



AMERICAN KENNEL CLUB  
**CANINE HEALTH  
FOUNDATION**  
PREVENT TREAT & CURE

## RESEARCH PROGRESS REPORT SUMMARY

**Grant 02519:** Prevalence of *Bartonella* spp. Infection in Dogs with Cardiac and Splenic Hemangiosarcomas within and between Geographic Locations

**Principal Investigator:** Edward Breitschwerdt, DVM & Matthew Breen, PhD  
**Research Institution:** North Carolina State University Office of Sponsored Programs  
**Grant Amount:** \$219,026.00  
**Start Date:** 2/1/2018      **End Date:** 1/31/2020  
**Progress Report:** Mid-Year 1  
**Report Due:** 7/31/2018      **Report Received:** 8/2/2018

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### Original Project Description:

Splenic masses comprise ~50% of all canine splenic disease. Despite advances in imaging and pathologic definition, the etiology and medical relevance of splenic lesions in dogs are often ambiguous. While some splenic tumors are benign, approximately two-thirds are highly malignant and carry a poor prognosis. Hemangiosarcoma (HSA) accounts for the majority of canine malignant splenic tumors and occurs in many large dog breeds, including mixed breeds. A less common site of HSA localization is the heart (cardiac HSA). Risk factors for both cardiac and splenic HSA remain unclear, confounding development of preventative strategies. The investigators recently reported a high prevalence of species of the bacterial genus *Bartonella* in dogs with HSA from North Carolina, suggesting a potential role in the initiation and/or progression of this cancer. *Bartonella* species exist worldwide and are transmitted by blood-sucking arthropods (e.g. ticks, fleas) and their presence in splenic tissue could potentially be explained by the fact that the spleen is primarily responsible for removal of blood-borne parasites from the systemic circulation. The investigators will perform a comprehensive examination of the potential association between *Bartonella* infection and HSA by comparing the prevalence of *Bartonella* DNA in tumor and blood samples from both splenic and cardiac HSA cases, and also within and between distant geographical locations in the US. Ultimately, demonstration of a robust association between *Bartonella* infection and the development of HSA may lead to new opportunities for improved diagnosis, treatment and prevention of this devastating cancer.

**Publications:** Due to the early stage of testing, we have no publication.



**Presentations:** Due to the early stage of testing, we have made no presentations.

**Report to Grant Sponsor from Investigator:**

We are on track to accomplish all of our aims for this study. We were able to obtain the initial set of samples on April 26, 2018 so we had a short delay in starting the study. We have now received all samples, categorized and prepped them for further testing. We will be publishing additional research from our AKC-CHF study #02287, which will define the criteria for serodiagnosis of Bartonellosis in dogs by Western Blotting (WB). That work has required additional time and research effort to validate WB testing. Once completed, we will process the serum samples from this for WB by December 2018. We have been in touch with the pathologists in the three geographically different regions of the United States so that they can define inclusion criteria and start locating the retrospective samples that they will submit to us in January of 2019 to test.