drink water and also to ensure that she tolerated her foal and produced enough milk. She did all of those on her own."

Over the many weeks of Mona Lisa's stay and the additional weeks after the foal's birth, the EMC team kept Veatch apprised of each day's progress.

"Mona Lisa's owner trusted us," MacDonald said. "She loved and appreciated our daily phone calls and the text messages we would send intermittently with photos so that she could see how her mare was doing."

THE HAPPY, HEALTHY HERD

Mona Lisa and her foal remained at EMC for about six weeks, and Veatch first met the foal when he was 3 weeks old. In all the excitement, she admitted that naming him was a little difficult.

"In my mind, I just knew the foal would be an Appaloosa because the majority of the rescued horses were Appaloosas," Veatch said. "And for some reason, the name Picasso fit. But when he was born, he had only the tiniest white spot on his rump. Now, though, in true Appaloosa form, he has spots all over, so Picasso is fitting."

And Picasso is fitting in well with the herd at the riverside farm.

"It's four boys now, with the addition of Picasso," Veatch said. "Peanut is like his brother. Davinci plays the dad role, and there's Uncle Thor. And Mona, well, we call her Queen.

"It's fun watching Picasso; I feel like he brings a youthfulness. Peanut was a little quieter, more reserved with the older guys, but now Picasso and Peanut are constantly playing, running around. He has the elders to keep him in line, and it's wonderful for me as a horse person.

Thor and Picasso

Amiya Veatch with Peanut and Picasso

Krista Estell and Elizabeth MacDonald

VIDEO:

Go to **vetmed.vt.edu/yearling** to learn more about Amiya Veatch, her horses, and the EMC clinicians who cared for them.

I can watch the herd teaching him. It's great fun watching a horse mature and develop in a natural setting, so to speak, with large turnout and herd buddies to graze with through the days."

With the herd safe and healthy, Veatch said that her husband has asked about her plans for both Mona Lisa and Picasso.

"I just want to give them a beautiful life, really," she said. "When I first saw them in such horrid condition, I made up my mind that they would have a great life once I had rescued them. But I don't really have any plans. Mona is not able to be ridden, so she'll always just enjoy turnout and grooming. But Picasso, who knows? He may have a future ahead of him as far as competing, but I won't be putting much pressure on him. I like just watching the guys enjoy being horses out there in the pasture."

Not surprisingly, Veatch has more certainty about the health care her horses will receive. "It's reassuring to know that when I take my horses to EMC, they are receiving the best care available," she said. "Had I not gotten EMC involved with Mona's delivery, I am certain that things would not have turned out as well as they have for either Mona or Picasso."

Upon meeting Veatch at EMC, Estell remembered that she was struck by her generosity of spirit. "Not everyone is equipped or able to rescue a horse," she said, "and it takes a special person who will adopt a mare who's in foal, particularly when that foal might have problems and the mare is skittish."

It's precisely that generosity that prompts Veatch's memories—and adds a sense of perspective. "I have to constantly stop myself from thinking about all the other horses. I just try to put my attention on these three that I was able to help. I feel really fortunate that I was able to save these horses. For me, it's very rewarding. I tell my husband all the time, 'I promise they give me something back.'"

EMC'S VOLUNTEER COHORT

EMC has a robust Foal Care/Mare Watch Volunteer Program that runs from February through May. Not only are volunteers trained to sit with sick or premature foals in the center's neonatal ICU, they also watch normal and at-risk mares on closed-circuit monitors for signs of foaling and walk by the stall every half-hour.

"Our volunteer program is essential because managing pregnant mares or sick neonates can be very intense and we need extra sets of eyes to watch them. Our Foaling Out Program includes volunteers who come in and watch the mares when they're getting close to foaling. These volunteers watch through video cameras from afar so they're not disturbing the mares, but they alert the staff if they see anything amiss or if they have concerns. This practice is very helpful for the staff because it gives our technicians a peace of mind knowing that someone is keeping an eye on the mares at all times."

