

Advance

Healthy Animals | Healthy People | Healthy Planet

Improving the health
of animals and people
at home and around
the world.

A newsletter from the Washington State University College of Veterinary Medicine

Spring/Summer 2016

WSU's Pituitary Team

Leading the Nation in
Pituitary Surgical Treatment



College of

Veterinary Medicine

WASHINGTON STATE UNIVERSITY



*Tina Owen ('92 DVM), WSU veterinary surgeon
Linda Martin, WSU veterinary critical care specialist
Annie Chen-Allen, WSU veterinary neurologist*



Dean Bryan Slinker,
WSU College of
Veterinary Medicine

Challenges. We all have them. Often when we hear the word “challenge” we think of a difficult obstacle in our lives to be overcome. But for us in your College of Veterinary Medicine at WSU, we prefer to apply the magic of alchemy to turn challenges into opportunities.

The challenges we face serve as the basis for the hope and opportunity expressed in the Grand Challenges framed recently by WSU (go.wsu.edu/GrandChallenges). These serve as a guide for much of what we aspire to achieve in the coming years. The Grand Challenges are focused on large, complex, multifaceted issues that affect us here at home and across the globe. Although lofty and broad, they will serve to guide much of what our college tries to achieve as one of WSU’s signature programs.

The Grand Challenges pull in the best minds across academic disciplines to help solve some of the most pressing problems we face. Sustaining health for people and animals, for instance, is intertwined with access to fresh water, ample food, and a reliable source of energy. Over the next 35 years, the world’s population is expected to grow to 9.5 billion—that’s 2 billion more people than are on the planet today. To feed this many people requires increasing protein production by 70 percent in a world facing climate change. So we must discover how to feed more people with no more arable land than we have today and, probably, less water. How to do this is a grand challenge indeed.

Although there will be many solutions, using genetics to produce livestock that can thrive with less water and resist infectious diseases will be key. We intend to build on our many strengths in the fundamental life sciences, including our expertise in reproductive biology, to discover basic

genetic information that underlies desirable traits for livestock production and resistance to infectious diseases. Together with researchers across WSU, we will strive to advance our knowledge of animal genomes and advance gene editing research and development. Applying genomics knowledge and improved reproductive technologies, we can then help the peoples of the world thrive. On a global scale, an abundant, nutritious, safe food supply is as fundamental as a reduced disease burden when it comes to sustaining health. Thus, as our global programs engage in places like east Africa, it is increasingly clear that we must devote more attention to nutrition as we seek to also reduce disease.

I think it is amazing that the newly developing gene editing technologies we seek to apply to improve livestock production to better feed the world also, for the first time, begin to give us the ability to correct genetic defects. Thus, we foresee a day in which the discoveries of our Individualized Veterinary Medicine program (visit vcpl.vetmed.wsu.edu), that now allow us to use genetic testing to shape therapy to greatest effectiveness with least toxicity, can lead to precise gene edits to repair the defect. For example, rather than testing a working-breed dog for sensitivity to the commonly used drug, ivermectin, in the foreseeable future we will instead be able to repair the gene defect so that offspring will no longer carry the undesirable trait. Grand.

Go Cougs!

Dr. Bryan Slinker, Dean
WSU College of Veterinary Medicine

**Advance
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People, Healthy Planet**

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Shelter Training Better Prepares Veterinary Students

by Marcia Hill Gossard '99, '04

Island Cats



Kirsten Ronngren ('15 DVM) with Gary Marshall ('89 DVM) who hired her after graduation.

Like many veterinary students in their final year of school, Kirsten Ronngren ('15 DVM) was eager to get more surgical experience before graduation. So when she got the opportunity to spend two weeks at Seattle Humane as one of her fourth-year rotations, she jumped at the chance.

"Repetition is what makes you better and more confident," says Ronngren, who performed nearly 10 times the number of surgeries at Seattle Humane than she would have during her last year of veterinary school before the WSU Humane Society Alliance Education Program began.

The WSU College of Veterinary Medicine started the program in 2013 by partnering with regional humane societies. Students can elect to spend two weeks during their final year of veterinary school at either Seattle Humane in Bellevue, Wash. or the Idaho Humane Society in Boise, Idaho. The college now also partners with other regional and local shelters to bring animals to WSU for spaying and neutering. The animals are then returned to the shelters for adoption.

