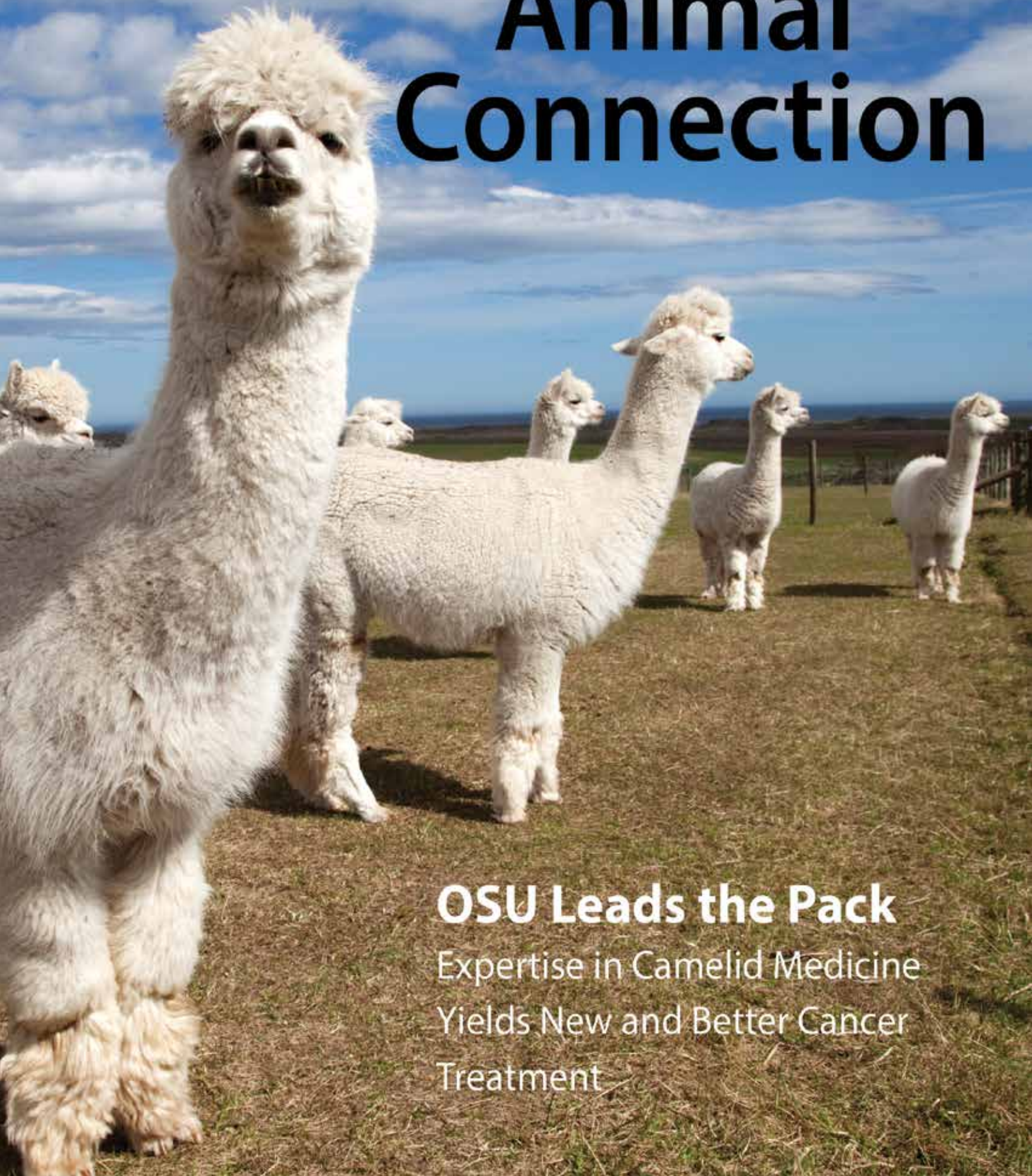


Animal Connection



OSU Leads the Pack

Expertise in Camelid Medicine
Yields New and Better Cancer
Treatment



Clinical Trials Are A Win-Win

After grieving the loss of her beloved labrador, Trudy Kutz decided she was finally ready for a new dog. She began scouring newspaper ads, and visiting local animal shelters, until one day, she found her. “I looked at the ads yet again and there she was! A man was offering his two-year-old black lab for free,” says Trudy. “A friend and I hurried to his home to meet her. She was a big, beautiful, lively lab, and didn’t have to think long about whether I wanted to adopt her.”

Trudy named her new dog Tasia, and with her sweet disposition, the lab quickly became one of the family. “She had been outdoors all her life, but it took her no time at all to realize that she really liked being an inside pet,” says Kutz.

In 2017, Tasia started limping. Kutz took her to the veterinarian, who found a lump on her leg and referred her to the oncology service at the OSU Veterinary Teaching Hospital. There Dr. Haley Leeper took a biopsy of the lump. Test results revealed osteosarcoma, a common bone tumor in dogs.

Studies have shown that at the time of diagnosis, 95% of dogs with osteosarcoma also have cancer elsewhere in their bodies. Without treatment, Tasia had about six months to live.

Dr. Leeper carefully explained several treatment options to Kutz, who chose amputation of the leg, followed by chemotherapy, as Tasia’s best prognosis for extended life. Kutz also chose to include Tasia in a clinical trial of a new cancer treatment.

Tasia is now cancer-free and has adapted to life with three legs. “It has slowed her down a bit but she is healthy and happy,” says Kutz.

“It is rewarding to know that besides the immediate, wonderful gift of extended life, the treatment provided for Tasia may potentially benefit others in the fight against cancer.”

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closer to our goal of purchasing this new instrument when we received a very generous gift of \$0.5 million from long-time supporters Ken and Celia Austin. We are making progress on raising the additional \$1.5 million to buy the linear accelerator and anticipate it will be here and in use by the end of 2020.