- Elizabeth MacDonald
Clinical instructor of equine medicine

According to the Office of the State's Attorney for Wicomico County, Maryland, the owner of the farm where the neglected horses were discovered was indicted on 16 felony counts of aggravated animal cruelty and 48 misdemeanor counts of animal abuse and neglect.

Devon Rowland, Mike Chirieleison, Shauna Ploeger, Emily Koth

AWARDS and ACCOLADES

Sponenberg earns multiple awards

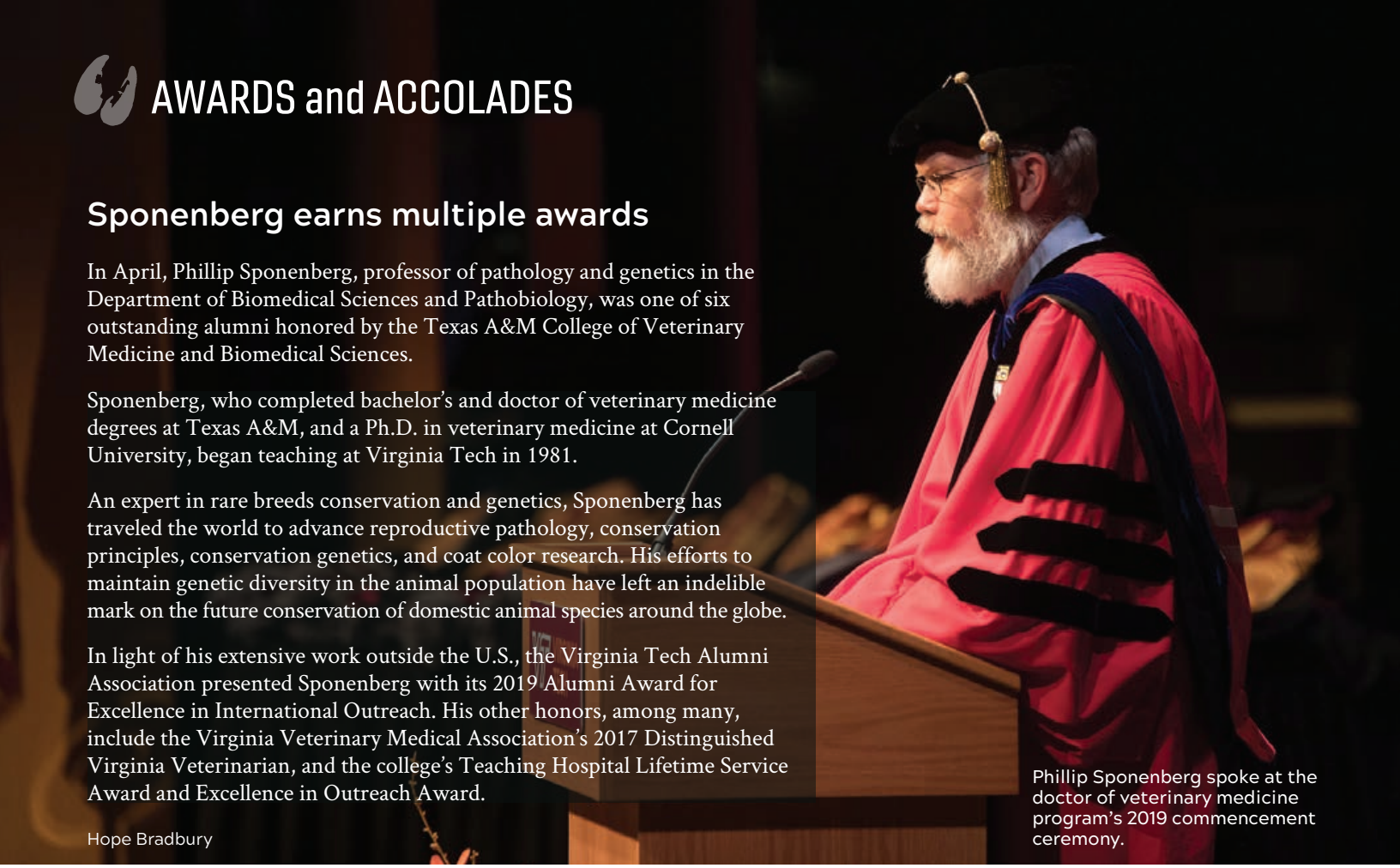
In April, Phillip Sponenberg, professor of pathology and genetics in the Department of Biomedical Sciences and Pathobiology, was one of six outstanding alumni honored by the Texas A&M College of Veterinary Medicine and Biomedical Sciences.