"I'm thrilled with the program," says alumnus Gary Marshall ('89 DVM) who hired Ronngren right after graduation. Marshall owns Island Cats Veterinary Hospital on Mercer Island, Wash., just a few miles from Seattle Humane. Because of the training, Marshall says students like Ronngren are able to do more on their own right out of school.

For Ronngren, part of what made the experience so valuable were the opportunities to critically think about each case, how it might

be different from other cases she had seen, and to decide the best way to approach a particular surgery. If she had questions, the veterinarians on staff were there to help her.

"Medicine is a puzzle and no two cases are the same," she says. "They pushed me to think on my own and to think creatively."

Ronngren also wanted the experience of working in shelter medicine because it would give her the opportunity to treat more patients with common conditions such as respiratory problems in cats or kennel cough in dogs. Today, she says she not only feels more confident when diagnosing patients with these illnesses, but also has a better idea of what will help an animal feel its best.

Working at the practice in Mercer Island, she now sees some of the same patients (now adopted) she cared for while at Seattle Humane. Because she knows the protocol from the shelter and how to read their paperwork, she says it helps her to better know how to treat the animal when it comes to the clinic.

Marshall agrees that the rotation is beneficial because it gives veterinary students more practical experience. What they see at a clinic or at a shelter, he says, is a lot different than what they see as a student. "Expanding the program will give students who have shelter experience a leg up when applying for jobs," says Marshall.

Repetition is what makes you better and more confident.

—Kirsten Ronngren ('15 DVM) who spent two weeks at Seattle Humane in Bellevue during her final year of veterinary school.

Currently, there are not enough spots for all WSU students to complete a rotation at one of the humane societies, but Marshall is looking forward to the day when all WSU veterinary students are able to have this opportunity.

"Only better things can come to pets and the shelters when WSU gets involved," says Marshall.



For more information about the program, visit go.vetmed.wsu.edu/HumaneSociety.

WSU's Pituitary Team Leading the Nation in Pituitary Surgical Treatment

by Marcia Hill Gossard '99, '04



Sundays Hunt and Anna in 2007.



Anna after surgery.

Anna, a 10-year-old chestnut colored boxer with dark brown ears and a white patch on her chest, had always been a healthy and active dog. But in the spring of 2014, her owner, Sundays Hunt of Salt Lake City, Utah, noticed Anna grew lethargic and was less interested in playing with the other two dogs. She was also eating all the time. "I couldn't feed her enough," says Hunt. "It was never enough."

In less than three months, Anna gained nearly 30 pounds and had a pronounced potbelly. She could barely muster the energy to get up and go outside. The skin on her back was covered with scaly patches; some were as big as Hunt's hand. "In a short period of time everything changed so fast," says Hunt. She took Anna to her local veterinarian for a wellness check. A blood test confirmed Anna had Cushing's disease.

Each year in the United States, roughly 100,000 dogs are diagnosed with Cushing's. Roughly 85 percent of dogs with Cushing's have pituitary dependent hypercortisolism, or PDH, caused by a pituitary tumor that triggers excessive levels of the stress hormone cortisol. When functioning normally, the pituitary, a pea-sized gland at the base of the brain, produces adrenocorticotropic hormone, ACTH, which stimulates the adrenal glands near the kidneys to produce cortisol. Like Anna, dogs with the disease may be ravenous, have skin lesions, or both. They may also drink excessive amounts of water, urinate more frequently, or experience muscle weakness or hair loss. Left untreated, a pituitary tumor could grow large enough to press on the brain, causing neurological symptoms such as difficulty walking or seeing, or other conditions including diabetes or seizures, and eventually death.

Hunt's local veterinarian put Anna on medication to reduce the production of cortisol and control the symptoms. But after a month, Anna seemed to be feeling worse, not better. "I was at a

loss and had no answers," says Hunt. "It was challenging to see her so sick and not know why." Average life expectancy for boxers is 9 to 13 years, and Hunt knew Anna had lived a good life. But she hoped more could be done. So Hunt took Anna to see Dr. Melissa Tucker, an internal medicine specialist in Salt Lake City. After reviewing Anna's medical records, Tucker determined Anna likely had a pituitary tumor, which she confirmed using MRI. She first called WSU veterinary oncologist Janean Fidel to discuss using radiation as an option to reduce the size of the tumor. For smaller tumors, radiation can work well, and in about 25 percent of cases radiation can shrink a tumor by about half. But it does not control the hormonal effects of the tumor well, says Dr. Tina Owen, a WSU veterinary surgeon who specializes in pituitary surgery. Because of Anna's neurological symptoms and because she was weakened from the disease, surgically removing the tumor was the best option. Tucker, who had also been a veterinary resident at WSU, referred Anna to Owen. WSU is currently the only veterinary hospital in the country to offer this type of surgery for animal patients.

