

SPRING/SUMMER 2021

# TRACKS

MAGAZINE

FRIENDS  
of FLEECE  
FLOCK  
TOGETHER



**Virginia-Maryland**  
College of **Veterinary Medicine**



YEARS OF RUNNING TOGETHER



## MESSAGE FROM THE DEAN

### Reflection and celebration

Reflecting on my first year leading the Virginia-Maryland College of Veterinary Medicine, I am vividly reminded of the notable accomplishments during the past challenging year as students learned and progressed; novel research was proposed, completed, and published; animals received compassionate and skilled medical care; and communities were assisted in their pursuit of health and well-being. Because of the diligent and thoughtful efforts of our community members, we are progressing in achieving our goals.

Our college has a rich history of persevering and advancing during challenging times. After celebrating our 38th class of graduates in the spring and welcoming the Class of 2025 this fall, we will join the university community in marking the beginning of Virginia Tech's yearlong sesquicentennial celebration. In September, we will welcome alumni, other practitioners, and friends for a special Connect 2021 weekend. (See page 27.) Please stay tuned for forthcoming details about these opportunities to inspire, learn, and network while celebrating the college's first 40 years of excellence and bold plans for the future.

Since launching the college's 2020-2026 Strategic Plan in the fall, we have achieved many milestones in our pursuit of continued improvement and sustained impact. These actions include increasing scholarship funds to defray educational costs of underrepresented minority students and advancing the college's wellness initiatives and programs. Steady progress is also being made toward hiring a director of diversity, equity, and inclusion—who will be a member of the college's executive and operations boards—to coordinate advancement of the college's diversity goals.

Many individuals at the college are currently preparing for the American Veterinary Medical Association's Council on Education accreditation site visit to the college in October. This process entails a comprehensive, detailed examination and assessment of the college's programs and aspirations, which includes a self-study conducted by the college and a rigorous inspection and evaluation of the college's facilities, budgets, operations, and policies.

We remain immensely grateful to our donors, alumni, and friends whose generous support enables our ongoing work. On Virginia Tech's Giving Day in late February, 244 donors gave nearly \$645,000 over the course of 24 hours to benefit the college. (See page 24.) Because of this increased engagement, interest, and investment in the college, progress is being made on a new indoor arena at the Equine Medical Center in Leesburg, Virginia, as well as a new equine lameness evaluation arena at the Veterinary Teaching Hospital in Blacksburg. In these pages, you will learn about some of our friends who are making

a significant impact to advance the well-being and success of our students and programs.

After embarking this past fall on a collective, deliberative process that engaged a broad group of college stakeholders to consider changing the name of the college to more clearly communicate the role and impact of our existing Public Health Program, a decision has been made to affirm Virginia-Maryland College of Veterinary Medicine as the name of our college. We are excited to proudly pursue continued growth and recognition of our outstanding contributions in veterinary medicine, biomedical sciences, and public health under our existing name.

I am so very thankful for each member of and partner to our college community who has worked carefully, thoughtfully, and relentlessly to advance our collective mission in the midst of recent challenges. Thanks for what you have done and are doing; it makes all the difference.



Dean M. Daniel Givens

## IN THIS ISSUE



14

### FRIENDS OF FLEECE FLOCK TOGETHER

Bernie and Lynn Cosell's Fantasy Farm in Pearisburg, Virginia—home to a flock of some 100 merino sheep—has long been a destination for hands-on learning for the veterinary college's DVM students.

### MESSAGE FROM THE DEAN

2 Reflection and celebration

### RESEARCH

4 Innovative research collegewide aims to advance wellness

### AROUND THE COLLEGE

8 The college's faculty, staff, students, and alumni share their expertise for the public good

### GIVING TO THE COLLEGE

24 An impressive show of support on Giving Day

25 Industry grant helps improve pets' quality of life

**ON THE COVER:** Joanna Kania (DVM '21) treats a merino sheep in Bernie and Lynn Cosell's flock at their farm in Pearisburg, Virginia. Photo by Andrew Mann



20

### TRANSDISCIPLINARY COLLABORATIONS TACKLE CANCER

A Virginia Tech research team led by veterinary oncologic surgeon Joanne Tuohy and biomedical engineer Eli Vlasisavljevich is working to refine a unique approach to treating canine osteosarcoma.

### COLLEGE BOARDS COMMITTED TO SERVICE

25 The Dean's Advisory Board and the Alumni Board of Directors help promote, support, and improve the college

### 26 ALUMNI NEWS and EVENTS

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## BROADLY PROTECTIVE CORONAVIRUS VACCINE CANDIDATES DEVELOPED

By Kristin Rose Jutras and Joshua Barney

A candidate vaccine that could provide protection against the COVID-19 virus and other coronaviruses has shown promising results in early animal testing.

Created by X.J. Meng, University Distinguished Professor of Virology in the Department of Biomedical Sciences and Pathobiology, and UVA Health's Professor Steven L. Zeichner, the candidate coronavirus vaccines prevented pigs from becoming ill with porcine epidemic diarrhea virus, a pig coronavirus. The researchers' findings were published in the Proceedings of the National Academy of Sciences.

"The candidate vaccine was developed using an innovative vaccine platform targeting a highly conserved genomic region of coronaviruses," said Meng. "The new vaccine platform utilizes a genome-reduced bacteria to express the coronavirus vaccine antigen on its surface. Such a vaccine platform can be manufactured with low cost in existing facilities around the world, which could meet the pandemic demand."

The vaccine offers several advantages that could overcome major obstacles to global vaccination efforts: It would be easy to store and transport, even in remote areas of the world, and could be produced in mass quantities using existing vaccine-manufacturing factories.

The new vaccine-production platform involves synthesizing DNA that directs the production of a piece of the virus to instruct the immune system to mount a protective immune response.

That DNA is inserted into another small circle of DNA, a plasmid, that can reproduce within bacteria. The plasmid is then introduced into bacteria, instructing the bacteria to place pieces of proteins on their surfaces. The technique uses the common bacteria *E. coli*.

One major innovation is that a large number of the *E. coli*'s genes have been deleted, including those comprising part of its exterior surface, or outer membrane, which appears to substantially increase the immune system's ability to recognize and respond to the vaccine antigen placed on the bacteria's surface. To produce the vaccine, the bacteria expressing the vaccine antigen are simply grown in a fermenter, much like the fermenters used in common microbial industrial processes such as brewing, and then killed with a low concentration of formalin.

"Killed whole-cell vaccines are currently in widespread use to protect against deadly diseases like cholera and pertussis. Factories in many low-to-middle-income countries around the world are making hundreds of millions of doses of those vaccines per year now, for \$1 per dose or less," said Zeichner, the McClellamore Birdsong Professor in the departments of Pediatrics and Microbiology, Immunology, and Cancer Biology; the director of the Pendleton Pediatric Infectious Disease Laboratory; and part of UVA Children's Child Health Research Center. "It may be possible



X.J. Meng, University Distinguished Professor of Virology

**"The new vaccine platform utilizes a genome-reduced bacteria to express the coronavirus vaccine antigen on its surface. Such a vaccine platform can be manufactured with low cost in existing facilities around the world, which could meet the pandemic demand."**

- X.J. Meng, University Distinguished Professor of Virology in the Department of Biomedical Sciences and Pathobiology

to adapt those factories to make this new vaccine. Since the technology is very similar, the cost should be similar, too."

The entire process, from identifying a potential vaccine target to producing the gene-deleted bacteria that have the vaccine antigens on their surfaces, can take place in only two to three weeks, making the platform ideal for responding to a pandemic.

The team's candidate vaccines take an unusual approach in targeting a part of the spike protein of the virus, the "viral fusion peptide," that is universal among coronaviruses.

The fusion peptide has not been observed to differ in the many genetic sequences of SARS-CoV-2—the virus causing COVID-19—that have been obtained from thousands of patients around the world.

"With the emergence of various SARS-CoV-2 variants, a vaccine targeting a conserved region of all coronaviruses, such as the fusion peptide, may potentially lead to a broadly protective candidate vaccine. Such a vaccine, if successful, would be of significant value against variant virus strains," said Meng, who is also the founding director of the Center for Emerging, Zoonotic, and Arthropod-borne Pathogens in the Fralin Life Sciences Institute at Virginia Tech.

Additional testing, including human trials, will be required before the COVID-19 vaccine can be approved by the Food and Drug Administration or regulatory agencies worldwide for use in people, but the collaborators are pleased by the early successes of the vaccine-development platform.

"Although the initial results in the animal study are promising, more work is needed to refine both the vaccine platform using different genome-reduced bacterial strains and the fusion peptide vaccine target," said Meng. "It will also be important to test the fusion peptide vaccine in a monkey model against SARS-CoV-2 infection."

Along with Meng and Zeichner, the research team consisted of Denicar Lina Nascimento Fabris Maeda, Hanna Yu, Nakul Dar, Vignesh Rajasekaran, and Sarah Meng from UVA Health; and Debin Tian, Hassan Mahsoub, Harini Sooryanarain, Bo Wang, C. Lynn Heffron, Anna Hassebroek, and Tanya LeRoith from the veterinary college.

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*Kristin Rose Jutras is the communications director for Virginia Tech's Fralin Life Sciences Institute. Joshua Barney is deputy public information officer at the University of Virginia.*

## The causal relationship between maternal microbiota and neonatal antibody response

Because infants are not born with full-fledged gut microbiota, which play an important role in the body's immune response, they are unable to easily fight off intestinal infections. In addition, little is known about how the immune system develops during infancy.