If you haven't been to see Magruder Hall recently, please come and visit us and see the transformation for yourself. We will be delighted to give you a tour and show off our new facilities.

We Did It!

What does it feel like when you finally accomplish one of your goals after years of intense planning, worrying, decision-making, compromising and cheerleading? At the Carlson College of Veterinary Medicine, I think we would all agree that we feel excited and relieved about the completion of our Magruder Hall expansion. We started the process close to 10 years ago when it was already apparent that we were outgrowing the physical space in our small animal hospital. At our grand opening, ribbon-chewing (that's right, the ribbon was chewed apart, not cut) of the Magruder expansion, on Sept. 23, 2019, we saw the result of a process that involved many people and a significant degree of determination.

The new small animal hospital wing houses Cardiology, Oncology and Internal Medicine in spaces that are designed to optimize both patient care and collaborative working and

learning. The Surgery service can now expand in the "old" small animal hospital wing and increase their efficiency and patient load. Above the new wing, a second floor houses additional offices, space for residents and interns, several seminar rooms and a lactation room.

We also built a beautiful new learning space that can seat 98 people for lectures, continuing education and other events that need a large room. Having expanded our class size from 56 to 72, it is crucial to have comfortable learning space for all. The Coffee Corral, our new café, is also housed in this area, along with student and visitor casual seating and another seminar room.

The third major piece to our expansion is a vault for the linear accelerator that will provide radiation therapy services for small and large animal cancer patients. We became

We welcomed the Class of 2023 in September and this class of 75 talented future veterinarians has already impressed us with their enthusiasm, positive attitudes, and eagerness to learn. Forty of them are from Oregon and 35 are from many other states and territories. They represent the greatest diversity yet with respect to racial and ethnic backgrounds and maintain the same high standard for criteria of prior academic and professional success that we have always enjoyed.

