



RESEARCH PROGRESS REPORT SUMMARY

Grant 02234-MOU: A Novel Approach for Prevention of Canine Hemangiosarcoma

Principal Investigator: Dr. Jaime F Modiano, VMD, PhD

Research Institution: University of Minnesota

Grant Amount: \$432,000.00

Start Date: 3/1/2016 **End Date:** 2/28/2019

Progress Report: Mid-Year 1

Report Due: 8/31/2016 **Report Received:** 10/7/2016

Recommended for Approval: Yes

(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:

Hemangiosarcoma is the cause of death for one out of every five Golden Retrievers in the United States. Portuguese Water Dogs and Boxers also have an especially high risk for this disease. This disease is incurable partly because it is detected at a very advanced stage when it is resistant to conventional therapies. Thus, an unconventional approach to improve outcomes for hemangiosarcoma would involve effective methods for early detection and for disease prevention. For this project we will do precisely that by pairing two novel technologies consisting of a patented test to detect hemangiosarcoma cells in blood samples and a treatment that attacks the cells that establish and maintain the disease. We will accomplish three milestones: first, we will expand our understanding of the performance of the blood test in dogs with active disease. Second, we will confirm the utility of the test to predict progression of the disease in treated dogs. And third, we will establish the performance of the test in the "early detection" setting (dogs at risk without evidence of active disease), and hemangiosarcoma prevention through eradication of the tumor initiating cells with the targeted drug. At the end of this project, we expect to have created tools to guide further development, licensing and deployment of these paired technologies for cancer prevention in the community setting.



Publications:

None at this time.

Report to Grant Sponsor from Investigator:

Over the past 6-months, we have made substantial progress toward objective-1, "To confirm that our patented test can detect hemangiosarcoma cells in the circulation prior to the onset of grossly detectable disease." Specifically we have:

1. Verified that if we add hemangiosarcoma cells from tumors we have cultured in our laboratory to blood samples from unaffected dogs that are healthy and do not have any evidence of having hemangiosarcoma, other cancers, or other diseases (what we call spiking), we can detect those cells using our patented assay with currently available reagents
2. Established a threshold for detection of these "spiked" hemangiosarcoma cells. In other words, the smallest number of cells that must be present in a blood sample in order for us to detect them. This is done per unit of measure, for example cells per microliter, where a standard drop of blood equals about 20-30 microliters
3. Confirmed that there is a direct relationship between the number of cells spiked into a blood sample and the number of cells we detect in the assay
4. Advanced confirmation that the markers used for our test do not detect cells in blood of dogs with non-malignant splenic disease (nodular hyperplasia with hematoma)
5. Advanced confirmation that the markers used for our test do not detect cells in blood from dogs with other cancers (osteosarcoma and lymphoma)
6. Identified technical obstacles that need refinement in the test (antibody interference)
7. Started a systematic search for other targets using our RNAseq databanks
8. Started testing a new robotic system to enrich circulating tumor cells from blood samples