Shedding significant new light on the subject, a research team from principal investigator Xin Luo's lab used rodent subjects to show a causal relationship between neonatal antibody production and the mother's microbiota. The team's paper, "Regulation of Neonatal IgA Production by the Maternal Microbiota," was published in *Proceedings of the National Academy of Sciences*. First authors are Qinghui Mu (Ph.D. '18), a postdoctoral fellow at Stanford University's School of Medicine and former doctoral student in Luo's lab; and Brianna Swartwout, a Ph.D. candidate in the Translational Biology, Medicine, and Health Graduate Program and a current member of Luo's lab.

"Our study identifies the maternal microbiota—harmless bacteria living in mom's milk, for example—as a source of education for the infant's antibody response. In particular, we have found that the most abundant antibody in the human body that protects us from infections, IgA, can be educated by a specific bacterium in mom's milk, *Lactobacillus reuteri*, which is also a commonly used probiotic," said Luo, associate professor of immunology in the Department of Biomedical Sciences and Pathobiology.

Studies of IgA production typically focus on adult subjects, without addressing the effects of mothers' microbiota on the development of the immune response. Conversely, this study examined neonatal mice nursing from dams with different microbiotas and measured the changes in the neonatal mice's IgA production.

The researchers determined that *L. reuteri* is one of the neonatal IgA-inducing bacteria in the maternal microbiota. In turn, raising an infant's IgA production through *L. reuteri* might result in a more robust immune response to pathogens. Particularly because a strain of *L. reuteri* isolated from human breast milk was used for the study, the findings have the potential to be translated to human medicine.

The next step is to determine the effects that these newly produced antibodies have on the neonatal immune response. "If we can identify microbes that enhance early defenses without setting off self-reactivity, then we could potentially use them to protect infants from infections," said Swartwout.



Associate Professor of Immunology Xin Luo and doctoral candidate Brianna Swartwout in Luo's lab

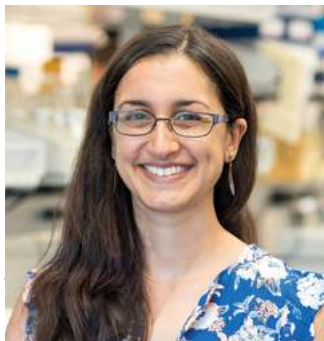
## Duggal receives ICTAS Junior Faculty Award

An assistant professor of molecular and cellular biology in the Department of Biomedical Sciences and Pathobiology, Nisha Duggal is one of five early-career faculty members to win seed funding for innovative new projects through an investment program from the Institute for Critical Technology and Applied Science (ICTAS).

To apply for the Junior Faculty Awards, which support projects led by faculty building up new research programs, the lead researcher must team up with colleagues from different disciplines, typically including at least one more-experienced faculty member with an established record of research and funding.

Duggal will work with Charles P. Lunsford Professor of Civil and Environmental Engineering Linsey Marr to examine SARS-CoV-2 transmission in airborne particles.

Since coughing, talking, and exhaling all produce these particles in various sizes that behave in different ways and may carry different amounts of infectious virus, the project aims to uncover missing information about the relationships among particle size, kinetics, and infectivity. Understanding these dynamics in more detail will help elucidate transmission mechanisms for the virus, insights that can inform the development of more-effective mitigation strategies.



Nisha Duggal

## Fluid flow as potential key to fight Alzheimer's disease

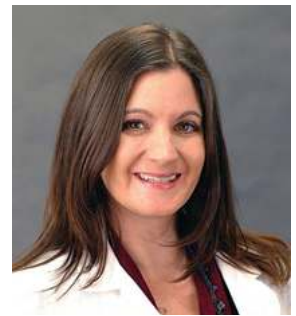
Michelle Theus, associate professor of molecular and cellular neurobiology in the Department of Biomedical Sciences and Pathobiology, is part of a research team led by principal investigator Jennifer Munson, associate professor at the Fralin Biomedical Research Institute at VTC, that has been awarded \$3.5 million by the National Institute on Aging to study the role of fluid flow in Alzheimer's disease.

While previous studies have examined the connection between the disease and bulk fluid flow through blood vessels and the brain's fluid-filled ventricles, less is known about the importance of interstitial fluid flow—the movement of liquid through human tissues in the spaces between cells.

The study will analyze how the slowing flow of fluid through the brain contributes to the buildup of proteins associated with the disease and whether speeding up the flow could flush the proteins out, potentially limiting the damage caused by the disease.

The research team will provide the first real-time analysis of the potential link between this type of fluid flow and Alzheimer's disease, and will test flow acceleration methods as a possible therapy.

Theus will research the study's behavioral outcomes and lend expertise on the brain's vessel system.



Michelle Theus

## Research Symposium highlights the intersection of veterinary and human medicine to combat global diseases

On March 25-26, master's and Ph.D. students in the Biomedical and Veterinary Sciences program presented their research virtually via Canvas and Zoom during the college's 31st annual Research Symposium.

The event is held each year both to support the college's mission of providing education to a diverse population of professional and post-graduate students preparing for careers in veterinary medicine, biomedical sciences, and public health and to showcase the research of its graduate and training programs.

This year's two-day event featured oral presentations, poster presentations, and two keynote speakers: Corrie Brown, Josiah Meigs Distinguished Teaching Professor and University Professor in the Department of Pathology at the University of Georgia College of Veterinary Medicine, whose research interests include the pathogenesis of disease in food-producing animals and emerging diseases; and Dr. Anne Schuchat, the principal deputy director of the Center for Disease Control and Prevention, who played key roles in emergency responses to the 2009 H1N1 pandemic influenza response, the 2003 SARS outbreak in Beijing, and the 2001 bioterrorist anthrax response.

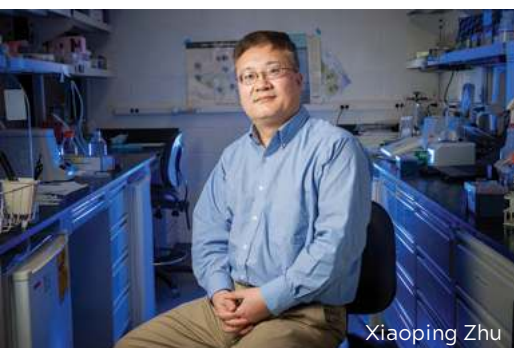


## Researchers explore nasal spray vaccine against SARS-CoV-2 infections and beyond

Xiaoping Zhu, associate dean and chair of the Department of Veterinary Medicine at the University of Maryland, and his research team are exploring a noninvasive nasal spray vaccine to ward off COVID-19 and acute lung inflammation.

“Since this new virus initiates its infection through the respiratory tract, it is important to induce a protective and long-lasting respiratory immunity to block transmission,” said Zhu. “However, our ability to deliver vaccine antigens across the respiratory epithelial barrier is very limited.”

The neonatal Fc Receptor (FcRn) mediates the transfer of IgG antibodies across respiratory epithelial cells. In recent studies,



the team has found that FcRn can effectively deliver an influenza vaccine antigen in the respiratory tract and elicit potent protection against lethal influenza infection.

Since January 2020, the research team

has already produced several forms of soluble spike antigens that are targeting FcRn binding. “We have proven that FcRn-mediated respiratory immunization can deliver COVID-19 vaccine antigens across the respiratory barrier and induce protective immunity in the nose and lungs, consequently blocking virus replication in animal models. We believe this nasal vaccine will prevent virus spread among people, as well,” said Zhu.

The spike protein of the COVID-19 virus mediates receptor binding and membrane fusion of epithelial cells in the respiratory tract. Because it would induce neutralizing antibodies that prevent host cell attachment and infection by the COVID virus, the spike protein is proposed as a major vaccine antigen.

The team has also started to design and produce pan-coronavirus antigens against the current COVID-19 variants of concern and new coronavirus strains that are potentially jumping from animals. The next step is to nasally immunize animals with these engineered antigens, evaluate protection from different coronaviruses, and fully analyze their mucosal, systemic, and memory immune responses, such as neutralizing antibody, mucosal antibody, and memory T cell immune responses in the lung.

## MAJOR RESEARCH GRANTS

**More than \$100,000**

*October 2020 – May 2021*

### **A Nanoparticle-based Multivalent Rotavirus Vaccine**

Principal Investigator (PI): Lijuan Yuan, Department of Biomedical Sciences and Pathobiology (DBSP)

Total Award: \$261,934

Funding Agency: Cincinnati Children's Hospital Medical Center

### **Detecting Released Peptidoglycan Fragments as a Biomarker for Direct Diagnosis of Acute and Chronic Lyme Disease**

PI: Brandon Jutras, College of Agriculture and Life Sciences (CALS)

Co-Investigators (Co-I): Irving Coy Allen, DPSP; Richard Helm, CALS

Total Award: \$248,062

Funding Agency: National Institutes of Health (NIH)

### **Developing Capsid-importin Alpha Inhibitors for the Treatment of VEEV Infection**

PI: Kylene W. Kehn-Hall, DBSP

Total Award: \$1,369,845

Funding Agency: George Mason University

### **Enhancing Electronic Reporting and Data Transmission**

PI: Tanya LeRoith, DBSP

Total Award: \$110,472

Funding Agency: U.S. Department of Agriculture (USDA)

### **Evaluation of RNAActive-based Rotavirus Vaccine in the Gnotobiotic Pig Model of P(8) Human Rotavirus Infection and Diarrhea**

PI: Lijuan Yuan, DBSP

Total Award: \$339,250

Funding Agency: CureVac GmbH

### **Impact of Silicon Nitride on Bacterial Pathogens**

PI: Clayton Caswell, DBSP

Total Award: \$112,153

Funding Agency: SINTX Technologies Corp.