These students represent the future of veterinary medicine and we have been thinking a lot about what that veterinary future will be like. It is clear that rapid developments in technology, data availability and analysis, and business models are changing the pet and veterinary industries right now. It is our responsibility to train future veterinarians to be flexible and adept at problem-solving and creative thinking so they will be successful in whatever facet of veterinary medicine they choose. Our curriculum has been

going through some changes that reflect our commitment to this type of training. We have added a series of Veterinary Clinical Skills courses that are taught throughout the first and second year. We have also added a required course in research skills to facilitate students' understanding of the practice of evidence-based medicine.

Recently, concerns about the high suicide rate in veterinary medicine have been made public with an increased acknowledgment that this is a high stress profession. We are committed to providing resources to our students, faculty, and staff to help them achieve and maintain health and well-being in their lives and work. Our licensed psycholo-

gist is now at Magruder full time to provide services that support this commitment.

We hope you enjoy the stories and photos in this issue of Animal Connections. We are very happy to share our world and our work with you and excited about our future in the Carlson College of Veterinary Medicine.

Best wishes and thanks to all of you for your support.

Susan Tornquist



Lois Bates Acheson Dean



University President Ed Ray and three furry friends help celebrate the grand opening of the Magruder Hall expansion



LEADING THE PACK

Alpacas and llamas in the teaching herd at the Carlson College of Veterinary Medicine are providing tiny proteins that may revolutionize cancer treatment

BY LYN SMITH-GLORIA

In 2015, former President Jimmy Carter was diagnosed with stage four melanoma that had spread to his brain and liver, a cancer that typically has a 5% survival rate with standard treatment. But President Carter was given a new drug, an engineered antibody that targets the cells tumors use to 'hide' from a person's immune system. Nearly four years later, he is still alive, and recent studies show that this antibody has proven equally effective in 40% of similar cases.

An antibody is a protective protein produced by the immune system to fight foreign substances like bacteria,

viruses and cancer. An engineered antibody is created in a laboratory to fight very specific invaders. The down-side of an engineered antibody like the one Jimmy Carter received is that it is very expensive: dosage for an average patient is about \$12,000 a month.

Meanwhile, down on the OSU farm, llamas and alpacas (called camelids) are producing similar antibodies in return for food, shelter, and an occasional haircut. Their antibodies are smaller than humans, and are commonly referred to as nanobodies.

In addition to cost savings, there are several advantages to using llama and alpaca nanobodies to develop new drugs:

- Their small size makes them less likely to cause side effects;
- they remain chemically stable in storage;
- and they have a superior ability to recognize binding sites.

What are binding sites? That's where antibodies fight the invaders. For example: when an animal's immune system recognizes a foreign substance like a virus, it sends out specific antibodies that will bind to virus cells to inhibit their performance. Nanobodies do it better.

For the OSU research project, alpacas and llamas were vaccinated with a canine protein to stimulate their immune system to produce a specific nanobody called Anti-PD1. "It's like getting a flu shot," says Dan Mourich, co-leader of a research team that is developing Anti-PD1 as a canine cancer treatment. "The animals are not infected with anything, it's just a purified protein."

Once the llamas and alpacas have built up nanobodies, their blood is drawn, and the technical stuff begins.

Tumor cells create a protein called PDL that binds to the body's T-cells (the cancer fighters) and prevents them from doing their job. Anti-PD1 gets in the middle and binds to the T-cell so the PDL can't. "Anti-PD1 maintains the T-cell's killing signal," says Carl Ruby, project co-leader. [See illustration below.]

Using camelid blood, the research team was able to generate a family of Anti-PD1 nanobodies and find the one that was most effective at blocking cancer cells. This final Anti-PD1 holds so much promise for canine cancer treatment that OSU requested and received a provisional patent on it.

