PROGRESS REPORT

MORRIS ANIMAL FOUNDATION

Working Toward an Early Diagnostic Test for Hemangiosarcoma

Andrea Pires dos Santos, DVM, MSc, PhD, Purdue University, D24CA-523
Projected End Date: 12/31/25

SUMMARY: Researchers will study the feasibility of using molecules called microRNAs as an early detection and prognostic tools for hemangiosarcoma in dogs.

THE PROBLEM: Canine hemangiosarcoma (HSA) is a devastating cancer that affects the skin or internal organs such as the spleen and the heart. Dogs with HSA have poor survival times due to the tumor's aggressive behavior and rapid spread. HSA is diagnosed via tissue biopsies; however, biopsies do not help predict how aggressive the cancer will behave. A new and less invasive test better able to predict prognosis would substantially improve patient management.

THE PROJECT: In this study, researchers are using molecules called microRNAs (miRNAs) to develop a test they hope will detect the tumor in its early stages and predict tumor behavior. The team recently identified 120 miRNA candidates in dogs with has in the heart and the spleen. The team also will explore if any of these markers can be detected in blood samples instead of tumor biopsies.

PROJECT UPDATE: The team's first aim was to validate the most promising miRNA markers, which they've accomplished. They will continue to refine their selections before moving on to aim 2, which will involve looking for the selected miRNA in effusions (free fluid in body cavities) and blood samples collected from dogs with hemangiosarcoma. The team already has several effusion samples collected and ready for this next step.

In the next months, the team plans to finish the validation in solid tissues, select a set of miRNAs that best differentiates the hemangiosarcoma group from healthy dogs, and begin testing the selected panel in blood and effusions. The team also plans to check the expression of these miRNAs by in situ hybridization to guarantee they are aberrantly expressed in the neoplastic cells and not in normal tissue.

POTENTIAL IMPACT: An early test that can diagnose and predict tumor behavior would greatly help veterinarians and owners make informed decisions on treatments, as well as potentially improve outcomes for individual dogs.

Thanks to the generous sponsors of this study!