### **Investigating Sex Differences in Nuclear Protein Degradation During Fear Memory Formation**

PI: Timothy Jarome, CALS

Co-I: Hehuang D. Xie, DBSP; Richard F. Helm, CALS

Total Award: \$416,710

Funding Agency: NIH

### **Peripheral Nerve Preparations for Study T05807**

PI: Thomas Cecere, DBSP

Total Award: \$112,038

Funding Agency: Experimental Pathology Laboratories Inc.

### **Repurposing Novel Selective Drugs for Treatment and Decolonization of Vancomycin Resistant Enterococci**

PI: Mohamed N. Seleem, DBSP

Total Award: \$1,502,630

Funding Agency: NIH

### **VS Terminology Support**

PI: Julie M. Green, DBSP

Total Award: \$250,000.30

Funding Agency: USDA National Institute of Food and Agriculture



Clockwise from upper left: Class of 2021 MPH graduates Kendra Byrwa, Chloe Loving, Ella Rak (DVM '21), Sade Bowers, Teace Markwalter, and Fernanda Gutierrez.

## MPH students gain real-world experience as COVID-19 case investigators and contact tracers

From the start of the COVID-19 pandemic, the veterinary college's Master of Public Health (MPH) students served as regional case investigators and contact tracers—roles that were essential to limiting the virus's transmission—in the New River Valley, Roanoke City, Alleghany County, and Central Shenandoah.

Among the public health students in the trenches were Sade Bowers (MPH '21), a case investigator with the Central Shenandoah Health District; Ella Rak (DVM '21, MPH '21), a case investigator with the New River Health District (NRHD); and Teace Markwalter (MPH '21), a COVID care resource coordinator who conducted contact tracing and case investigations as part of her position with NRHD.

Because Hispanic and Latino populations were disproportionately affected by COVID-19—a disparity attributed to a range of societal factors, including health care access, geography, and language barriers—bilingual students Fernanda Gutierrez (MPH '21), a contact tracer and a case investigator

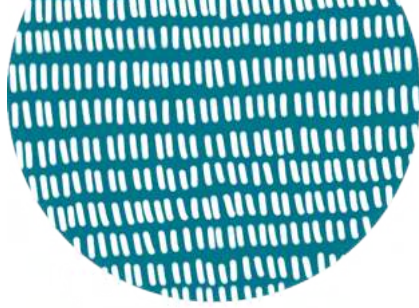
for the region, and Chloe Loving (MPH '21), an NRHD case investigator, helped Latinx populations in the New River Valley, Roanoke City, and Alleghany County.

In their work, the students were guided by professionals who served as mentors and role models and played a significant role in the students' personal and professional development.

"The epidemiology team at the New River Health District mentored me in epidemiology skills that I have had to develop to respond to the case investigation and contact tracing needs," said Markwalter. "The health district director and nurses showed me the importance of dedication and hard work, 24/7. Everyone involved showed the value of selflessness and serving others by putting the community's needs above what would be easier for them. The work doesn't stay at the office or go away after 5 p.m. or on the weekends, and they all rise to the challenge every day."







## ON THE FRONT LINES

All students enrolled in the veterinary college's MPH program are trained to work with the Medical Reserve Corps, a volunteer group that has been especially important to the COVID-19 testing and vaccination efforts of the New River Health District (NRHD).

Established nationally in 2002 in response to the Sept. 11, 2001, terrorist attacks, the corps helps local health departments and districts with public health initiatives and other needs. Not surprisingly, the corps' need for volunteers skyrocketed at the onset of the pandemic in March 2020.

**“We want our students to be ready to be deployed at any time.”**

- Sophie Wenzel, assistant professor of practice and associate director of the Center for Public Health Practice and Research

MPH students assisted NRHD with a range of tasks, including keeping track of paperwork at local testing sites, calling people to report COVID-19 test results, and scheduling vaccine appointments from the district's call center.

“They were critical to being able to test hundreds of people a day at a test site,” said Noelle Bissell, NRHD health director. In time, NRHD's testing sites were run largely by volunteers, allowing the district to focus on administering COVID-19 vaccines. At testing and vaccination sites throughout the New River Valley, some volunteers with medical experience were trained to administer coronavirus tests and vaccines.

“We want our students to be ready to be deployed at any time,” said Sophie Wenzel, assistant professor of practice and associate director of the Center for Public Health Practice and Research, who volunteered with the corps as a contact tracer and case investigator.



MPH student and Medical Reserve Corps member Kateri Drinkard consults the corps volunteer schedule.



## College community supports vaccination efforts

Through membership and training in the Virginia Medical Reserve Corps, college faculty, staff, and students enthusiastically served as nontraditional COVID vaccinators—and in other roles—with the New River Health District (NRHD).

Contributing to NRHD's efforts to expand the area's vaccination rate, students gained experience in employing and promoting a One Health approach to improving lives, while veterinarians vaccinated in an early phase of the state's vaccination rollout paid forward their good fortune.



Rachael Carpenter (top), clinical instructor of anesthesiology in the Department of Small Animal Clinical Sciences, and Marion Ehrich (bottom), professor emerita of pharmacology and toxicology in the Department of Biomedical Sciences and Pathobiology, prepare to administer vaccines at a NRHD vaccination site.

## COOK ENGAGED IN COMMUNITY-BASED WORK



Natalie Cook

To help combat systemic health disparities and adverse consequences among individuals of color, Natalie Cook, assistant professor of public health in the Department of Population Health Sciences, and Sarah Misyak, research assistant professor with Virginia Cooperative Extension's Family Nutrition Program (FNP), received the College of Agriculture and Life Sciences (CALS) Diversity Incentive Fund to assess equality in the FNP to better serve Virginians.

"The present moment underscores the importance of ensuring that community nutrition programs are designed and executed in ways that positively impact food insecurity rates and nutrition and physical activity behaviors while shifting policies and practices to ensure equitable access to nutritious foods and opportunities for physical activity for all," Misyak said. "We always strive to research real-world implications, and we hope that this will help move us forward in advancing health equity in Virginia."

Established in 2013, the Diversity Incentive Fund aims to create new opportunities that increase the understanding of, appreciation for, and advocacy of diversity issues.

The CALS Diversity Incentive Fund is specifically designed to provide support for new, innovative, and creative approaches to raise awareness, engage learners, and change behaviors about diversity and inclusion within the academic community and in the broader communities that the college serves.

**"We always strive to research real-world implications, and we hope that this will help move us forward in advancing health equity in Virginia."**

- Sarah Misyak, research assistant professor with Virginia Cooperative Extension's Family Nutrition Program

Cook was also named a member of the fourth cohort of the VT Engage Faculty Fellows program, which aims to increase the prevalence and quality of community-based work at Virginia Tech in the areas of service learning, leadership education, and civic engagement.

## PUBLIC GOOD

The Journal of Public Health Management and Practice recognized Jaclyn Abramson (MPH '21), Theresa Markwalter (MPH '21), Ella Rak (DVM '21, MPH '21), Hannah Reed (MPH '21), and Sarah Work (MPH '20) as "Students Who Rocked Public Health in 2020" for their work in assisting long-term care facilities with their COVID-19 response.

Since March 2020, Virginia Tech's Associate Vice President for Research and Innovation Lisa Lee, a research professor in the Department of Population Health Sciences, has been quoted more than 1,800 times by broadcast, print, and online news outlets in more than 35 countries.

A public health expert specializing in infectious disease epidemiology and public health ethics, Lee has worked in public health and ethics at the local, state, and federal levels, including an appointment as the inaugural chief of bioethics at Walter Reed Army Institute of Research and 14 years at the U.S. Centers for Disease Control and Prevention. During the Obama administration, she served as executive director of the Presidential Bioethics Commission.



Lisa Lee

In March 2021, Lee was appointed to the Education Board of the American Public Health Association, which assures a better-educated public health workforce and an informed public. Appointed members review, advise, guide, and advocate for policies and programs to advance public health education and practice.





## CELEBRATING OUR NEWEST GRADUATES

On May 10 and 11, the Virginia-Maryland College of Veterinary Medicine proudly conferred 122 DVM degrees, 27 MPH degrees, including six dual DVM/MPH degrees, and six M.S. degrees in biomedical and veterinary sciences at spring commencement ceremonies in Lane Stadium.

Carefully orchestrated to follow all safety protocols, the multiple ceremonies, two of a total of 16 in-person ceremonies held by Virginia Tech, offered a sense of normalcy in an otherwise challenging year.

Featuring a video of introductory music by Professor Emerita Marion Ehrich on piano—her 36th DVM commencement performance given proper prominence on the stadium's Jumbotron—the ceremony was anchored by remarks from commencement speaker Martha M. Larson, professor of radiology in the Department of Small Animal Clinical Sciences.

As Jennifer Hodgson, associate dean of professional programs, announced the

graduates' names, each student took the stage and was hooded by Terry Swecker, director of the Veterinary Teaching Hospital and professor of production management medicine, and Timothy Bolton, assistant professor of small animal internal medicine, the recipient of the Class of 2021's Outstanding Instructor Award. Upon crossing the stage, newly hooded graduates were congratulated with an elbow bump from Dean Dan Givens.

