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BAKER INSTITUTE *for* ANIMAL HEALTH

Dedicated to the study of veterinary infectious diseases, immunology, genetics, and reproduction.



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March 23 marks National Puppy Day, a day to celebrate the puppies and dogs in your life



Elia Tait Wojno, Ph.D. with her borzoi pup, Hank.



Alex Travis, VMD, Ph.D. with Klondike, the first puppy in the Western Hemisphere born from a frozen embryo.



Vicki Meyers-Wallen, VMD, Ph.D. with Cuileann, a Jack Russell terrier puppy.



Scott Coonrod, Ph.D. at home with his dog Spike and puppy Buddy.



Jennifer Nagashima, at home with Tank.

Spotlight: On National Puppy Day, how Baker Institute scientists are helping dogs

March, 2015

National Puppy Day comes on March 23, 2015, offering a day to celebrate the joy of having a healthy, happy dog. Puppies and dogs give humans so much: unconditional love, companionship, and in the case of working dogs, service. But how can people ever repay our loyal, furry friends?

At the Baker Institute for Animal Health, our scientists are working hard every day to give back to the dogs and puppies that enrich our lives with friendship and affection. From [immune studies](#) that could lead to faster diagnosis for allergic diseases to [identifying the causes of genetic disorders](#) to [improved treatments for cancer](#), the Baker Institute is at the forefront of research to improve the lives of dogs. By building on basic scientific knowledge and pushing the boundaries of veterinary science, our scientists are busy creating a better future for dogs close to home and around the world.

Here's a small sampling of how we're building a brighter, healthier future for the puppies and dogs we celebrate on March 23. And if you love dogs the way we do, please consider lending your support to our programs. Since it was founded in 1950, the Baker Institute has made tremendous advances in animal health, but we couldn't have done it without the help and partnership of our supporters. Thank you!

Elia Tait Wojno, Ph.D.

An itchy problem: Dr. Elia Tait Wojno knows allergies can make a puppy miserable. Her own dog suffers from a food allergy that was difficult to diagnose, but she's working toward a better future for dogs like Hank. Dr. Tait Wojno's studies of the immune system could make diagnosing allergic disease an easier, faster process.

Working with the Dermatology department at the Cornell University Hospital for Animals, Dr. Tait Wojno is studying the ways blood samples from allergic dogs differ from healthy dogs. By examining the specific types of immune cells found in each, she's hoping to find ways to identify whether a dog has allergic disease from just a small blood sample. If it works, a blood test like this could shorten the amount of time dogs wait for diagnosis and get them quickly on the road to recovery.

Alex Travis, VMD, Ph.D.

Helping threatened canines: [Dr. Alex Travis](#) studies a process that dogs do pretty well but endangered animals sometimes need help with: reproduction. He's pictured here with Klondike, who was born from a frozen embryo – a first in the Western Hemisphere, thanks to Dr. Travis.

Of the 36 species of wild canids in the world, seven are listed as threatened or endangered and two are near extinction. To help rebuild populations of these animals, zoos have made efforts to get captive wolves, foxes, and wild dogs to breed. However, the old fashioned way of making canid pups can fail for any number of reasons, and distant institutions often want to breed their animals together without putting the animals through the stress of travel or upsetting their social packs.

By trying new techniques for *in vitro* fertilization in dogs, Dr. Travis and his colleagues expect to learn more about how these approaches might be used to aid reproduction in their non-domesticated cousins, an effort that they hope will eventually help bring some endangered canid species back from the brink of extinction.

Vicki Meyers-Wallen, VMD, Ph.D.

Solving a genetic puzzle: [Dr. Vicki Meyers-Wallen](#) is on the case of a genetic whodunit. She's working to identify the causes behind an inherited disorder of sexual development called XX DSD, a condition that impairs the normal development of reproductive organs in dogs. (She's pictured here with Cuileann (QUILL-en), a Jack Russell terrier pup.)

In many cases it's difficult to tell which dogs carry the mutations related to XX DSD and which do not, so many dogs with the condition are identified only after they fail to breed. Dr. Meyers-Wallen's work to identify the mutation responsible for XX DSD will enable scientists to design a test to identify dogs that carry the mutation and prevent the spread of the condition to new litters of dogs. But determining the genetic cause of XX DSD would not only help dogs. A better understanding of the normal pathways of sexual development may also help human families struggling with these types of inherited disorders.

Scott Coonrod, Ph.D.

Better treatments for cancer: More than 25 percent of unspayed female dogs will eventually develop a mammary tumor, an incidence rate that's even higher than breast cancer rates in humans. [Dr. Scott Coonrod](#) is working to develop new ways of treating and preventing this common form of cancer by targeting the genes mammary tumors need to thrive. (He's pictured here with his pup Buddy, who is a cocker spaniel-beagle cross.)

Dr. Coonrod's team is searching for ways to stop mammary cancer cells from developing by specifically turning off the genes that are required for cells to grow. His work has the potential to uncover some powerful new ways for treating mammary cancer – and preventing its return. Human breast cancer survivors today who are at high risk for recurrence are given the drug tamoxifen for years following their diagnosis and treatment, but most women become resistant to this adjuvant therapy within five years. The type of cancer drugs Dr. Coonrod is studying could represent a potent new therapy for these women who are no longer responsive to tamoxifen therapy. Given that most cases of mammary cancer in dogs have a lot in common with human cancer, Dr. Coonrod hopes that once they're developed, these drugs will also represent a new therapeutic option for canine mammary cancer.

Jennifer Nagashima

Helping dogs, helping wildlife: Baker Institute Ph.D. student [Jennifer Nagashima](#) discovered her interest in wildlife as a child. Watching

an Animal Planet show on endangered tigers motivated her to do something to help endangered animals and she soon began volunteering at a zoo near her home. She carried her interest in animals to Cornell, first as an undergraduate, and now as a graduate student.

Today, Nagashima is passionate about saving endangered species. Working in Dr. Alex Travis's lab, she's focused on improving assisted reproduction techniques that can help endangered canids (dog-like mammals) like wolves and wild dogs reproduce in captivity. By studying *in vitro* fertilization in dogs, Nagashima hopes to perfect the techniques for helping boost the populations of non-domesticated species so they can eventually be re-introduced in the wild. She's pictured here with Tank, a two-month-old pup she helped foster until he was adopted.