Sponenberg, who completed bachelor's and doctor of veterinary medicine degrees at Texas A&M, and a Ph.D. in veterinary medicine at Cornell University, began teaching at Virginia Tech in 1981.

An expert in rare breeds conservation and genetics, Sponenberg has traveled the world to advance reproductive pathology, conservation principles, conservation genetics, and coat color research. His efforts to maintain genetic diversity in the animal population have left an indelible mark on the future conservation of domestic animal species around the globe.

In light of his extensive work outside the U.S., the Virginia Tech Alumni Association presented Sponenberg with its 2019 Alumni Award for Excellence in International Outreach. His other honors, among many, include the Virginia Veterinary Medical Association's 2017 Distinguished Virginia Veterinarian, and the college's Teaching Hospital Lifetime Service Award and Excellence in Outreach Award.

Hope Bradbury



Phillip Sponenberg spoke at the doctor of veterinary medicine program's 2019 commencement ceremony.

Top academic distinction for Dean Emeritus Gerhardt Schurig

In April, Dean Emeritus Gerhardt Schurig returned to Chile, his home country, to receive Austral University of Chile's (UACh) highest academic distinction awarded to an external party.

The rank of doctor honoris causa is given to those who have contributed in some extraordinary way to the advancement of knowledge in the field of sciences or humanities, to the development of arts and letters, or, in general, to the exemplary promotion of high ethical and social values.

Schurig has long stewarded UACh's progress, including the 2009 establishment of its Center for Science and Global Sustainability, an office that promotes study abroad and research collaborations between the Chilean university and Virginia Tech.

Dean Emeritus Gerhardt Schurig (left) with his wife, Ginger Dakin, and UACh Rector Óscar Galindo Villarroel

SINK RECEIVES PRESIDENT'S AWARD FOR EXCELLENCE

Carolyn Sink, laboratory supervisor for the college's Animal Laboratory Services, was recognized with the President's Award for Excellence. She was commended for her deep knowledge of laboratory operations, commitment to empowering colleagues and students to develop personally and professionally, and unparalleled work ethic.

The President's Award for Excellence is presented annually to up to five Virginia Tech employees who have made extraordinary contributions by consistent excellence in the performance of their job or a single incident, contribution, or heroic act.

Carolyn Sink with Virginia Tech President Tim Sands

Faculty promotions

Congratulations to the 11 college faculty members whose promotions and tenure were approved by the Virginia Tech Board of Visitors on June 3.

Coy Allen, associate professor with tenure
Department of Biomedical Sciences and Pathobiology

Sabrina Barry, clinical associate professor
Department of Small Animal Clinical Sciences

Andrea Bertke, associate professor with tenure
Department of Population Health Sciences

James Brown, clinical associate professor
Department of Large Animal Clinical Sciences, Equine Medical Center

Clay Caswell, associate professor with tenure
Department of Biomedical Sciences and Pathobiology

Thomas Cecere, clinical associate professor
Department of Biomedical Sciences and Pathobiology

Linda Dahlgren, professor
Department of Large Animal Clinical Sciences

Rebecca Funk, clinical associate professor
Department of Large Animal Clinical Sciences

Harold McKenzie, professor
Department of Large Animal Clinical Sciences

Kenneth Oestreich, associate professor with tenure
Department of Biomedical Sciences and Pathobiology, Virginia Tech Carilion Research Institute

Lijuan Yuan, professor
Department of Biomedical Sciences and Pathobiology

MOORE CONFERRED EMERITUS TITLE

Associate Professor of Veterinary Medicine David Moore, who joined the college in 1985, has been conferred the title of associate professor emeritus by the Virginia Tech Board of Visitors. A prolific researcher, writer, and lecturer, Moore served as the university's associate vice president for research compliance from 2000 to 2017, and its attending veterinarian from 1985 to 2001.