Following the recitation of the Veterinarian's Oath and a welcome to the profession from Shadawn Salmon-Jimenez, president of the Maryland Veterinary Medical Association, Class of 2021 President Shawn Kozlov shared prerecorded remarks and presented the class gift: more than \$5,300 to the Hoban, Lee, and Dance Endowed Scholarship Fund, which benefits students of an underrepresented population with demonstrated financial need.

>> For videos and photos, go to [vetmed.vt.edu/about/commencement](https://vetmed.vt.edu/about/commencement).

## DVM VALEDICTORIAN SIMPSON RECEIVES TALBOT AWARD

A student in the equine track, Class of 2021 valedictorian Victoria Simpson, of Freehold, New Jersey, was presented with the Richard B. Talbot Award, named in honor of the college's founding dean.

Simpson, who earned a B.S. in animal science from Rutgers University, admits that she was a "horse-crazy little girl" whose love for science and animals led her to pursue veterinary medicine, the ideal marriage of her interests.



Noting that she was especially drawn to Virginia-Maryland College of Veterinary Medicine because of the DVM program's focus on mental health, Simpson and her class acutely experienced the importance of a healthy work-life balance while navigating restrictions imposed by the COVID-19 pandemic.

Simpson's next stop is an ambulatory internship, which will transition into an associate veterinarian position, at Old Waterloo Equine Clinic in Rixeyville, Virginia. In the long term, she aspires to have her own equine practice.



## TOOMEY NAMED OUTSTANDING GRADUATING STUDENT

For David Toomey, the Class of 2021's Outstanding Graduating Student, veterinary medicine is about more than helping animals. "I really like the relationships you build, especially in general practice with the clients and the pets," said the Naples, Florida, native. "You end up building long-term relationships."

Although Toomey chose to enter the mixed animal track because of its flexibility and opportunities for external rotations, his heart belongs with companion animal medicine, particularly the unpredictable, fast-paced nature of emergency medicine.

Toomey is headed to the Southwest, where he will enter a small animal, one-year rotating internship with an emergency medicine focus at Arizona Veterinary Emergency & Critical Care Center. His goal is to own a general practice offering 24-hour emergency care. "You can take care of people in the worst times," he said, "and I think it is really kind of special."

## AROUND THE COLLEGE

### OUTSTANDING GRADUATE STUDENTS AND FACULTY HONORED

Each year during Graduate Education Week, Virginia Tech's Graduate School recognizes excellence among graduate students and faculty mentors universitywide. Students are nominated by their colleges for their leadership, scholarship, research, and service, while faculty mentors are nominated by graduate students.

The veterinary college's honorees were Outstanding Master's Degree Student Jessica Villm (M.S. '21), who completed a master's degree in biomedical and veterinary sciences and a small animal internal medicine residency in the Veterinary Teaching Hospital; and Outstanding Doctoral Degree Student Leila Abdelhamid, a Ph.D. candidate in biomedical and veterinary sciences in the lab of Xin Luo, associate professor of immunology in the Department of Biomedical Sciences and Pathobiology.

Recognized as the veterinary college's outstanding faculty mentor was Linda Dahlgren, professor of large animal surgery in the Department of Large Animal Clinical Sciences, whose nominators cited her guidance, support, advice, and encouragement as crucial to their research and career success.

### RYAN C. ADAY MEMORIAL AWARD HONORS OUTSTANDING MPH STUDENTS

Each spring, the college's Master of Public Health (MPH) program presents the Ryan C. Aday Memorial Award to a graduating student from each concentration—public health education and infectious disease—who has demonstrated excellence in academics and public health service. This year's recipients were Jaclyn Abramson (MPH '21) and Fernanda Gutierrez Matos (MPH '21).

The award was created by Dr. and Mrs. David Aday in memory of their son, a highly motivated student who completed a degree in health promotion at Virginia Tech.

### DVM STUDENT INSTALLED AS 2021-22 NATIONAL SAVMA PRESIDENT

Hidayah Martinez-Jaka, a student in the DVM Class of 2022, is believed to be the first woman of color to serve as the national Student American Veterinary Medical Association (SAVMA) president. She was installed as the 2021-22 president during the SAVMA Symposium held virtually in mid-March and hosted by Kansas State University College of Veterinary Medicine.

### EHRLICH RECOGNIZED WITH TOXICOLOGY AWARD

Marion Ehrlich, professor emerita of pharmacology and toxicology in the Department of Biomedical Sciences and Pathobiology, has been recognized with the American College of Toxicology (ACT) Mildred Christian Women's Leadership in Toxicology Award. Ehrlich's 40-year career exemplifies her "dedication to education, research, leadership, and editorial guidance in the field of toxicology," said ACT Vice President Florence Burleson. Ehrlich will be formally honored at the organization's annual meeting in November.



### Henao-Guerrero named department head of small animal clinical sciences

Associate Professor of Anesthesiology Natalia Henao-Guerrero, chief of the Veterinary Teaching Hospital's anesthesia service, was appointed head of the Department of Small Animal Clinical Sciences, effective April 10.

A diplomate of the American College of Veterinary Anesthesia and Analgesia and a faculty member since 2007, Guerrero had served as interim department head since 2017, leading efforts to recruit, hire, and onboard 22 new faculty, a diverse cohort of international specialists in a range of clinical disciplines.



### Hodgson recognized for supporting student well-being

Associate Dean of Professional Programs Jennifer Hodgson, a professor of microbiology in the Department of Population Health Sciences, received the Supporter of Student Well-being Award from the Student American Veterinary Medical Association (SAVMA) during the virtual SAVMA Symposium in mid-March.

The SAVMA Wellness Committee reported that Hodgson's nomination highlighted the fun events she had coordinated to positively reinforce COVID protocols, as well as how she made herself available to struggling students.



## Wilcke and Zajac honored with emeritus status

In recognition of exemplary service to the university, two longtime professors at the veterinary college were conferred emeritus status by the Virginia Tech Board of Visitors.

Jeffrey Wilcke, Metcalf Professor of Veterinary Medical Informatics in the Department of Biomedical Sciences and Pathobiology (DBSP), made significant contributions to veterinary medicine through his work in medical informatics.

A diplomate of the American College of Veterinary Clinical Pharmacology and a member of the Virginia Tech community since 1982, Wilcke is one of very few investigators nationally and globally in the highly specialized field of veterinary terminology.

Last year, the Association for Veterinary Informatics (AVI) named Wilcke the recipient of the Allen W. Hahn Lifetime Achievement Award in Veterinary Informatics, which honors individuals who have been a leader, educator, and innovator in veterinary informatics. Presented by Julie Green, special research assistant professor of veterinary medical informatics and a member of the 2020 Hahn Award Committee, the award was announced at the AVI's virtual Talbot Veterinary Informatics Symposium, which



Jeffrey Wilcke



Anne Zajac

is named for the veterinary college's founding dean, Richard B. Talbot, a pioneer in veterinary informatics.

A clinical parasitologist and a diplomate of the American College of Veterinary Microbiologists, DBSP Professor of Parasitology Anne Zajac has been a member of the Virginia Tech community since 1986.

Her contributions to the scholarship of parasitology include more than 120 peer-reviewed journal articles and reviews and a book, "Veterinary Clinical Parasitology," which was translated into three languages and has sold more than 50,000 copies.

Zajac is a member of the American Society of Parasitologists, the American Veterinary Medical Association, and the Helminthological Society of Washington. She served as president of the American Association of Veterinary Parasitologists, receiving its Distinguished Service Award in 2008, and its AAVP-Merial Distinguished Veterinary Parasitologist Award, the organization's highest honor, in 2016.

## IN MEMORIAM

### CALVERT T. LARSEN, ASSOCIATE PROFESSOR EMERITUS



Calvert T. Larsen, associate professor emeritus of large animal clinical sciences, died on Jan. 24 at age 87.

A native of Utah, Larsen specialized in avian health and disease research. One of the first faculty members to join the new Virginia-Maryland Regional College of Veterinary Medicine in 1979, Larson taught a variety of courses for both the veterinary college and the College of Agriculture and Life Sciences,

also serving as a poultry specialist with Virginia Cooperative Extension.

"Cal was a key part of that incredibly brilliant and successful group of avian disease researchers who established Virginia Tech as an important and key part of that discipline internationally," said Phillip Sponenberg, professor of pathology and genetics in the Department of Biomedical Sciences and Pathobiology, who joined the veterinary college in 1981. "In addition, he was one of the most positive and generous individuals anyone could ever meet. He left quite a legacy."

### CARL J. PFEIFFER, PROFESSOR EMERITUS



Carl J. Pfeiffer, professor emeritus of biomedical sciences, died on Feb. 15 at age 83.

A native of Illinois, Pfeiffer was internationally recognized for his work in gastrointestinal diseases, comparative pathology, and marine mammal research. He joined the veterinary college in 1982, and taught courses in physiology, pharmacology, histology, and marine mammal biomedicine, training many post-doctoral students in the U.S., Canada, and Japan. He wrote 16 books and more than 200 published papers.

"Carl was an excellent biomedical scientist and an inspiring teacher," said Peter Eyre, professor and dean emeritus. "He devoted a lot of time to mentoring veterinary students outside the classroom and laboratory. I remember a conversation in which he reminded me that the mentor-mentee relationship is not one-sided; it is a two-way experience. Feedback from students—reverse mentoring—can change the teacher's perspective, improve teaching capabilities, and inspire research investigations. What I remember most was his caring demeanor."





