

## Research Into Deadly Cancer In Dogs May Also Have Human Applications

24 Sep 2008

A new study jointly conducted by Oregon State University College of Veterinary Medicine and the Oregon Health & Science University Cancer Institute may one day help not only our canine friends with cancer, but also people with the human form of the disease.

Forging this unique relationship is OSU veterinary oncologist and researcher Stuart Helfand, D.V.M., and Brian Druker, M.D., director of the OHSU Cancer Institute.

Helfand has been researching canine cancer, especially what drives cancer, for about 25 years - an amount of research time similar to that of Druker, who discovered the targeted therapy drug Gleevec for chronic myeloid leukemia (CML). Gleevec has not only revolutionized cancer therapy for most people, it has recently been found to have activity in mast cell cancer, a tumor commonly seen in dogs.

Reasoning that what is learned about human tumors may be applied to animal tumors and vice versa, the two cancer experts have secured a three-year, \$200,000 Morris Animal Foundation grant to study hemangiosarcoma in dogs. Helfand, the principal investigator, was one of the first to discover abnormalities in hemangiosarcoma growth pathways similar to those responsible for CML in humans.

This collaboration brings hope to many such as Eileen and Michael Hudak, of Junction City, Ore., who know well the grief that comes with losing a pet to cancer.

The couple recently lost their dog Rio, a nine-year-old Belgian Tervuren, to hemangiosarcoma. This breed resembles a lighter boned, longer-haired German Shepherd.

For the Hudaks, there was little warning that Rio was sick. They noticed external bleeding from the dog's underside, and within days their beloved pet died. It was already too late for Helfand to try a drug therapy to save Rio. The deadly cancer had spread widely throughout the dog's body.

"Rio was like an ambassador for his breed," said Michael Hudak. "You could take him anywhere. He just loved everybody and everybody loved him. I've had a lot of dogs and he was just really special. If I had a thousand dogs I would never find another one like him."

The Hudaks have high hopes for this research. As breeders of Belgian

Tervurens, they worry that Rio's daughter, Eve, and his granddaughter, Rose, who live with them, as well as his other offspring throughout the country -- many of whom are "best of show" winners -- could be affected by this cancer.

Hemangiosarcomas strike all dog breeds, but is more often found in German Shepherds and Golden Retrievers. It is a rapidly growing, highly invasive cancer. Helfand's clinic sees about five dogs a month with this cancer. Thanks to this grant, the Druker Laboratory is now studying a cell line developed in Helfand's laboratory from a German Shepherd that died of this sarcoma. The researchers want to see what drugs can be developed to treat this disease. In turn, this research may ultimately benefit people with similar cancers.

"Over the years we have made the case that animals with cancer can be excellent models for human disease - they live in the same environment, their lifespan is long enough for study and their cancers mimic human cancers. Sometimes the line blurs: cat, dog, people," said Helfand, a veterinary oncologist in the new OSU veterinary cancer program.

And the human connection also brings hope.

"This could be a pilot for treatment in humans. The hope is that we can use this drug screening in the future for personalized cancer therapy," said Jeff Tyner, Ph.D., a research fellow in hematology/ medical oncology, OHSU School of Medicine. He and Marc Loriaux, M.D., Ph.D., assistant professor of both pathology (anatomic pathology) and of medicine (hematology/medical oncology), are responsible for the drug screening research in the Druker Laboratory.

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*Article adapted by Medical News Today from original press release.*  
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