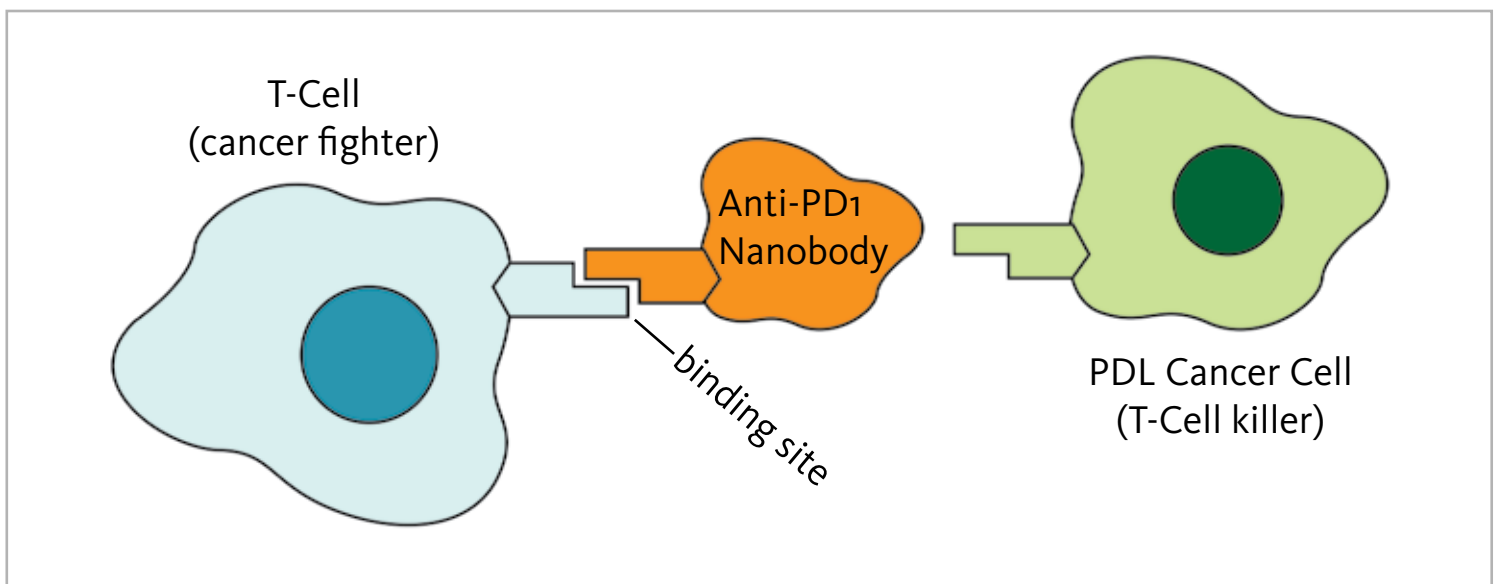
"We are still a long way from producing a drug," says Dr. Shay Bracha, a veterinary oncologist on the team. "There are many, many steps to doing that." The team wants to further understand how it binds and why it is effective, then move on

to testing in mice. Ultimately, they hope to have a drug that can be used in clinical trials with dogs. "We hope to squeeze that into the next two years," says Bracha.

Dr. Chris Cebra, Chair of the Department of Clinical Sciences, gathered together money from various sources to make this project happen. "We are working on a shoestring," says Dr. Bracha. But all involved feel the potential is so huge, it is worth the struggle.

Dr. Cebra also notes that nanobodies show great promise for a wide range of medical treatment and OSU is the ideal place for that to happen.

"There is a lot of interest worldwide in nanobody research for all kinds of medical uses, but most researchers have little or no access to camelids," says Dr. Cebra. "The Carlson College of Veterinary Medicine is a world leader in camelid medicine, has a camelid research laboratory, and has a sizable herd of llamas and alpacas. That makes us uniquely placed to develop this technology, and to collaborate with other researchers."



Donald Gridiron, Class of 2021, assists with tumor removal on a tiger at the Mysore Zoo in India.