FRIENDS  
of FLEECE

FLOCK  
TOGETHER





## LONG-STANDING PARTNERSHIP ADVANCES STUDENT LEARNING AND ANIMAL HEALTH



For years, Bernie and Lynn Cosell's home and passion project—Fantasy Farm in Pearisburg, Virginia—has been a destination for experiential learning for the veterinary college's students.

And on a cloudy day this past spring, the farm was bustling with activity.

Bundled in winter coats, fourth-year DVM students on a production management medicine clinical rotation worked alongside Department of Large Animal Clinical Sciences (DLACS) clinicians and the Cosells themselves to examine the farm's 100-odd sheep, give them each a hoof trim, and move them on to their shearing.

The rolling peaks of the Blue Ridge Mountains behind them, freshly shorn sheep trotted away, freed of their fleece's burden in anticipation of the warmer weather to come.


The Cosells' interest in farming was ignited during a trip to New Zealand, where they fell in love with idyllic scenes of sheep dotting gently curving green hills. Wanting to re-create those vistas, the couple moved to Pearisburg after careers on the cutting edge of computer science, transitioning from harsh Boston winters to the more agreeable climate of Giles County.

On Valentine's Day in 1992, they purchased 82 acres of farmland and filled them with merino sheep, a breed known for its high-quality fleece. In light of Lynn's passion for weaving and fiber arts, the decision was an easy one.

Although the Cosells initially aspired to run a working farm, nowadays the sheep are kept mostly as pets. And the proximity of the veterinary college and its large animal service has proven to be a godsend.

"Discovering that we were in Virginia Tech's area was a wonderful thing," said Bernie. "It's amazing to have trouble at two o'clock in the morning and be able to get a vet."





When the Cosells first settled in at Fantasy Farm, one of their ewes had a medical emergency on a Saturday. Unable to find a local veterinarian who would make a farm visit on the weekend, they ended up losing the ewe. Now, to ensure around-the-clock, quality care for their flock, they depend on the Veterinary Teaching Hospital's large animal service, which offers 24/7 emergency support.

"That sold us. We slept a whole lot better after that," said Lynn. "And it's been a great friendship, really—the vets are wonderful people. It's always been a positive experience, and we've learned a lot from them, and we've helped them learn from us."

Not only do the Cosells view the college's faculty clinicians as true partners, their relationship with the veterinary school has benefited all involved. The couple's flock receives medical care, both at the hospital and on the farm, and the college's veterinary students gain experience in the field on their yearly visits.

"Most of the sheep on the Cosells' farm die on the farm, resulting in a very geriatric population of sheep. This situation provides the students occasion to observe clinical conditions, such as arthritis, a variety of tumors, congestive heart failure, and dental issues, not normally encountered because the sheep on most farms are sent



“MOST OF THE SHEEP ON THE COSELLS’ FARM DIE ON THE FARM, RESULTING IN A VERY GERIATRIC POPULATION OF SHEEP. THIS SITUATION PROVIDES THE STUDENTS OCCASION TO OBSERVE CLINICAL CONDITIONS, SUCH AS ARTHRITIS, A VARIETY OF TUMORS, CONGESTIVE HEART FAILURE, AND DENTAL ISSUES, NOT NORMALLY ENCOUNTERED BECAUSE THE SHEEP ON MOST FARMS ARE SENT TO MARKET PRIOR TO DEVELOPMENT OF THESE CONDITIONS.”

- Kevin Pelzer, DLACS professor of  
production management medicine and epidemiology





to market prior to development of these conditions,” said Kevin Pelzer, DLACS professor of production management medicine and epidemiology.

Pelzer, who has worked with the Cosells for many years, knows that this hands-on experience is crucial for students preparing to practice veterinary medicine.

“Although a clinician is always present on a farm visit, the students get to be the ‘vet’ and ask the Cosells all the questions. Lynn is really good at providing information, but also asks the students a lot of questions, and she is never critical of the students’ answers,” Pelzer said.

“Also, once a plan of treatment is made, the students perform the actual treatments 95% of the time, and the Cosells are very comfortable with that,” he said. “On some farms, clients are very hesitant or resistant to let students actually perform the treatments and only let the clinician perform the various tasks at hand. This is invaluable for student learning as it allows the student to develop confidence, as well as technical skills.”

Professor of Theriogenology Sherrie Clark (B.S. '92, DVM '96), DLACS interim head, fully agrees. “As a practicing food animal veterinarian, I believe it is critical for students to gain hands-on experiences before and during



**Far left:** Professor Kevin Pelzer (back, center) oversees a shearing as Bernie Cosell (left) and DVM students look on. **Top left:** A DVM student gathers sheared wool. **Bottom left:** Bernie Cosell and Dan Givens (right), dean of the veterinary college, inspect newly sheared wool. **Top right:** Lynn Cosell (center) confers with two DVM students.









veterinary school. Our jobs rely on knowing how to observe, examine, and treat animals appropriately. These experiences allow students to gain these skills while being in a farm setting, which many students also need to encounter.”

The mutual advantages afforded by the partnership run deep. The Cosells believe that their work with the college’s veterinarians and students has resulted in more-personalized care. “The vets get to know our sheep, so when we call with a problem, we can say which sheep it is. They know our abilities, so they can tell us what we can try to do,” Bernie said.

“The college benefits from working with our local clientele and their unique goals for owning animals,” said Clark. “Many of our clients have been working with the college for over 20 years and have built strong relationships with our clinicians and the veterinary school community.”

For their part, the Cosells and their flock have given the college’s veterinary students valuable experience with sheep handling, hoof trimming, and examinations, equipping future veterinarians with the skills they need to provide the best medical care.

A shining example of the power of collaboration, the Cosells have moved their support of future veterinarians beyond just field training: Their gift of nearly a half-million dollars to the college will create an endowed scholarship benefiting large animal veterinary students for years to come.

*Written by Sarah Boudreau (M.F.A. '21), a member of the college's Communications and Marketing team*

“THE COLLEGE BENEFITS FROM WORKING WITH OUR LOCAL CLIENTELE AND THEIR UNIQUE GOALS FOR OWNING ANIMALS. MANY OF OUR CLIENTS HAVE BEEN WORKING WITH THE COLLEGE FOR OVER 20 YEARS AND HAVE BUILT STRONG RELATIONSHIPS WITH OUR CLINICIANS AND THE VETERINARY SCHOOL COMMUNITY.

- Professor of Theriogenology  
Sherrie Clark (B.S. '92, DVM '96), DLACS interim head

## Clark named interim department head of large animal clinical sciences

Sherrie Clark (B.S. '92, DVM '96), professor of theriogenology, was named interim head of the Department of Large Animal Clinical Sciences, effective Jan. 1.

A diplomate of the American College of Theriogenologists and a faculty member at Virginia Tech since 2011, Clark has served as section chief of the Veterinary Teaching Hospital’s production management medicine service. Last year, she was installed as vice president of the American College of Theriogenologists for a one-year term; in November, she received the college’s Zoetis Award for Veterinary Research Excellence.

Clark’s teaching and research focus on advanced reproductive techniques in a variety of species, with a concentration in conditions that cause infertility.





## TRANSDISCIPLINARY COLLABORATIONS ESSENTIAL TO TACKLING CANCER

### Veterinarians and engineers team up to treat osteosarcoma

A dynamic collaboration between researchers in the veterinary college's new Animal Cancer Care and Research Center and Virginia Tech's Department of Biomedical Engineering and Mechanics has attracted substantial funding for a unique approach to treating osteosarcoma, a notoriously painful and aggressive bone cancer that primarily afflicts large-breed dogs, children, and adolescents.

Led by oncologic surgeon Joanne Tuohy, assistant professor in the Department of Small Animal Clinical Sciences, and biomedical engineer Eli Vlasisavljevich, assistant professor in the College of Engineering, the interdisciplinary team is working to refine a type of ultrasound technology, histotripsy, for the treatment of various canine cancers.

Typically requiring amputation of the affected limb and follow-up chemotherapy, treatment for osteosarcoma can be challenging for some pet owners, but the alternative—death due to tumor pain and metastasis—is far worse. And while treatment protocols and life expectancies haven't meaningfully improved in several decades, Tuohy is encouraged that histotripsy has the potential to help both dogs and humans with osteosarcoma.

"Cancer clinical trials offer exciting opportunities to advance treatments," Tuohy said. "But these trials require patience, coordination, and solid cooperation among researchers, clinicians, owners, referring veterinarians, and, of course, the patients themselves."

One such patient is Balian, a 6-year-old Alaskan malamute that was diagnosed with osteosarcoma in February. Informed of the study by family friend Andrea Cangin (DVM '98), Balian's owner Jake Polverini was immediately on board. "Once we had accepted the fact that he was going to lose his leg," Polverini

said, "we wanted to help make sure a future dog wouldn't lose a leg. No dog should have to go through this."

Histotripsy, the technology used in the study, focuses ultrasound beams to non-invasively create cavitation bubble clouds, mechanically breaking down cells inside a defined area. The technique doesn't use heat, an attribute that helps avoid damage to surrounding tissues.

"Even though this is what I do every day, I still think it sounds like sci-fi to be able to destroy tumors without making any incisions," said Vlasisavljevich, whose lab explores a range of physical mechanisms through which ultrasound interacts with tissues in the body, including cancerous tumors.

