



Veterinary oncologist fights cancer in pets

By Piper Brandt

When a loved one is diagnosed with cancer, it can be a challenging and painful process for everyone involved, even when the loved one happens to be covered in fur.

Mary Lynn Higginbotham, associate professor of clinical sciences at Kansas State University, is working with her colleagues in the College of Veterinary Medicine to find innovative ways to treat cancer in pets.

Around 1 in 4 dogs and 1 in 5 cats will develop some form of cancer in their lifetime. Although cancer is prevalent in older pets, Higginbotham wants to ensure it doesn't always have to be a life-limiting disease.

One of Higginbotham's current research projects, in partnership with Rob DeLong, associate professor in the Nanotechnology Innovation Center, is centered on treating melanoma in dogs. Both Higginbotham and DeLong are members of the Johnson Cancer Research Center.

"The goal of the melanoma research is to compare the dog and human forms of melanoma, particularly the triple-wild type, mucosal and drug-resistant melanomas in people, and use the dog as a model for evaluation of novel treatment or delivery of treatments via nanoparticles," Higginbotham said. "Dr. DeLong

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and I, along with all of the oncology group at the Veterinary Health Center, have worked together to justify the dog as a model, and on in vitro work comparing the tumor cells and the effects that various nanoparticles have on the melanoma cells in culture."

By comparing canine melanoma to human melanoma, Higginbotham and DeLong hope to gain fundamental information about how various nanoparticles and drugs interact and impact the growth of melanoma cells.

"This project is very near and dear to our hearts," DeLong said. "We hope it will be able to help dogs and eventually humans with these difficult types of cancer."

The oncology group is also currently involved in a multi-institutional clinical study sponsored by Elias Animal Health, a Kansas City-based company, intended to help improve the survival rate of dogs with bone tumors.

"The study will compare the outcome of dogs with osteosarcoma treated with standard of care therapy, which is amputation followed by carboplatin chemotherapy, to dogs with osteosarcoma treated with the ELIAS Cancer Immunotherapy, or ECI[®]," Higginbotham said. "ECI[®] is a vaccine-enhanced adoptive cell therapy."

The study is comprised of 11 sites, two of which are academic institutions, including K-State. These sites have enrolled dogs with osteosarcoma into a clinical trial where they were treated with the ECI[®] therapy.

Higginbotham says the overall goal of the study is to improve the survival of dogs with osteosarcoma as compared to standard of care therapy and to avoid or minimize the need for chemotherapy or radiation therapy, which have the potential to create negative side effects.

No matter the diagnosis, Higginbotham wants to make sure treatment is as effective and painless as possible, allowing pets to live longer and happier lives. While dogs are said to be a human's best friend, it will be quite fortuitous if it turns out that humans are dogs' best friends when it comes to treating canine cancers.