The emeritus title may be conferred on retired professors, associate professors, and administrative officers who are specially recommended to the board by Virginia Tech President Tim Sands in recognition of exemplary service to the university.

Associate Professor Emeritus David Moore

Outstanding students and faculty honored during Virginia Tech Graduate Education Week

Two veterinary college students and a faculty member were among those receiving recognition for outstanding service, teaching, research, academic performance, and mentoring at Virginia Tech Graduate School's annual awards dinner held during Graduate Education Week. Doctoral and master's degree students were nominated for the awards by their colleges, while faculty mentors were nominated by graduate students and faculty across the university.

KRISTIN EDEN (biochemistry '06, DVM '10, Ph.D. '18) was named the college's Outstanding Doctoral Degree Student. A veterinary pathologist whose research focuses on translational inflammation and cancer biology, Eden is an assistant professor in the Department of Basic Science Education at the Virginia Tech Carilion School of Medicine (VTCSOM) in Roanoke, Virginia.

At VTCSOM, Eden is continuing to examine inflammatory bowel disease and colorectal cancer, the focus of her doctoral work in the laboratory of Irving Coy Allen, associate professor of inflammatory disease in the veterinary college's Department of Biomedical Sciences and Pathobiology.

A diplomate of the American College of Veterinary Pathologists, Eden was the first author or co-author on 11 publications as a graduate student and frequently delivered podium talks and posters at local, regional, national, and international symposia.

SARAH KHATIBZADEH (M.S. '19), who completed a master's degree in the Department of Biomedical and Veterinary Sciences and a large animal surgery residency in the Veterinary Teaching Hospital, was recognized as the college's Outstanding Master's Degree Student.

During a demanding clinical residency that required her to be on call for emergencies 50 percent of the time, Khatibzadeh provided some 39 weeks of daytime clinic coverage, participated in various rounds and journal clubs, and cycled through the residency's requisite specialty service rotations.

The primary investigator on two research projects, she also played an integral role in writing several grant proposals for a clinical research project investigating the use of serum amyloid A levels for the diagnosis of septic arthritis in horses.

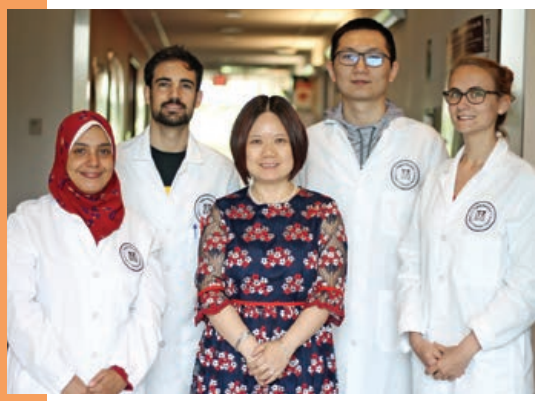
XIN LUO, an associate professor of immunology in the Department of Biomedical Sciences and Pathobiology, was named the college's Outstanding Faculty Mentor.

In the Luo Lab, "green" graduate students are molded into full-fledged scientists—and Luo's sure hand has guided those facing adversity and unanticipated obstacles in their personal or academic life. Though immeasurable, her support has been instrumental to her students' success as researchers.

Regularly sought-after by prominent institutions, multiple students under Luo's mentorship have been first authors of research published in high-impact journals, and many have presented their work at national professional meetings.

"I am lucky," said Luo, "that all of my students are highly motivated, which makes the mentoring a lot easier."

Brooke Nelson



Top: The college's Outstanding Doctoral Student Kristin Eden. **Middle:** Outstanding Master's Degree Student Sarah Khatibzadeh. **Bottom:** The Luo Lab (from left): Leila Abdelhamid, Xavier Cabana Puig, Xin Luo, Jiangdi Mao, and Brianna Swartwout.