When the ultrasound technology breaks apart the tumor cells, they release proteins, and the body's immune system begins to recognize them as invaders. A strong enough immune response could even begin to recognize and attack metastatic growths or regrowth of the same tumor, which is highly desirable with an aggressively metastatic cancer like osteosarcoma that kills the majority of patients by its propensity to spread throughout the lungs.

Although histotripsy and related ultrasound-based immunotherapies are being developed for use in humans, there is little data on their use in dogs or on these types of tumors. As a result, Vlasisavljevich and Tuohy have designed a series of clinical studies that, if successful, will support the use of histotripsy as a treatment for canine osteosarcoma.

**Top left:** Jake Polverini with his Alaskan malamute, Balian, at the Animal Cancer Care and Research Center. **Top right:** Brittany Ciepluch (back, right), clinical assistant professor of surgical oncology, and veterinary technicians prepare Balian for a scan at the center.



The team's first study, conducted two years ago with local veterinarians and owners, tested histotripsy on the amputated limbs of tumor-bearing dogs. Because the researchers were not treating live patients—referred to as *ex vivo*, literally “outside a living body”—they were able to validate that the approach would be safe and would provoke the kind of immune response needed for success.

On the heels of the first study's positive results, a grant from the American Kennel Club moved the study to the next phase—in *vivo*, or inside the bodies of dogs affected by osteosarcoma.

In this phase, the researchers perform the histotripsy treatment before surgically removing the dog's affected leg as part of standard-of-care treatment. They then test whether the ablation effects they were able to measure in the amputated legs will surface in a living dog.

Crucially, the treatment is overseen by a team of highly trained experts at the Animal Cancer Center, and the cost to owners is largely subsidized by research funding. The experience and expertise of the center's clinical staff ensure that most “tripods,” as post-amputation dogs are affectionately known, do well, even if they have preexisting conditions, such as obesity or orthopedic disease.

A case in point is Balian, whose amputation took place in early March. “He's bouncing around, hopping through the yard like a champ,” said Polverini. “He still makes friends everywhere he goes.”

Funded by grants from the Focused Ultrasound Foundation and the National Institutes of Health, the next phases of the study will undertake additional immune system evaluations, examining more markers, using different modalities to identify markers, and investigating immune function across different points in time.

The work is meticulous, time-consuming, and rarely glamorous. Obstacles like slow enrollment in the study and technical glitches can be frustrating because the research team is acutely aware of how desperate both canine and human patients are for effective, new therapies.

The next round of studies, which will also provide funding to help offset the cost of treatment, will again enroll dogs with osteosarcoma and will run for the next several years.

Although the ultimate goal is to avoid amputation entirely by offering the histotripsy treatment alone, Tuohy cautions that immunotherapy will likely be part of a multimodal approach, not a replacement for all other therapies. “If there's one thing we've learned about cancer in the past half-century, it's that we must be humble,” she said. “We don't expect to find a silver bullet in cancer treatment with the technologies available.”

Vlaisavljevich, whose mother died of liver cancer when he was 4 years old, agrees. “Clinical research can be difficult,” he said, “and there are no sure things.” However, the incremental progress, the collaboration with a passionate interdisciplinary team, and especially the success stories of patients who have been helped by his research give him hope: “This is an extremely rewarding job. You've got to use setbacks to inspire you to keep going.”

*Written by Mindy Quigley, clinical trials coordinator in the veterinary college's Department of Small Animal Clinical Sciences*



Joanne Tuohy



Eli Vlaisavljevich

## ONGOING CLINICAL TRIALS

### Histotripsy for Treatment of Canine Appendicular Osteosarcoma

Principal Investigator (PI): Joanne Tuohy;  
Sponsor: American Kennel Club Canine Health Foundation; Grant Amount: \$35,975

### Histotripsy as a Novel Limb Salvage Treatment and Immunotherapy for Osteosarcoma

PI: Joanne Tuohy; Co-Investigators (Co-I): Eli Vlaisavljevich, Nick Dervisis, Shawna Klahn, Irving Coy Allen, Sheryl Coutermarsh-Ott, Kemba Clapp; Sponsor: National Institutes of Health; Direct Funding: \$400,000

### Histotripsy for Treatment of Canine Appendicular Osteosarcoma

PI: Joanne Tuohy; Co-I: Eli Vlaisavljevich, Nick Dervisis, Shawna Klahn, Irving Coy Allen, Sheryl Coutermarsh-Ott, Kemba Clapp; Sponsor: Focused Ultrasound Foundation; Grant Amount: \$144,107

## AIMING TO IMPROVE THERAPY FOR DEADLY BRAIN CANCER

Animal Cancer Care and Research Center Interim Director John Rossmeisl, the Dr. and Mrs. Dorsey Taylor Mahin Professor of Neurology and Neurosurgery in the Department of Small Animal Clinical Sciences, is working with a team of scientists from the Fralin Biomedical Research Institute at VTC and the comprehensive care center City of Hope that was awarded a five-year, \$3.75 million grant from the National Institute of Neurological Disorders and Stroke to study how fluid flow affects the success of CAR-T cell therapy on glioblastoma tumors.

## ENROLLING YOUR PET IN A CLINICAL STUDY

Interested pet owners may call the Animal Cancer Care and Research Center at 540-526-2300 or email Mindy Quigley at [mindyq@vt.edu](mailto:mindyq@vt.edu) for more information. A referral from a veterinarian is required before an appointment can be scheduled. A related study is currently testing histotripsy in dogs with primary brain tumors.

## AROUND THE HOSPITALS



### CPRAC pivots to enhance experiential learning

Clinicians in the Veterinary Teaching Hospital's Small Animal Community Practice (CPRAC), which trains clinical-year DVM students in a veterinary practice setting, put into action a creative plan to ensure essential hands-on experiences in spite of restrictions imposed by the COVID-19 pandemic.

When the teaching hospital implemented emergency operating procedures that limited the number of persons allowed in hospital spaces, CPRAC was required to reduce the number of students in the practice's main treatment room from eight to four. Since pet owners were not allowed to enter the hospital, the space that had been used for client interactions was converted into an additional treatment area, and two nearby conference rooms became work stations for faculty and students.

In place of back-and-forth interactions with owners who could best speak to their pets' symptoms, a questionnaire was developed and provided to clients to complete before their pet's visit. Follow-up questions were asked via phone calls.

To further facilitate physical distancing, new clinical rotations in theriogenology and rehabilitation were introduced, moving students out of CPRAC's main treatment area and giving them focused experiences they would not have had.

Because morning topic rounds were no longer viable, Michael Nappier, clinical associate professor of community practice, created an asynchronous online course, which included videos and quizzes that students could complete at home.

"I feel like I've grown as a veterinarian the most this year, getting to work with animals and being put in those situations where you have to act as a veterinarian, which you don't have to do when you're a classroom student," said Joanna Kania (DVM '21). "It's been really helpful that the school has really put in so much effort for us for our education, trying to graduate the best veterinarians that they can."

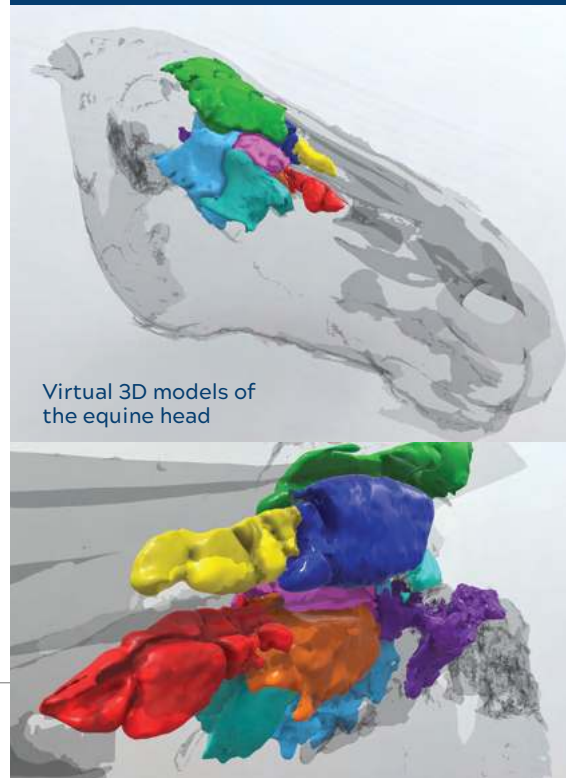
Top: Alyssa Helms (M.S. '21) and Glenn Elias (DVM '21) examine a patient.

James Brown, clinical associate professor of equine surgery at the veterinary college's Marion duPont Scott Equine Medical Center in Leesburg, Virginia, and collaborators Scott Echols, president of Echols Veterinary Services, and Scott Birch, manager of Indiana University's Advanced Visualization Laboratory, presented cutting-edge 3D modeling tools at the American College of Veterinary Internal Medicine Virtual Forum in early June.

The presentation, "Development of 3D Interactive Anatomical Models from Cadaver CT Contrast Studies," featured virtual 3D models of the equine head, with emphasis on the sinus system, using images produced by the Equine Medical Center's Pegaso™ CT scanner and Indiana University's 3D-imaging technology. Support for the project was provided by the Virginia Horse Industry Board and Indiana University.

Used to teach sinus anatomy to veterinary students, this high-tech instructional tool supplements cadaver laboratories, which were limited during the pandemic, and has potential for surgical planning. The digital model can be viewed and manipulated on any smart phone or other portable device.

