



RESEARCH PROGRESS REPORT SUMMARY

Grant 02783: Transcriptional Profiling of Canine Soft Tissue Sarcoma

Principal Investigator: Andrew Miller, DVM
Research Institution: Cornell University
Grant Amount: \$132,759
Start Date: 3/1/2020 **End Date:** 2/28/2023
Progress Report: Mid-Year 2
Report Due: 8/31/2021 **Report Received:** 8/13/2021

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Original Project Description:

Soft tissue sarcomas account for 10-15% of all skin and subcutaneous cancers in dogs. Traditionally, biopsy and subsequent histology have been the primary means of diagnosing these cancers. The histology is assigned to one of three grades ranging from low (grade I), intermediate (grade II), and high (grade III). Histologic grade is currently the key criterion for guiding treatment and determining patient outcome. However, in human medicine and pathology, soft tissue sarcomas are diagnosed with a hybrid approach that involves both histologic features and genetic analysis of the tumor sample. This genetic analysis guides further treatment, aids in developing accurate follow-up information, and has been shown to have a positive effect on patient outcome and survival. Despite how common soft tissue sarcomas are in the dog, current veterinary care still relies solely on the histologic grade, which is subjective at best, and does not incorporate genetic data into the diagnostic plan. This study will perform transcriptome analysis on 300 canine soft tissue sarcomas in order to establish the transcriptome profile of canine soft tissue sarcoma and correlate this transcriptome to patient follow-up. This will allow for the formation of a hybrid diagnostic approach that will provide more accurate information to inform the prognosis for dogs afflicted with soft tissue sarcoma.

Publications: None at this time.

Presentations: None at this time.



Report to Grant Sponsor from Investigator:

Soft tissue sarcoma (STS) encompasses a number of neoplasms that are derived from mesenchymal cells including fibrosarcoma, myxosarcoma, hemangiopericytoma, and undifferentiated sarcoma. In the dog, STSs arise frequently in the dermis/subcutis and represent up to 15% of the neoplasms in this location. Our primary aim of this grant was to collect cases of canine STS for histologic and gene expression analysis. The first set of 100 cases have been trimmed to 95 cases due to impurities that altered expression data in 5 cases. This is a very good recovery rate and we have performed the initial sequencing analysis. We have already identified 100 cases for the second year and those cases are in the process of being prepared for RNAseq analysis. At the end of the third year, we will pull together additional cases to bring our final number back up to the original 300.