With a successful surgery a dog can live a normal life for many years.

—Dr. Tina Owen, a WSU veterinary surgeon who specializes in pituitary surgery to treat Cushing's disease and other pituitary related conditions.

"Surgery is the first line of treatment in humans with Cushing's," says Owen. It is also the first line of treatment for dogs in the Netherlands where the surgery is done routinely. But in the United States, it has been more common to treat dogs with medication or radiation, which only manages the symptoms, says Owen. "Pituitary surgery has the potential for curing," she says. According to Owen, roughly 85 to 95 percent of dogs who have the tumor removed have hormonal remission, meaning it cures the hormonal imbalance and the symptoms. "With a successful surgery a dog can live a normal life for many years," she says.

Called transsphenoidal surgery, Owen uses an exoscope, a long tube with magnification and a light at the end, to reach the pituitary at the base of the skull by entering through the soft palate in the mouth. Popularized in veterinary medicine by Dr. Bjorn Meij at Utrecht in the Netherlands, Owen and her colleagues improved the surgical technique for dogs by adding a high definition video telescope to the procedure. Compared to cranial surgery where part of the skull is removed, transsphenoidal surgery is less invasive to the patient. Like with any surgery in the brain, however, there are a number of potential risks.



Eddie, a Jack Russell Terrier with the same type of Cushing's disease as Anna, undergoing transsphenoidal surgery at WSU in April 2016.

Hunt didn't think Anna was strong enough to fly to Pullman for the surgery, so they drove 12 hours from Salt Lake City. The next day, on November 12, 2014, they met the WSU pituitary team. WSU veterinary neurologist Dr. Annie Chen-Allen performed the neurological testing on Anna. "It was incredible," says Hunt. "Everybody from the start of the process was on the ball."

The delicate surgery, performed by Owen, took six hours. After the surgery, Dr. Linda Martin, a WSU veterinary critical care specialist, monitored Anna's recovery in the intensive care unit. A CT scan of her brain showed the tumor had been successfully removed. The team approach at WSU "leads to better care and long term outcomes," says Martin.

"It was so touching to me that the staff was so attentive, sensitive, and caring," says Hunt.

Immediately after surgery, Anna was not walking well and developed aspiration pneumonia. Hunt began to wonder if she had done too much, if Anna was ever going to be able to have a normal dog's life again. But within just a few days the pituitary team began to see Anna's symptoms improve. Six weeks after the surgery, Hunt says Anna was behaving like her old self.

Hunt and Anna traveled to the California coast three times over the past year so Anna could walk along the beach and run in the water. "It was such a treat to make these memories with her," says Hunt. "It was truly a miracle that we experienced a one-year anniversary."

When Anna returned for her six-month checkup with Dr. Tucker, an MRI test showed Anna was tumor free and she had no signs of Cushing's. But by January 2016, Anna's health started to decline unexpectedly. Anna no longer wanted to eat or ride in the car, one of her favorite things to do. During the last few weeks of Anna's life, Hunt says her dog "Sophie," who is also Anna's daughter, wouldn't leave Anna's side. Anna died of unknown causes on January 30, 2016, more than 14 months after her pituitary surgery.

"Anna really enjoyed life to the very end," says Hunt. "I have so much peace that we made so much out of every day."

Cats are Not Small Dogs

Unlike dogs, cats with pituitary tumors typically show an excess amount of growth hormone. They become diabetic and insulin resistant. Their jaw bones and feet look large and their hearts can enlarge. There is no good drug treatment for cats with pituitary tumors, so radiation and surgery are the best options. In 70 to 80 percent of the cats who get the surgery, their symptoms improve or disappear, says Dr. Tina Owen, a WSU veterinary surgeon who specializes in pituitary surgery.