Go to [bit.ly/equine-3d](https://bit.ly/equine-3d) to view the interactive 3D model.



Virtual 3D models of the equine head



## Nuclear scintigraphy complements already-impressive diagnostic capabilities at equine center

A generous estate gift designated for facility upgrades has enabled the Marion duPont Scott Equine Medical Center to replace its nuclear scintigraphy equipment.

Nuclear scintigraphy, which converts radiation emitted from the patient into images of the skeletal structures, provides a comprehensive look at the areas of injury in the horse. On the morning of imaging, the horse is intravenously administered a radioactive isotope, which is taken up by bone in higher concentrations in areas of injury or inflammation, as well as normal areas of physis, or “growth plates.” The procedure can check the entire skeleton for abnormalities, including fracture or osteoarthritis, and can pinpoint inflammation due to infection or trauma. The modality is particularly effective at diagnosing difficult lameness issues or sore spots, which are revealed by increased radioactivity.

Although nuclear scintigraphy has been one of the key imaging modalities available at the center since 1995, vast improvements to the technology’s mechanics, electronics, and software algorithms have resulted in faster, clearer image captures. “Upgraded nuclear scintigraphy equipment broadens our imaging capabilities and adds to an already-extensive suite of imaging modalities, all of which are central to the high level of clinical services that we offer to our clients,” said Michael Erskine, Equine Medical Center director and Jean Ellen Shehan Professor.

**“Upgraded nuclear scintigraphy equipment broadens our imaging capabilities and adds to an already-extensive suite of imaging modalities, all of which are central to the high level of clinical services that we offer to our clients.”**

- Michael Erskine, Equine Medical Center director and Jean Ellen Shehan Professor

To house the new equipment, the center’s designated nuclear scintigraphy room was retrofitted with specialized, non-slip, poured flooring to ensure the safety of horses and staff. On May 7, the newly installed MiE Equine Scanner H.R. was used for the first time.

The scanner’s equine gamma camera is suspended just above the floor on a floating gantry, which allows full mobility of the equipment for optimal positioning, eliminating the need for undue repositioning of the equine patient. Not only can large areas of the horse be imaged at once, real-time motion correction ensures that the images remain sharp, despite any movement by the horse.



The MiE Equine Scanner H.R. at the Equine Medical Center



During image capture, the equipment’s integrated acquisition and processing system allows live review of the images on two screens, including the ability to compare limb to limb so that the perfect image of an area of interest is obtained.

Able to image literally every inch of a horse, nuclear scintigraphy has proven to be invaluable for diagnosing many orthopedic injuries that are not easily localized using other imaging techniques.

“Our upgrade in nuclear scintigraphy technology will ultimately allow us to image horses faster with improved image quality, expanding the number of scans we can perform daily, as well as fine-tuning our diagnostic capabilities,” said Maureen Kelleher, clinical assistant professor of sports medicine and surgery.

The equine patient is admitted to the center the day before the appointment and is bandaged overnight to maintain a suitable core temperature. The following morning, radioactive isotope is intravenously administered in preparation for the imaging process.

Besides providing top-notch diagnostic imaging, the procedure itself is very safe, radiation levels are extremely low, and horses are caused no distress.

## EQUINE MEDICAL CENTER SHIFTS CE AND CLIENT OUTREACH TO VIRTUAL WEBINARS

In response to pandemic restrictions, the Equine Medical Center successfully moved all continuing education (CE) and client outreach to a webinar format.

A six-credit-hour CE program for veterinary technicians was offered in October 2020, followed by a six-credit-hour CE program for veterinarians in January.

Horse owners and enthusiasts logged on in large numbers for the center’s highly popular “Tuesday Talks,” held each month from January to April, which presented a range of topics addressing equine health care.

Collectively, a total of 634 attendees participated in these instructional programs.

# GIVING TO THE COLLEGE

## An impressive show of support

Virginia Tech's annual Giving Day, a 24-hour fundraising effort in which participation and engagement are top priorities, is filled with opportunities and challenges that allow every contribution, no matter its amount, to make an impact.

At the veterinary college, our focus on the health and well-being of animals, humans, and communities remains steadfast. With that mission at the heart of everything we do, all of our goals on Giving Day were surpassed, thanks to several aspirational challenges from generous community members and a tremendous outpouring of support from alumni, faculty, staff, and friends.

The beneficiaries of our community's generosity span our new Animal Cancer Care and Research Center, which received nearly \$20,000 to continue its fight against cancer, and the Marion duPont Scott Equine Medical Center, whose work was bolstered by a remarkable gift of \$560,000 from two longtime clients.

The college is truly humbled by the community support—every donor, every dollar—received on Giving Day. Thank you for embracing our mission!

### 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

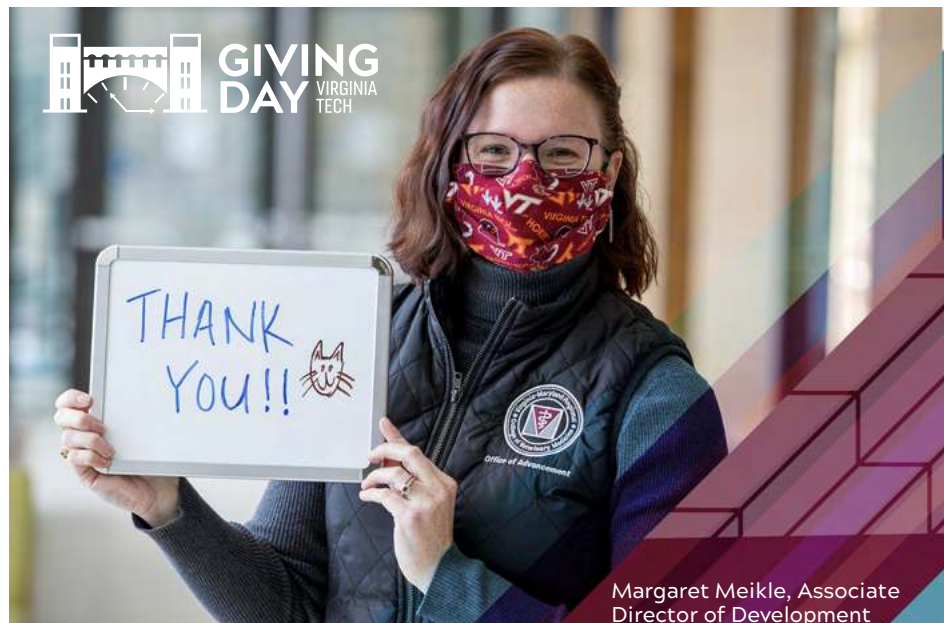
540-231-0465 | [cvmadvancement@vt.edu](mailto:cvmadvancement@vt.edu)

#### Make a gift online at

[vetmed.vt.edu/make-a-gift](https://vetmed.vt.edu/make-a-gift)

“I especially want to thank those who are able and willing to go above and beyond by giving back to the college on Giving Day. Because of your commitment and support, our programs will have a bigger impact to create and sustain health and well-being in the days to come. Thank you!

- Dean M. Daniel Givens



Margaret Meikle, Associate Director of Development

# 253

NUMBER OF  
DONORS

# 161%

INCREASE IN NUMBER  
OF DONORS IN 2019

# 36%

OF DONATIONS  
MADE BY ALUMNI

## \$645,405 IN 2021





## Grant helps improve pets' quality of life

Shortly after the veterinary college's Animal Cancer Care and Research Center opened in August 2020 in Roanoke, Virginia, a special opportunity arose: The PetCo Foundation—now known as PetCo Love—and its campaign partner, Blue Buffalo, invited the college to apply for newly created grants for veterinary school hospitals with cancer treatment programs.

After application review by PetCo Love, the Animal Cancer Center was awarded a \$75,000 grant to provide financial assistance to pet owners who may not be able to pay for some or all of the cancer diagnostic tests and treatment for their dogs and cats.

Separate from the compassionate care funds available at the college's Veterinary Teaching Hospital in Blacksburg, funding provided by this annual grant will be used at the discretion of the Animal Cancer Center's clinicians. Depending on the case, the circumstances, and the funds available, treatment costs may be covered partially or fully.

The collaboration between PetCo and Blue Buffalo provides critical funding to offset the toll that cancer takes on so many dogs and cats—and their human families—each year.

"Pet cancer is the No. 1 disease-related killer of dogs and cats, and a devastating diagnosis for pet parents who cannot afford treatment for their pets," said Susanne Kogut, president of PetCo Love. "With all the strides being made in the veterinary oncology field increasing treatment options for our pets, our goal is to make these lifesaving treatments available to more pets and their pet parents."

The funds not only change the lives of pets and their owners, but also improve the outlook for veterinary professionals who can help even more pets when costs might otherwise preclude such treatment, Kogut said.

Learn more about PetCo Love at [www.petcolove.org](http://www.petcolove.org).

**Top:** Shawna Klahn, associate professor of medical oncology, and veterinary technicians examine a patient at the Animal Cancer Center.

## College boards committed to service

At the veterinary college, the Dean's Advisory Board and the Alumni Board of Directors are in place to help promote, support, and improve the college and to tap into expertise brought to the table by volunteer members whose service advances connections and communications collegewide.

