RESEARCH PROGRESS REPORT SUMMARY

Grant 02217: A Novel Mechanism to Regulate the Growth of Canine Hemangiosarcoma

Principal Investigator: Dr. Erin B. Dickerson, PhD

Research Institution: University of Minnesota

Grant Amount: $86,206.00

Start Date: 1/1/2016 **End Date:** 12/31/2017

Progress Report: Mid-Year 1

Report Due: 6/30/2016 **Report Received:** 6/30/2016

Recommended for Approval:

(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 an extremely aggressive disease that is rapidly fatal in dogs. While the lifetime risk is alarmingly high for some breeds like Golden Retrievers and German Shepherd Dogs, the disease does not discriminate, and it can strike any dog at any time. Despite considerable efforts by veterinarians and scientists to find effective treatments, the outcome for dogs with hemangiosarcoma has changed very little over the past few decades. We believe that this is mainly due to our lack of understanding of this disease. However, recent evidence is providing us with essential clues of how these tumors grow and progress, generating new ideas for treatment approaches. New evidence suggests that hemangiosarcoma cells rely on the metabolism of lipids or fatty acids to supply energy for invasion or continued tumor growth. To obtain these lipids, hemangiosarcomas may take over the metabolic machinery of neighboring cells, forcing them to produce nutrients for the tumor cells to help them proliferate and grow. For this project, we will verify that tumor cells rely on lipid metabolism for growth and determine if tumor cells alter the metabolism of fat cells to obtain cellular nutrients. In turn, we will then determine if lipids from fat cells accelerate tumor cell lipid metabolism. We have already identified a mechanism that may disrupt this process, and we propose that inhibiting the interactions between tumor cells and cells in the tumor environment will improve the outcomes of dogs with this disease.

Publications:

None at this time

Report to Grant Sponsor from Investigator:

We continue on track to achieve the milestones laid out for this project. We have made considerable progress on the first objective, and we are collecting samples in preparation for the studies in Objective 2. Our data continue to clarify the role of beta adrenergic signaling in driving processes for tumor growth in canine hemangiosarcomas. Data from this project and other on going work in the laboratory suggests that clinical translation of propranolol may be beneficial for the treatment of hemangiosarcoma.