

Human and canine lymphomas share molecular similarities, first large-scale comparison shows

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This is Kristy Richards, M.D., Ph.D., corresponding author of the study, from the UNC Lineberger Comprehensive Cancer Center. Credit: UNC Lineberger Comprehensive Cancer Center

Humans and their pet dogs are close, so close that they both develop a type of cancer called diffuse large B-cell lymphoma. In humans it's the most common lymphoma subtype while in dogs, it's one of the most common cancers in veterinary oncology.

A team of scientists from the University of North Carolina School of Medicine, North Carolina State University's College of Veterinary Medicine and Duke University have conducted one of the first studies to directly compare canine and human B-cell [lymphoma](#) by examining molecular similarities and differences between the two species.

The study was published June 19, 2013 online in the journal *Cancer Research*.

Kristy Richards, MD, PhD, corresponding author, said, "Comparing the molecular similarities of lymphomas across species has allowed us to see what parts of lymphoma development and growth are evolutionarily conserved. This teaches us more about what components of human lymphoma biology are most fundamental and critical. The canine lymphoma work is now informing research on human lymphomas." Dr. Richards is an assistant professor of medicine and a member of UNC Lineberger Comprehensive Cancer Center.

"[Pet dogs](#) get cancer the same way humans do: at similar rates, and for unknown reasons. Like humans, [dogs](#)' tumors are spontaneously occurring, rather than genetically created as they are in mice, so canine tumors may more accurately mimic the situation in human cancer patients. Dogs are good models to study, because it will also be possible to study shared risk factors, in the environment, for example, that might predispose both humans and dogs to get lymphoma. Our knowledge helps dogs and humans with lymphoma.

"Veterinarians treating dogs for lymphoma can offer clinical trials to

their owners. Clinical trials in dogs are similar to those done in humans, with safety protections in place to minimize harm.

"What we have learned in our study could facilitate faster, more efficient new drug development, allowing new therapies to get to [cancer](#) patients faster and with a higher likelihood of success."

Molecular analyses of canine and human tumors were completed at NCSU and at UNC Lineberger. The team used gene expression profiling and found that canine B-cell lymphoma expression profiles were similar in many ways to human B-cell lymphoma, thus paving the way for future studies, including therapeutic [clinical trials](#) in dogs and humans.

Provided by University of North Carolina Health Care

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