A photograph showing a tiger lying on a metal operating table in a surgical room. The tiger is sedated and has its mouth open, with a tube inserted. Several medical professionals in green scrubs, masks, and caps are gathered around the tiger, performing a procedure. One person in the foreground is wearing a white lab coat and a green apron, likely the student mentioned in the caption. The room is brightly lit with overhead surgical lamps.

A Global Perspective

Students Gain Insight and Knowledge With India Experience

BY LYN SMITH-GLORIA

Throughout their four years at OSU, veterinary students have the opportunity to participate in many externships, from a few days at the Portland Zoo to a few weeks at a local veterinary clinic. One of the most extraordinary externships provided by the Carlson College of Veterinary Medicine is a month-long stay at the Karnataka Veterinary University (KVU) in Bangalore, India.

This year Donald Gridiron was among a small group of students selected to participate. His externship included hands-on training in internal medicine, obstetrics, and surgery, plus unique learning experiences like working with zoo veterinarians. “The most interesting case I worked on, by far, was a surgery at the Mysore Zoo. We got to observe and assist in removal of a mass from a seven-year-old tiger named Chamundi,” says Gridiron. “We acted as the anesthesiologists, monitored vitals, and collected blood.”

The Veterinary Teaching Hospital in Bangalore is government funded, and services are available at a low cost which makes it a very busy place. This gave the OSU students a

lot of experience in a short amount of time. “I spent just under three years in general practice before entering veterinary school, and saw two or three pyometra surgeries the whole time,” says Gridiron. “On the OB rotation [in India], I observed two or three a day.”

Another difference in the Bangalore teaching hospital: Small animal medicine is provided in one big room with many exam tables, holding a variety of animals, receiving a variety of treatments. “I got to see good examples of practicing medicine with what you have available and not necessarily what is considered the gold standard, and realizing that it still benefits the animal,” says student Sabrina Dean. “This knowledge will be important in future practice, because I will work with clients who cannot afford to do everything I want for a pet.”

Both Gridiron and Dean were actively involved in cases not available to second-year students in the U.S. “I got to assist with a traumatic abdominal hernia repair in a sheep,” says Gridiron. “The guts were literally hanging out . . . it took eight

people to properly position the sheep and surgically close the tear in the muscles.”

That kind of hands-on participation is a confidence-builder for students just starting a difficult profession. “I gained confidence in myself by being there,” says Dean. “I really had to break out of my shell, and become responsible for making sure I was engaged and asking for what I needed, which will help me a lot when I start doing clinical work.”

The India Externship Training Program was conceived by Dr. Manoj Pastey, Associate Professor of Virology, to foster collaboration between OSU and his alma mater. It is financed by the Department of Biological Sciences. All the students on the trip gained invaluable experience.

“This trip helped remind me why I love doing what I do,” says Gridiron. “Even though things may be different around the world, people still love their animals just the same, and to me that was the coolest part. By the end of the trip I was really able to understand the importance of a veterinarian in any society.”

Out Of The Hospital



Melvin Is A Happy Tripod

For a potbelly pig on three legs, Melvin gets around pretty good, and he loves his new home at Odd Man Inn Animal Refuge.

Last year Melvin was living on a farm when he was attacked by a dog. His right front leg was fractured, and both his ear flaps destroyed. Neglect of his injuries resulted in infected ears and a badly-healed leg that was unusable and very painful.

Lucky for Melvin, he was rescued by Odd Man Inn who took him to the OSU Veterinary Teaching Hospital. They put him on pain killer and antibiotics. They also determined that his best bet for future good health was to amputate his ruined leg.

Melvin is now on a strict weight-management diet to take some strain off his good front leg, but otherwise he is living the good life with the other pigs, ducks, goats and llamas at the refuge.

A Pacemaker For Colby . . .



Colby arrived at the OSU Veterinary Teaching Hospital suffering from seizures and a slow heart rate. Cardiologist Dr. Kate Scollan diagnosed an atrioventricular block, a condition that could lead to heart failure. She recommended installing a permanent pacemaker in Colby's heart to regulate the beat.