> "I am lucky that all of my students are highly motivated, which makes the mentoring a lot easier."
>
> - Xin Luo, associate professor of immunology

GRADUATE STUDENT ASSOCIATION RESEARCH SYMPOSIUM AWARD WINNERS

JAMES BUDNICK, silver award, oral presentation
Mentor: Clay Caswell, associate professor of bacteriology

CATHERINE COWAN, gold award, oral presentation
Mentor: Ansar Ahmed, professor of immunology

MICHAEL EDWARDS, bronze award, oral presentation
Mentor: Ansar Ahmed, professor of immunology

ALISSA HENDRICKS, gold award, oral presentation
Mentor: Coy Allen, associate professor of inflammatory disease

HOLLY MORRISON, silver award, short presentation
Mentor: Coy Allen, associate professor of inflammatory disease

DVM valedictorian Majette receives Talbot Award

In recognition of her academic achievement, valedictorian Elizabeth "Libby" Majette (DVM '19) was presented with the Richard B. Talbot Award—named for the college's founding dean—at the DVM program's 36th Commencement in May.

Before entering the veterinary program, Majette worked in theater as a props master for six years. In her free time, she began volunteering at a facility that offered affordable small-animal surgery, and a career switch was ignited.

A graduate of the small animal track, Majette has moved to New Jersey to work for HousePaws Mobile Veterinary Service, a companion animal practice that, along with its in-house facility for appointments and surgeries, has a fleet of veterinarians who make house calls.

Oliver named Outstanding Graduating Student

"It almost seemed too obvious," said Andrea Oliver (DVM '19) of her decision to be an equine veterinarian. "Oh, horse girl goes for being a horse vet. What a boring story."

The college's Outstanding Graduating Student—and a 2015 graduate of Virginia Tech's College of Agriculture and Life Sciences—Oliver moves next into a yearlong internship at Rood and Riddle Equine Hospital in Lexington, Kentucky.

Farther down the road, she hopes to attain board certification with the American College of Veterinary Sports Medicine and Rehabilitation and to pursue doctoral work in equine biomechanics, an interest fueled in Professor of Large Animal Surgery Linda Dahlgren's musculoskeletal lab.

Christina Franusich

Message from the Alumni Society president

Hello, friends,

Reflecting back on the past six years of my service on the Alumni Society Board of Directors, I am filled with a profound sense of pride in our alumni. We have some of the most impressive, inspiring, and innovative individuals in our great profession, and it truly has been an honor to attend events and to meet many of you. Our college is an elite program with elite individuals. This fact is undeniable.

As my time winds down as president of the board, I wish to challenge everyone to do the following: Get out of your daily routine, go to some local veterinary medical association meetings, go to the college-hosted continuing education and reunion events, take on a student for the summer, or have a student shadow you. It is quite striking what you can learn from each of these interactions and how you will be uplifted.

If not for Lynn Blevins, the college's former director of alumni relations who showed up at my practice out of the blue six years ago, I would not have served the college in this capacity.

I have had the honor of hosting several students over the last few years at our practice, and each one has helped remind me of how fortunate we all are to be in this profession. If each of us can give back in a small way, we will all be in a better place.

When I joined the board, my goal was to get out and meet people and learn what they would like to gain from an alumni group and the college as a whole. The resounding answer was camaraderie. With that in mind, I ask that you update your contact information with the college so that we can better disseminate the college's latest news and happenings to you all.

Thank you for the opportunity, and keep being awesome!

Adam Henderson (DVM '11)
Alumni Society president

SUE VANDEWOUDE '86 ELECTED TO NAS

The first recipient of the college's Lifetime Achievement Alumni Award in 2015, Susan VandeWoude (DVM '86) was elected to the National Academy of Sciences, one of the highest honors for scientists in recognition of distinguished and continuing achievements in original research.

VandeWoude, associate dean for research in the College of Veterinary Medicine and Biomedical Sciences at Colorado State University, studies conditions affecting cats, both large and small. Her research is funded by the National Science Foundation, National Institutes of Health, and Morris Animal Foundation.