### DEAN'S ADVISORY BOARD

**Jason Bollenbeck**  
Co-owner and veterinarian  
Towne Animal Clinic  
Leesburg, Virginia

**John Brooks**  
Owner and veterinarian  
Greenbrier Veterinary Clinic  
Bel Air, Maryland

**Richard "Chip" Godine (DVM '87)**  
Co-owner and veterinarian  
Ruckersville Animal Hospital  
Ruckersville, Virginia

**Mark Helfat**  
Owner and veterinarian  
Larchmont Animal Hospital  
Mt. Laurel, New Jersey

**Christine Jenkins**  
Chief medical officer,  
vice president  
Veterinary Medical Services  
and Outcomes Research  
Zoetis Inc.  
Parsippany, New Jersey

**Thomas "Tom" Massie Jr.**  
(B.S. '91, DVM '95)  
Owner and veterinarian  
Rose Hill Veterinary Practice  
Washington, Virginia

**Lauren Maxey (DVM '13)**  
Associate veterinarian  
Banfield Pet Hospital  
Alexandria, Virginia

**Julia Murphy (DVM '92, M.S. '98)**  
State public health veterinarian  
Virginia Department of Health

**Brian Neumann (B.S. '11, DVM '14)**  
Partner and veterinarian  
Caring Hands Animal Hospital  
Alexandria, Virginia

**Marvin "Skip" Schuelke**  
President, retired  
Schuelke BioMedical Services  
Lyman, South Carolina

**Frank Scutchfield**  
Peter P. Bosomworth  
Professor of Health  
Management and Policy  
University of Kentucky  
Lexington, Kentucky

**Maria Shank (B.S. '99, M.S. '02, DVM '06)**  
Anatomic pathologist  
IDEXX  
Ruckersville, Virginia

**Michael Stanton**  
Director, business development  
BAE Systems  
Norfolk, Virginia

**William "Bill" Tyrrell (DVM '92)**  
Co-owner and veterinary  
cardiologist  
CVCA: Cardiac Care for Pets  
Leesburg, Virginia

### ALUMNI BOARD OF DIRECTORS

The college's Alumni Board of Directors represents the voices of more than 4,000 alumni. With membership of up to 25 alumni who span the college's degree programs, the board strives to foster goodwill among alumni, faculty, students, and friends of the veterinary college; to support the engagement efforts of the broader alumni community; and to drive future programs and initiatives at the college.

Join us in welcoming the board's newest members:

**Heather Beach (DVM '05)**  
**Carol Hansen Kern (DVM '95)**  
**Melissa Murray (DVM '94)**

**Tierra Price (DVM '20, MPH '20)**  
**Kim Schneider (DVM '90)**  
**Tosha Starke (DVM '04)**

Learn more about the Alumni Board of Directors at [vetmed.vt.edu/alumni](http://vetmed.vt.edu/alumni).

# ALUMNI NEWS

## A year of positive virtual engagement

As we look back on the college's response to COVID-19 and the shifting of all activities and Connect 2020 plans to virtual events, some moments shine forth.

Our Alumni Virtual Gathering in July 2020, during which Dean Givens introduced himself and interacted with alumni in only his second month on the job, paved the way for a series of virtual reunion events for the DVM classes of '85, '90, '95, '00, '05, '10, and '15.

Alumnae Cindy Driscoll (DVM '87) and Kari Meidenbauer (DVM '16, MPH '16) were presented with the Lifetime Achievement Alumni Award and Outstanding Recent Alumni Award, respectively. And during a surprise meeting with Dean Givens and Bill Tyrrell (DVM '92), Professor of Radiology Marti Moon Larson was presented with our inaugural Outstanding Faculty Alumni Award. For a video recap, go to [vetmed.vt.edu/larson](https://vetmed.vt.edu/larson).



Dean M. Daniel Givens and Professor of Radiology Marti Moon Larson

Continuing education programs were also prepared and presented virtually: a small animal program with college faculty in October 2020, a public health and wellness series with more than 20 alumni and student speakers in November 2020, and an equine lecture series with college faculty in February and March. To view the programs, go to [vetmed.vt.edu/ce](https://vetmed.vt.edu/ce).

Along with these virtual events, we welcomed six new members to our VMCVM Alumni Board of Directors and created the new VMCVM Memorial Website to honor and remember those from our community who have died.

In February, the college community far and wide answered the call and made possible our most successful Giving Day to date, with record-breaking participants and overall contributions. (See page 24.)

In a year of great challenges, we have every reason to be proud of our accomplishments. Looking ahead, we are hopeful for in-person events and many occasions to celebrate at the college and in our communities. Please join us when you can!

## Message from the Alumni Society president



I hope this message finds you all with continued health and well-being after an extraordinarily challenging past year. In spite of the adversity we all have faced, there are many positives we can celebrate and look forward to in the future.

First, I want to congratulate the veterinary college's newest graduates and welcome them into our alumni association of more than 4,000 members. Please extend a warm welcome and offer guidance and mentorship to the 128 DVM, 33 MPH, and five M.S. recipients who have joined our ranks. After their difficult final year of balancing virtual learning and modified clinical rotations amidst the pandemic, let's extend a hand and assist these new alumni as they acclimate to their professional lives.

I also want to thank you for the incredible turnout during this year's Giving Day. Ninety alumni participants contributed a total of \$32,550, which is nearly three times the number of alumni participants and nearly six times the amount raised for Giving Day 2019. We are so proud that our alumni gave more this year than the total contributions received by the college during the 2019 event! I am especially grateful to the DVM classes of 1992 and 2013, which each tallied nine participants for the Alumni Class Challenge. Thank you all for your great effort and show of support for the college.

Lastly, let's get excited for the upcoming in-person events at the college! Please consider attending Connect 2021, the college's signature event, on Sept. 17-18. Connect 2021 blends reunion events with Mentor Day, career opportunities, alumni awards presentation, and a continuing education program. All alumni, practitioners, students, faculty, staff, and their guests are encouraged to attend. To learn more and to register, go to [vetmed.vt.edu/connect-2021](https://vetmed.vt.edu/connect-2021). See you there!

Jesper Lorentzen (DVM '04)



# Annual Event CONNECT 2021

## IT'S ALMOST TIME TO CONNECT ... IN PERSON!

Join us Sept. 17-18 for this year's Connect 2021 events, live and in-person at the veterinary college!

Connect 2021 hosts an opportunity for students, alumni, and practitioners to meet and share the collective interest and mutual benefit of mentorship, career opportunities, continuing education (CE), and reunion celebrations. A virtual component will be provided for the CE program. All alumni and practitioners (looking to mentor and/or hire) are welcomed and encouraged to attend.

There will be special focus on alumni class reunion years '86, '91, '96, '01, '96, '11, and '16, in addition to last year's reunion class years who missed out on the fun, '85, '90, '95, '00, '05, '10, and '15, as well as the Class of 2020!

Go to [vetmed.vt.edu/connect-2021](https://vetmed.vt.edu/connect-2021) for more information and to register.

### CONNECT 2021 OVERVIEW

	FRIDAY, SEPT. 17	SATURDAY, SEPT. 18
MORNING	Mentor Day	CE program
AFTERNOON	Career mixer and match Optional tours	CE program Alumni and faculty award presentations
EVENING	College celebration	Alumni reunion events

### ACTION ITEMS

- Start planning with classmates and colleagues! In the upcoming weeks, we will be reaching out to individual classes to begin planning reunion events.
- Are you a practitioner interested in presenting a CE lecture? Speakers will receive an honorarium! Go to [vetmed.vt.edu/connect-2021](https://vetmed.vt.edu/connect-2021) to complete the submission form located under the "Want to Present CE?" tab.
- Nominate classmates, colleagues, and distinguished faculty for the 2021 Alumni and Faculty Awards to be presented on Saturday, Sept. 18! For more information, go to [vetmed.vt.edu/connect-2021](https://vetmed.vt.edu/connect-2021) to submit the nomination form located under the "Alumni/Faculty Awards Presentation" tab.



### ALUMNUS SHARES HIS EXPERTISE

On April 12-16, Justin Ganjei (DVM '11) visited the college to serve as a locum soft tissue surgeon in the Veterinary Teaching Hospital (VTH). During his appointment, he also presented a lecture—"Advances in Minimally Invasive Surgery: What can you do through a 1cm incision?"—to interested faculty, staff, and students.

"To be back at the VTH almost 10 years after graduation and working in the clinics alongside my former professors, classmates, and technicians/assistants was just a surreal experience that I would love to repeat," Ganjei said. "It was also really nice to receive all the support for the minimally invasive surgery that I am so passionate about, and I am thankful to the administration for providing what I needed to be able to perform a laparoscopic cholecystectomy while I was there, which went great!"

Thank you, Dr. Ganjei, for sharing your expertise and enthusiasm with the college!

### HONORING OUR DEPARTED

The VMCVM Memorial Website at [blogs.vetmed.vt.edu/memorials](https://blogs.vetmed.vt.edu/memorials) was launched to honor members of our veterinary college community who have died. We welcome you to contribute to this living memorial and to submit a message in memory of an alumna/alumnus, faculty, staff, student, or friend of the college.

Please visit [blogs.vetmed.vt.edu/wellness-memorial-fund](https://blogs.vetmed.vt.edu/wellness-memorial-fund) to make a donation in any amount to the VMCVM Wellness Memorial Fund; you will then be prompted to submit your memorial message.

The individuals on the page and their impact on the college community will be memorialized and honored through your messages and important contributions that drive wellness projects and initiatives.



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DVM Class of 2021 Commencement  
at Virginia Tech's Lane Stadium  
Photo by Skyler Taube