"It didn't take me long to make the decision to go ahead with this because he was otherwise healthy, and I could not bear the thought that he would die suddenly outdoors, and I would not know what had happened to him," says Colby's mom Linda Garrett. Colby's pacemaker surgery was a big success and he is now back to his old self.

The OSU cardiology service has implanted pacemakers in nearly 150 dogs, but only a few cats. The human-sized devices are adapted to veterinary medicine by placing the battery pack in the animal's abdomen.



Paralyzed Dog Walking Again

A freak accident on an icy path left Tucker paralyzed in both back legs. His frantic mom could not find anyone to help until she called the OSU Veterinary Teaching Hospital (VTH).

With two orthopedic surgeons and a large orthopedic team, the VTH treats hundreds of dogs with disc injuries every year, so the staff answering phones know how important it is to act quickly in cases of paralysis. They described Tucker's symptoms to Dr. Isaac Cortes and he got Tucker into the hospital immediately.

An MRI confirmed Tucker had herniated discs extruding into the spinal canal, compressing his spine. Surgery was needed ASAP to prevent permanent damage. Dr. Jennifer Warnock operated that afternoon. Soon after waking up, the ICU technicians were happy to see a positive sign: Tucker wagging his tail.

It took many months of rehabilitation before Tucker could find his legs and begin walking again. Now he is chasing his favorite ball, and running around the yard with his best canine friend, Zoe.

... And One For Xena Too

Like Colby, Xena also had an atrioventricular block. In August the cardiology team implanted a pacemaker. Surprisingly, she was the second ferret to receive a pacemaker at OSU.

At Xena's two-week checkup, Dr. Kate Scollan found her healthy, and an electrocardiograph verified that the pacemaker was doing its job. Students on cardiology rotation were able to help with Xena's checkup and enjoyed the opportunity to work on an exotic case.



New Spaces

PHOTOGRAPHY BY KARL MASDAAM



A Second Chance

Faced with a rare lung disease *plus* a liver disease that was virtually unknown, it took a team effort to save Chance.

At twenty-seven Chance is an older horse, but he still enjoys going for a ride with his owner. Last winter Chance started losing weight and energy. A visit to his veterinarian resulted in several abnormal blood tests that made her concerned about his liver function, so she referred Chance to the OSU Veterinary Teaching Hospital (VTH) for further evaluation.

Dr. Ana Pacheco is a large animal internal medicine specialist at OSU. She examined Chance, performed an ultrasound, and ordered a complete blood workup. The ultrasound showed an unexpected result: not only did his liver appear abnormal, but also his lungs. Dr. Pacheco ordered x-rays of his chest which revealed large nodules on his lungs. She had those biopsied and sent the tissue to the Veterinary Diagnostic Laboratory,

The pathologist at the lab found severe inflammation and fibrosis of Chance's lungs, and diagnosed Equine Multinodular Pulmonary Fibrosis (EMPF), in conjunction with Equine Herpes Virus. The big surprise: They also found herpes and fibrosis in his liver.

EMPF was first discovered in horses in 2007, and equine herpes in the liver is very rare, so Dr. Pacheco was faced with a lung disease that had only recently been studied, and a liver disease that was virtually unknown.

Dr. Karen Labbe, a veterinarian who was completing a fellowship at OSU, was part of the team caring for Chance. She combed through recently published studies, and was able to find a couple of cases in an Australian journal where horses with EMPF also had

Reaching For The High Bar

liver fibrosis. With that information, she and Dr. Pacheco decided to start Chance on four weeks of steroids to bring down inflammation and slow the progress of the fibrosis. They also put him on a new diet of hay-free alfalfa feed.

The prognosis for EMPF treatment is fair to poor, but at his one-month checkup, Chance showed significant improvement in weight gain and body condition, and his liver tests were close to normal. His chest x-rays showed significant reduction of the fibrosis.