For more information about pituitary surgery at WSU and treatment options, visit go.vetmed.wsu.edu/Pituitary.



Lynne Haley,
Senior Director of
Development

In March we proudly launched a new and improved Pet Memorial Program website so it would be even easier to express sympathy and compassion to grieving pet owners by memorializing a pet and submitting a story. Over the last 20 years, tens of thousands of beloved animals have been memorialized by donations made in their names from pet owners, family members, friends, and veterinarians. In the last three years alone, the program has raised nearly \$240,000.

Originally called the Companion Animal Fund, donations made to the program then and now are used to educate the next generation of veterinarians and to improve the health of animals.

Last year \$25,000 from the Pet Memorial Program was used as a cornerstone gift to help raise money for a much needed new MRI at the college. Today we are nearly halfway to our goal of purchasing this life-saving machine that can show if a horse has a torn ligament or a dog has a brain tumor (www.vetmed.wsu.edu/giving/MRI).

We are so grateful to everyone who has given to the program or shared a story about their pet. If you haven't visited our Pet Memorial site, or if it has been a while, please visit our new site and let us know what you think.

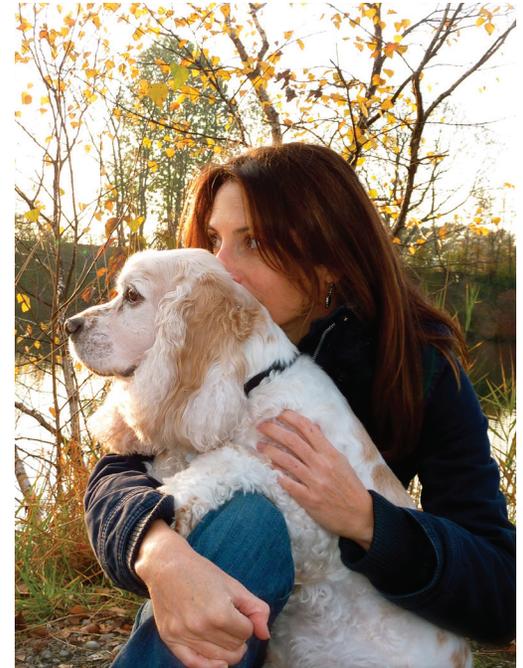
➔ [Learn more about the Pet Memorial Program at go.vetmed.wsu.edu/PetMemorial.](http://go.vetmed.wsu.edu/PetMemorial)

I can't tell you how much I appreciate this opportunity to offer condolences to friends who have lost pets. I still remember what a wonderful feeling it was to receive a letter from you folks when I lost my dear little calico, Harriett. Keep up the good work.

—Aberdeen, Washington

At our clinic we love the WSU Pet Memorial Program. It is so much more meaningful to our clients who have lost a beloved pet than cards or flowers ever could be.

—Dr. John Winters, Beverly Hills Small Animal Hospital



"Smudge" is one of thousands of pets memorialized through the Pet Memorial Program. Smudge and Melissa were together for 18 years before he died in 2014.

[Awards and Achievements]



Tom Besser has been selected as the Rocky Crate D.V.M. and Wild Sheep Foundation Endowed Chair in Wild Sheep Disease Research. In 1998, Crate ('69 DVM), an avid big game hunter and Wild Sheep Foundation member, donated

more than \$1.5 million to WSU and the Wild Sheep Foundation from his estate. Those funds established an endowed chair position dedicated exclusively to research on wild sheep diseases and graduate education. Subramaniam Srikumaran, who is retiring, held the position from 2004 to 2015.



After serving a combined total of 79 years with the college and teaching approximately 4,000 veterinary and graduate students, **Charles Leathers** and **Bill Foreyt** in the Department of Veterinary

Microbiology and Pathology retired on January 31, 2016. Dr. Leathers, who joined the faculty in 1977, taught pathology and was the associate director of the Washington Animal Disease Diagnostic Lab since 2000. Dr. Foreyt, who taught parasitology and wildlife diseases, came to the college in 1976 and conducted research on parasite and disease interactions between domestic livestock, wildlife, and humans.

