GRANT PROGRESS REPORT REVIEW

Grant: 00632: *MicroRNAs and Canine Lymphoma*

Principal Investigator: Dr. William C Kisseberth, DVM PhD

Research Institution: Ohio State University

Grant Amount: $98,766.00

Start Date: 10/1/2005 **End Date:** 3/31/2010

Progress Report: 48 month

Report Due: 9/30/2009 **Report Received:** 9/25/2009

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.)

Original Project Description:
Lymphoma is one of the most common cancers in the dog. The current classifications of lymphoma do not explain or predict its changing clinical behavior. Much of the progress in diagnosis, prognosis, and treatment of lymphoma and other cancers in people has been the result of advances in "genomics." Recently the canine genome has been sequenced, providing the opportunity to apply new genomic approaches to better understand and treat cancer in the dog. MicroRNAs (miRNA) are small non-protein coding molecules that have been linked in humans as having an important role in cancer and a variety of other diseases. In this study, the researchers will identify miRNAs using bioinformatic methods. The researchers will then use miRNA microarrays to study normal canine tissues and canine lymphoma biopsies. These results (miRNA expression profiles) will be linked with previous diagnosis and clinical restrictions. The goals of this study are to identify canine miRNAs and their normal patterns of expression and to determine if specific subtypes of lymphoma are characterized by unique miRNA expression profiles, if specific miRNAs have predictive importance, and to identify potential goals for future investigation and therapies. This study will also generate new tools for future miRNA investigation in the dog.

Original Grant Objectives:
Hypothesis: A custom canine miRNA microarray can be used to determine miRNA expression profiles in canine lymphoma. Canine lymphomas can be classified based upon their miRNA expression profiles. Individual and coordinately regulated miRNAs may have diagnostic, prognostic, and/or therapeutic significance.

Objective 1: Identify canine miRNAs and characterize their expression in canine tissues.

Objective 2: Determine the miRNA expression profiles of canine lymphomas using a modified custom oligonucleotide mircoRNA microarray.

Publications:
None Reported. Information about the Canine miRNA will not be published until after the university has completed filing the patent/intellectual property.

Report to Grant Sponsor from Investigator:
In spite of the delays in constructing the v 5.0 human/mouse/dog oligonucleotide miRNA array, the investigators are extremely enthusiastic about this study and where the results will lead in the future. Related studies we are doing in canine mast cell tumors using PCR-based profiling has lead to some very exciting findings. Once the new miRNA microarray chips are delivered, the experiments will begin to analyze the 100+ canine lymphoma samples which are ready to be evaluated. We expect that the profiling of canine lymphoma samples will be equally fruitful. We are very anxious to proceed to analysis of these lymphoma samples. We are confident that this work will result in high impact and high-profile publications that will ultimately have significant impact on canine health.