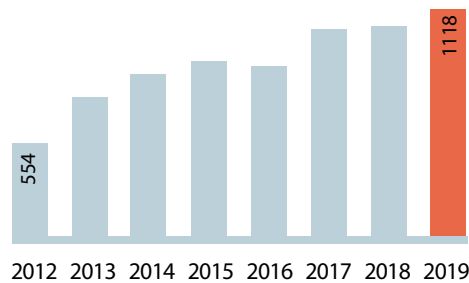
At his next check up, six months later, Chance showed even more improvement in both his lungs and liver. “Most important was his incredible improvement in attitude and body condition,” says Dr. Pacheco. “He was 145 pounds heavier than when he first came into the hospital. He made an amazing recovery.”

Dr. Pacheco recognizes that the team approach at the VTH is a big advantage in treating her patients. “We have so many opportunities to collaborate,” she says. “I can work with radiologists, and pathologists, and other specialists. We also have great equipment and great technicians. It’s a big group who are involved in caring for our patients.”

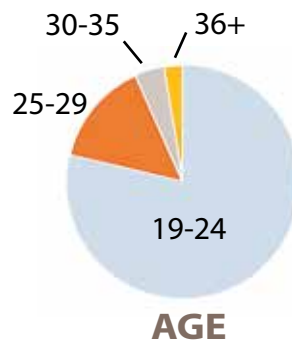
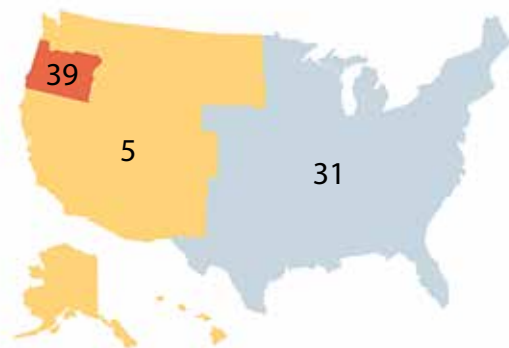
Chance is currently feeling good and enjoying a normal life. “He has slowly gotten better and better,” says his trainer, Tobey Spitzer. “I started working him slowly on the ground and now I am riding him. He looks beautiful!”

The Class of 2023

Number of applicants:
1,118

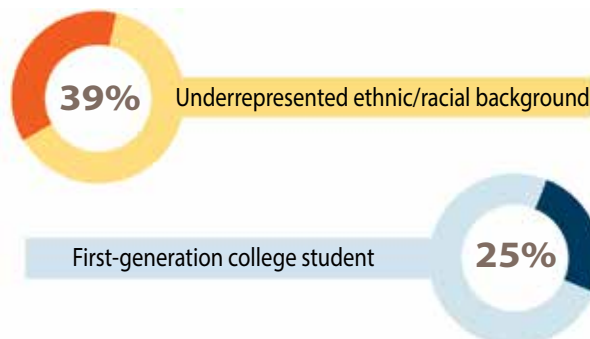


About The 75 Selected



AVERAGE GPA

3.63



*Less than 100% total due to one non-responder

Fun Facts

1. I crossed the Atlantic Ocean aboard a People's Liberation Army/Navy ship.
2. I am a competitive roller dancer.
3. I think Wendy's chicken nuggets are superior.
4. I have been a beekeeper for five years.
5. I grew up in North Pole, Alaska.
6. I am an army veteran who dropped out of school to get a GED.
7. I have taught my pet rat to play fetch.
8. I have swum with sharks in Belize.
9. I am a retired bull-rider and huge fan of classical music.
10. After graduating, I plan to open an elephant sanctuary.
11. I am partial to circular, flat foods like pizza, donuts, and Eggo waffles.
12. I run at least three mud/obstacle courses every year.
13. I am a first generation student whose mom is from El Salvador and dad is from Cuba.
14. I collect and decorate hubcaps.
15. I have been a CVT since 2013.
16. I adopted a Golden Retriever from Turkey.
17. I have hiked over 150 miles on the Pacific Crest Trail.
18. I want alpacas instead of children.
19. I was charged by a white rhino in South Africa.