KEVIN BRIGHTBILL '03 NAMED PENNSYLVANIA STATE VETERINARIAN

Appointed state veterinarian by the Pennsylvania Department of Agriculture, Kevin Brightbill (DVM '03) will direct the Bureau of Animal Health and Diagnostic Services and lead public-private partnerships, including the Pennsylvania One Health Task Force. The bureau's assistant director since 2016, he played a key role in emergency response and preparedness for the state's poultry, dairy, pork, beef, and deer farming industries.

CYNTHIA COURTNEY '11 EARNS NEXT GENERATION AWARD

In recognition of her work to improve the well-being of veterinary professionals, Missouri veterinarian Cynthia Courtney (DVM '11) received Hill's Pet Nutrition Next Generation Veterinary Award in July. Courtney practices at Grandview Animal Hospital, south of Kansas City.

DONNA MCWILLIAMS '02 ALUMNA RECOGNIZED BY FVMA

In May, the Florida Veterinary Medical Association (FVMA) presented Donna McWilliams (DVM '02) with its Gold Star Award, honoring member veterinarians who go above and beyond to care for patients and who exemplify dedication and compassion in their veterinary practice. Owner of My Pet's Animal Hospital in Central Florida, McWilliams founded the K-9 Care Program, which provides medical care to retired police dogs.

BILL CROUSHORE '97 PUBLISHES COLLECTION

Bill Croushore (DVM '97) has spent the past 22 years working alongside Pennsylvania farmers–and has written a weekly column for the Daily American since 2009. Those columns, along with vet wisdom, are the centerpiece of his recently published book, "The View from the Back 40."

Bill Tyrrell ’92 and Claire Simeone ’11 named college’s distinguished alumni award winners

Though nearly two decades separate their graduations from the veterinary college, alumni William “Bill” Tyrrell (DVM ’92) and Claire Simeone (DVM ’11), recipients of the college’s Lifetime Achievement Alumni Award and Outstanding Recent Alumni Award, respectively, have more in common than animal care.

In their careers, each has nurtured a deep commitment to service, working locally, nationally, and globally to enhance the well-being of humans, animals, and the environment.

As the recipient of the college’s Lifetime Achievement Alumni Award, veterinary cardiologist Bill Tyrrell is recognized for his sustained contributions to veterinary medicine and record of service to his profession, his alma mater, his clients, and his patients.

Co-owner of CVCA: Cardiac Care for Pets (formerly Chesapeake Veterinary Cardiology Associates) and a diplomate in the American College of Veterinary Internal Medicine since 1999, Tyrrell first became interested in cardiology and echocardiography while in small animal practice after graduation. Over the years, his commitment to client education during pets’ examination and treatment has become a hallmark of his cardiology practice.

Recognized in 2003 with the Outstanding Young Alumnus Award from the Virginia Tech Alumni Association, Tyrrell has been active in the Virginia Veterinary Medical Association’s mentor workshop since its inception nearly 20 years ago. The association’s president in 2010, he also has served on its board of directors for more than a decade.

In other leadership roles, Tyrrell is a past president of the Northern Virginia Veterinary Medical Association and the VMCVM Alumni Society; the chair of the American College of Veterinary Internal Medicine’s National Marketing and Communications Committee and a member of its Board of Regents; chairperson for the inaugural Potomac Regional Veterinary Conference and a member of its planning committee in subsequent years; and VMCVM’s first representative to sit on the Virginia Tech Alumni Association Board of Directors.

Alongside his cardiology practice and research, recently examining giant breed cardiomyopathy and its detection in the Irish Wolfhound and the Great Dane, Tyrrell has lectured across the country. He was selected to be Virginia’s alternate delegate to the American Veterinary Medical Association’s House of Delegates and has long been a committee member of the Veterinary Memorial Fund, which supports owners grieving the loss of their pets and funds scientific investigations aimed at improving health care for future generations.