Your Gifts in Action



Scholarship Helps Make Dreams a Reality

by Marcia Hill Gossard '99, '04

In the spring of 2015, Floricel Gonzalez ('16 BS) was attending the School of Molecular Biosciences scholarship awards ceremony holding a letter in her hand. She knew she'd received a scholarship, but didn't yet know which one. Carefully opening the letter, she read the name: The Elizabeth R. Hall Endowment Scholarship*.

"My jaw dropped," says Gonzalez. The prestigious award, given to promising students in medical microbiology, was \$4,000. "It was a breath of fresh air that I don't have to worry about tuition or books for my last year."

Gonzalez, the daughter of migrant farm workers, grew up in Selah, Washington. Her parents immigrated in 1999 from Zacatecas, Mexico to the Yakima Valley in Washington State when Gonzalez was 4 years old. They worked hard so that she and her five brothers and sisters could have more career opportunities.

"My parents' dream of a better future instilled in me a passion for higher education," says Gonzalez. "I did not know how I was going to fund my education, but thanks to various scholarships, such as this one, I have been able to make my dreams a reality."

When she first came to Pullman on a college visit, Gonzalez says "I fell in love with the atmosphere of WSU." At the time, her plan was to become a veterinarian, so WSU also lined up nicely with her career and academic goals. But then things took an unexpected turn.

"I got involved in research and that changed everything," says Gonzalez. "I couldn't imagine not working in a lab." She also found many mentors who encouraged her along the way, including Bill Davis, associate dean of undergraduate education and her academic advisor. Davis suggested she apply for a 10-week summer research program with the Howard Hughes Medical Institute.

"I didn't think I was good enough or would be able to compete," she says. Then Davis gave her a few encouraging words. "He thought I was more than qualified." She was

accepted to the program and spent the summer of 2015 working in an infectious disease laboratory at Yale University. She studied a protein in the salivary glands of a mosquito that may contain an immunity property that could be used in future malaria vaccines.

Gonzalez, who double majored in microbiology and English, decided to continue with English as a major because solid writing skills are important for publishing research articles and applying for grants. The major, she believes, gives her an advantage over other science students in communicating science. She graduated in 2016 and is applying to doctoral programs. Her goal is to work as a research scientist at a university or health organization such as the National Institutes of Health.

It is an honor to have her name associated with mine.

—*Floricel Gonzalez ('16 BS), who received the prestigious Elizabeth R. Hall Endowment Scholarship.*

"I really love viruses," she says. But Gonzalez is not limiting her options; she says she is also interested in bacterial pathogens. Ultimately, she wants to do work that will translate into human medicine and better human health. "My goal is to work at a public health research facility or academic institution where I will use my findings to combat disease."

After receiving the scholarship, she learned more about Elizabeth Hall's career and her time at WSU, which made a big impact on Gonzalez. "I am honored to uphold her legacy and providing a positive perspective on what she's left at WSU," says Gonzalez. "It is an honor to have her name associated with mine."

**Elizabeth Hall's (1914-2001) many friends, colleagues, and former students established the Elizabeth R. Hall Endowment Scholarship in 1972 as a memorial to her. A member of the WSU faculty from 1944 to 1976, she was a researcher, instructor, and beloved mentor in bacteriology and public health for 32 years.*

To learn more about how your gift can make a difference, please visit www.vetmed.wsu.edu/GiftsinAction.

Look for Gatherings of WSU Alumni, Friends,
and Students at these Upcoming Events!

Mark your calendars

Peter A. Zornes Memorial Golf Tournament

The ninth annual Peter A. Zornes Memorial Golf Tournament will be held on **Saturday, June 25, at the Colfax Golf Club** to benefit the Peter A. Zornes Memorial Neuroscience Scholarship at WSU. To register, visit vetmed.wsu.edu/Zornes or contact Lynne Haley at lhaley@vetmed.wsu.edu or 509-335-5021. Remember to invite your friends to play!

June 25 Peter A. Zornes Memorial Golf Tournament in Colfax, Washington

August 8 Alumni reception at the American Veterinary Medical Association in San Antonio, Texas

September 15-17 Golden and Diamond (50-year and 60-year) graduate reunions in Pullman

October 15 College hosts Homecoming BBQ in Pullman (vs. UCLA)

CE courses at WSU and online are offered year round; visit www.vetmed.wsu.edu/CE for more information.

For more information about upcoming events visit www.vetmed.wsu.edu/Events.