GRANT PROGRESS REPORT REVIEW

Grant: 00768: *A Collaborative Study by Veterinary Oncologists, Pathologists and Diagnostic Laboratories to Enhance the Detection, Diagnosis and Treatment of Canine Lymphoma*

Principal Investigator: Dr. Ted Valli, DVM

Research Institution: University of Illinois

Grant Amount: $42,128.00

Start Date: 7/1/2007   **End Date:** 12/31/2011

Progress Report: 48 month

Report Due: 6/30/2011   **Report Received:** 5/25/2011

Recommended for Approval: Approved

(Content of this report is not confidential. A grant sponsor's CHF Health Liaison may request the confidential scientific report submitted by the investigator by contacting the CHF office. The below Report to Grant Sponsors from Investigator can be used in communications with your club members.)

Original Project Description:
Background: Lymphoma is the most common canine cancer treated by chemotherapy and a most common neoplasm that afflicts dogs of all breeds and ages. Many of the malignancies that occur in dogs are like those that occur in humans, especially for the tumors of the lymphoid system. The World Health Organization has devised a new system of recognizing and categorizing the many subtypes of lymphoid tumors with very different characteristics that must be considered in providing effective treatments. Currently lymphomas in dogs are treated as if they are all of the same type, but we now find that like those in humans the canine lymphomas are of many types that also benefit from specific identification and treatment.

Objective: The goal of this study is to demonstrate that veterinary diagnosticians can effectively apply the human criteria to the canine tumors and thus permit much more effective treatment by veterinary oncologists. This application will alter costs of treatment according to tumor type and increase survival in animal companions that share our lives and environments.

Grant Objectives:

Objective 1: To provide veterinary oncologists with specific disease designation that permits much more accurate prognosis and therapy tailored to the behavioral characteristics of each lymphoid neoplasm.

Objective 2: To initiate universal use of an upgraded system of lymphoma recognition and classification based on definition of canine lymphoma as a series of specific diseases each with characteristic rates of progression and responses to therapy.

Objective 3: To permit a rational basis for genetic research on canine lymphoma by providing tissues to molecular biologists defined by specific disease, and on which unique genetic alterations that lead to cancer may be identified.

Objective 4: To complete the followup analysis of survival by diagnosis of the 1000 dogs studied in the collection of these cases. This analysis to be stratified by the subtype of lymphoma as determined in the main study and as well by the type of treatment given.

Publications:
- Valli, Ve, Myint, Ms, Barthel, A, Bienzle, D, Caswell, J, Colbatzky, F, Durham, A, Ehrhart, Ej, Johnson, Y, Jones, C, Kiupel, M, Labelle, P, Lester, S, Miller, M, Moore, P, Moroff, S, Roccabianca, P, Ramos-Vara, J, Ross, A, Scase, T, Tvedten, H and Vernau, W (2010) Classification of Canine Malignant Lymphomas According to the World Health Organization Criteria. Veterinary Pathology Online. 10.1177/0300985810379428
http://vet.sagepub.com/content/early/2010/09/21/0300985810379428.abstract

Report to Grant Sponsor from Investigator:
Lymphoma is the most common canine cancer treated by chemotherapy and the most common neoplasm that afflicts dogs of all breeds and ages. We have shown in a blind study of 300 cases that veterinary pathologists who are not experts in hematopathology were able to achieve 86% accuracy in applying the World Health Organization (WHO) criteria for classification of canine lymphomas. This means that with the criteria now defined in publication, all veterinary pathologists should be able to provide a specific histological diagnosis of lymphoma subtype according to the WHO criteria. This will provide veterinary Oncologists with a specific therapeutic target for specific therapy as is done in humans. Early results from some therapists have dogs reliably diagnosed with lymphoma surviving for more than 3 years after specific treatment.

The completion of the canine genome has shown the remarkable similarities to that of humans. Similarly, many of the malignancies that occur in dogs are also like their human counterparts especially for the tumors of the lymphoid system. Research based on the DNA from cases accessed for the main study of this grant proposal are now being used to define the specific chromosomal and DNA transcript changes that are unique to the major type of lymphoma seen in dogs and in humans. Because the genetic record of inbred pure bred dogs is so much more consistent than in outbred humans it is possible to detect changes related to specific lymphomas in dogs much more easily than in humans. Thus instead of the dog being compared to humans for the study of lymphomas, humans are now being compared to genetic changes related to lymphomas detected in dogs. The final objective of this research is to obtain follow-up information on as many of the 1000 cases studied as possible, to determine the impact of specific factors including age, stage of disease and general health at diagnosis, treatment protocol and

specific type of lymphoma on survival. The application of this new information will permit tailoring of treatment for canine lymphoma according to tumor type and increase survival in our animal companions that share our lives and environments.