To acknowledge his role in bringing recognition to veterinary medicine in Virginia, Tyrrell was awarded the Distinguished Veterinarian of the Year Award by the Virginia Veterinary Medical Association in 2015.

Long an advocate for conservation and wildlife health, Maryland native Claire Simeone studied in the college’s public and corporate veterinary medicine track, which prepares graduates for careers outside private clinical practice. She secured a joint internship between SeaWorld San Diego and San Diego’s National Marine Mammal Foundation, as well as work with the U.S. Navy Marine Program and the California Condor Recovery Program.

In 2013, Simeone joined the Marine Mammal Center, the world’s largest nonprofit veterinary research hospital and educational center dedicated to the rescue and rehabilitation of ill and injured marine mammals. As a conservation medicine veterinarian, she worked jointly with the National Oceanic and Atmospheric Administration and the National Marine Fisheries Service, as well as founded the center’s International Veterinary In-Residence Program, which brings mammal veterinarians worldwide to the center for training in marine mammal rehabilitation, medicine, and science.

Named director of the Marine Mammal Center’s Ke Kai Ola Hawaiian Monk Seal Hospital in 2018, Simeone leads endangered-species conservation programs, training, and community engagement programs at the center—and continues to hit milestones.

The first veterinarian selected as a TED Fellow, Simeone has served as a lead advisor for SR3, the Sealife Response, Rehab, and Research collective, and she helped develop the Marine Mammal Health M.A.P., a national marine mammal health data repository and visualization tool.

Focusing on the connections among humans, animals, and the ocean, Simeone’s work is necessarily expansive. She coined the term “zoognosis” to define the transfer of knowledge between humans and animals, highlighting that understanding human-animal connections can advance health.

On the heels of her service and accomplishments, Simeone was also named this year’s recipient of the Outstanding Recent Alumni Award from the Virginia Tech Alumni Association.

LEARN MORE

Read more about Simeone in Virginia Tech Magazine’s 2018 story, “From saving seals to talking TED,” at www.vtmag.vt.edu/winter18/Seals_to_TED.html

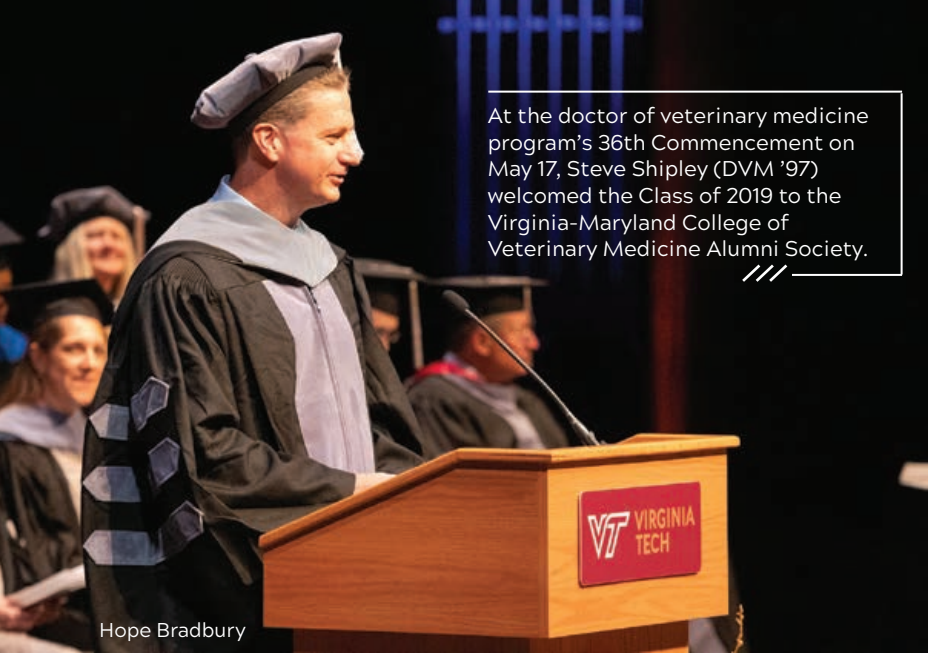
Welcoming our newest alumni!