Olive Britt



Dogs

From community outreach events to the classrooms of Magruder Hall, dogs can be found helping out.

The student-teaching room is lined with stainless steel tables, but step into the neurology class on exam day, and you will see students down on the floor with dogs. The dogs aren't patients, they are 'teaching assistants' who work for hugs and treats.

Where does the college get these furry, cooperative teachers? Very often they are the pets of students and faculty, and those who like lots of attention participate in many different learning activities throughout the college.

Sophie and Pasco are instantly recognizable walking down the hallways of Magruder Hall. Sophie is a tall, regal standard poodle with impeccable grooming. Pasco is a tiny furball. They are well-known in the college, not only in the classroom, but also for their participation in student events, and in a wide-variety of community outreach efforts. They belong to student Eilea Delgadillo.

"They are both old and well-socialized," says Delgadillo. "I was a groomer before I went to vet school, so they are

at Work

both very used to frequent handling.” Sophie and Pasco have had their teeth cleaned by the dental class, and received ultrasound images from veterinarians taking a continuing education class. Dozens of elementary school children have used a stethoscope to hear their kindly canine hearts beating at Science Nights, and in programs like How We Role, which introduces kids to veterinary medicine with a goal of diversifying the profession.

Although students are only allowed to bring assistance dogs to school with them, the occasional ‘teaching’ dog is an exception. Nikita Neuhaus has an Australian Shepard mix named K-Dog who volunteers at the college regularly. “She has come in for almost every student teaching lesson we have had,” says Neuhaus. “She was the demo dog for physical exams, for body condition scoring, and for neurological exams. She has also very patiently allowed us to draw her blood.” Now that is really going above and beyond, but K-dog gets a lot in return.

“She loves attention. All she wants is for someone to pet her and snuggle her, so having a whole class full of people who do that is like a dream come true, even if it means a little poke.”



Research Helps Farmers





Faculty Profile

Donor Story

BY KATHRYN WHITE

Alumni Profiles

BY KATHRYN WHITE

Alumni Profiles

Continued on page 11

Because We Give A DAM

Alumni, we want to hear about your successes! The Carlson College of Veterinary Medicine wants to know about your practice, and your nominations, awards, and other recognition you have earned. We want to know what has made you DAM proud of the work you have done.

Why? Because we give a DAM! Submit your stories to Sara.k.smith@oregonstate.edu. We will highlight these stories in our Animal Connection newsletter, alumni Facebook page, and Vet Gazette blog.

How?

Update your contact information at vetmed.oregonstate.edu/alumni

Post job openings and externships at vetmed@oregonstate.edu
or the alumni Facebook page: [OregonStateCVMAumni](https://www.facebook.com/OregonStateCVMAumni)

Find out about alumni receptions and class reunions by
contacting Sara Smith: sara.k.smith@oregonstate.edu



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Animal Connection is published by the Oregon State University
College of Veterinary Medicine: Lyn Smith-Gloria, editor and designer.
Send feedback to: cvmnews@oregonstate.edu

Honor the Memory of a Special Friend



The OSU Pet Memorial Program

The Pet Memorial Program is a way to honor beloved pets, and to offer comfort to others who have lost a companion and friend.

When you give to the Pet Memorial Program:

- We send the pet owner a personalized condolence card, signed by the Dean, acknowledging the donation.
- We invite pet owners to post a photo and story about their pet on the Pet Memorial website.
- We help pet owners notify their family and friends through social media that a memorial has been established.

When you honor these wonderful animals, your donation raises funds for student scholarships - \$35,000 this year!

osupetmemorial.org



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