Genomics-enabled medicine in pet dogs with cancer
Laboratory of Jeffrey Trent and William Hendricks

83 million dogs live in US households. With over 4 million dogs spontaneously developing cancer each year (nearly 3 times the number of human cases), this disease is estimated to account for 15-27% of all canine deaths. Veterinary care costs for all sick animals are projected to exceed $28 billion in 2014 with a substantial proportion of these costs derived from dogs with cancer. Cancer extracts devastating social and financial costs from dogs and their human families. Not only is research into cancers of pet dogs driven by the great personal and economic impact of the disease, but it is also driven by its potential to transform both canine and human cancer medicine.

Dogs develop cancers that resemble human disease in many ways. In fact, they resemble human cancers much more closely than do induced laboratory animal models. Many features of canine cancer also speed clinical advances and allow us to evaluate novel therapeutic paradigms that are difficult to evaluate in humans. We are currently focusing on canine melanoma, a common cancer in dogs and humans that informs ongoing studies at TGen and collaborating institutions. We are seeking to better understand the biological
basis of disease in these tumors by coupling genomics with evaluation of targeted therapeutics and diagnostic tools ultimately aimed at implementing paradigm-shifting comparative canine clinical trials to shape cancer management strategies in dogs and humans.

Current work explores the biological, therapeutic, and diagnostic implications of novel recurrent mutations identified in canine melanoma. Students with an interest in translational research, genomics, molecular biology, comparative medicine, and drug design are encouraged to apply. Ongoing studies include techniques such as tissue culture, DNA and RNA sequencing and analysis, various molecular techniques, biochemistry, and drug screening. Coursework and laboratory experience in the relevant techniques is preferred. We require a minimum commitment of one year and 20 hours or more per week.

Please contact Dr. Hendricks with questions:
Dr. William Hendricks
whendricks@tgen.org
602-343-8684

Opening Date: Summer 2014