On May 16, our newest veterinarians were welcomed into the profession by the presidents of the veterinary medical associations of Virginia, Maryland, and West Virginia. The event, held in the Vet Med Grove, was sponsored by Covetrus.

Top: Virginia Veterinary Medical Association (VVMA) President Kelly Gottschalk speaking to the 2019 graduating class.

Bottom: (From left) Maryland Veterinary Medical Association President Elizabeth Cottrell, VVMA President Kelly Gottschalk, VVMA Vice President and Veterinary Teaching Hospital Director Terry Swecker, VVMA past president Jason Bollenbeck, and West Virginia Veterinary Medical Association President George Seiler.

Where is the DVM CLASS of 2019 going?



At the doctor of veterinary medicine program's 36th Commencement on May 17, Steve Shipley (DVM '97) welcomed the Class of 2019 to the Virginia-Maryland College of Veterinary Medicine Alumni Society.

Hope Bradbury

> "Alumni of this school and elsewhere are a professional network, and as you progress in your careers, you will learn just how important that is."
>
> - Steve Shipley (DVM '97), former VMCVM Alumni Society board member

Bringing it together

2019 CE Conference and Alumni Reunion Weekend

By Cassie Wagner (DVM '13, MPH '13) Director of alumni and referring practitioner relations

The college has been strategizing ways to better engage our alumni, and we were thrilled to launch a new tradition this year. For the first time, our Alumni Reunion Weekend was held in conjunction with a continuing education (CE) conference featuring 12 distinguished DVM alumni speakers.

On Friday, Aug. 16, college alumni from all years and programs (with special focus on class years '84, '89, '99, '04, '09, and '14) were welcomed back to Blacksburg for an all-day CE conference with local referring practitioners. A total of 13 credits of small/large animal and public health topics were presented by our alumni speakers and two longtime college faculty members. Then, we headed to the Vet Med Grove for barbecue, adult beverages, and a band that stirred up the party!

Reunion-specific events on Saturday, Aug. 17, included tours of the college led by student ambassadors, a curriculum update from Jacque Pelzer and the Office of Academic Affairs, and a deans' panel with Dean Emeritus Peter Eyre, Dean Emeritus Gerhardt Schurig, former dean and current Virginia Tech Executive Vice President and Provost Cyril Clarke, and Interim Dean Gregory B. Daniel.

Also, for the first time at an alumni reunion, our distinguished alumni awards were presented during a special lunchtime ceremony. This year's Lifetime Achievement Alumni Award winner Bill Tyrrell (DVM '92) and Outstanding Recent Alumni Award winner Claire Simeone (DVM '11) spoke at Friday's CE conference. (Learn more about our alumni award recipients on page 41.)

Following the midday event, the afternoon and evening were open for individual class gatherings, activities, and dinners.

We were excited about this new tradition and the opportunity to highlight, recognize, and celebrate our outstanding alumni. Our greatest asset, they are a direct reflection of the successes of our college's programs and services.

Thank you for your ongoing connection to the college. We were so happy to see you during this celebratory weekend.

Alumni Reunion Weekend attendees

UPCOMING ALUMNI EVENTS

Oct. 25 – Potomac Regional Veterinary Conference, VMCVM alumni reception
JJ's Sports Lounge, The Greenbrier, *White Sulphur Springs, West Virginia*

Nov. 10 – American College of Veterinary Pathologists, VMCVM alumni reception
San Antonio, Texas

Dec. 9 – American Association of Equine Practitioners Conference
VMCVM alumni reception, *Denver, Colorado*

For more details about upcoming alumni events, go to www.vetmed.vt.edu/alumni/events.asp

Virginia-Maryland College of Veterinary Medicine

VA-MD College of Veterinary Medicine
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Dual DVM/MPH graduates and identical twins Ann Carpenter and Lydia Carpenter celebrate following the doctor of veterinary medicine program's 36th Commencement on May 17 at the Moss Arts Center. Photo by Hope Bradbury.