



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

## GRANT PROGRESS REPORT REVIEW

**Grant:** 01355-A: *Expression of Vascular Endothelial markers in Canine Hemangiosarcoma and their use in Diagnostic Cytology Using Immunocytochemistry*

**Principal Investigator:** Dr. Anne M Barger, D.V.M.

**Research Institution:** University of Illinois

**Grant Amount:** \$5,285.52

**Start Date:** 9/1/2009      **End Date:** 2/28/2011

**Progress Report:** 18 month

**Report Due:** 2/28/2011      **Report Received:** 3/8/2011

**Recommended for Approval:** Approved

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*(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:**

Background: Canine hemangiosarcoma is an aggressive malignant tumor of the blood vessels which occurs most commonly in the spleen, heart and skin. Patients diagnosed with hemangiosarcoma in a location other than the skin have a very poor prognosis and these patients generally die from their disease in a short amount of time despite aggressive treatments including surgery and chemotherapy. Currently this type of cancer is most accurately diagnosed by biopsying the tumor which involves removing a small piece of tissue or the entire tumor and examining it microscopically. Tissue is most often obtained during surgery which requires the patient to be anesthetized. Biopsy of these tumors, however, carries many risks including rupture of the tumor and uncontrollable bleeding which may lead to death. Fine needle aspiration of the tumor is a safer, more inexpensive and less invasive procedure whereby cancer cells are removed by use of a small needle placed through the skin and into the tumor. These cells are then smeared onto a glass slide and examined under a microscope. Fine needle aspiration can be performed on an awake or lightly sedated patient and carries less risk of bleeding or tumor rupture. However, the diagnosis of hemangiosarcoma is difficult using this method because the cells obtained can appear very similar to other types of cancerous cells.

Objective: The goal of this study is to identify a special cellular marker that can be applied to the sample obtained by fine needle aspiration which will differentiate hemangiosarcoma from other similar cancers. The use of such a marker will allow canine hemangiosarcoma to be diagnosed more reliably through the use of fine needle aspiration and avoid costly and invasive surgery to obtain a diagnosis of this devastating disease.

### **Grant Objectives:**

Objective 1: To determine the suitability of each marker for use in diagnostic cytology, imprints of hemangiosarcoma tumors will be evaluated with validated antibodies using immunocytochemistry (ICC).

Objective 2: To determine the sensitivity and specificity of each marker in differentiating malignant canine vascular tumors as well as the lesions which appear cytologically similar, imprints and fine needle aspirates of lesions will be evaluated with the validated antibodies using immunocytochemistry.

### **Publications:**

### **Report to Grant Sponsor from Investigator:**

Canine hemangiosarcoma is an aggressive malignant tumor of the blood vessels which occurs most commonly in the spleen, heart and skin. Patients diagnosed with hemangiosarcoma in a location other than the skin have a very poor prognosis and these patients generally die from their disease in a short amount of time despite aggressive treatments including surgery and chemotherapy. Currently this type of cancer is most accurately diagnosed by biopsying the tumor which involves removing a small piece of tissue or the entire tumor and examining it microscopically. Tissue is most often obtained during surgery which requires the patient to be anesthetized. Biopsy of these tumors, however, carries many risks including rupture of the tumor and uncontrollable bleeding which may lead to death. Fine needle aspiration of the tumor is a safer, more inexpensive and less invasive procedure whereby cancer cells are removed by use of a small needle placed through the skin and into the tumor. These cells are then smeared onto a glass slide and examined under a microscope. Fine needle aspiration can be performed on an awake or lightly sedated patient and carries less risk of bleeding or tumor rupture. However, the diagnosis of hemangiosarcoma is difficult using this method because the cells obtained can appear very similar to other types of cancerous cells. The goal of this study is to identify a special cellular marker that can be applied to the sample obtained by fine needle aspiration which will differentiate hemangiosarcoma from other similar cancers. The use of such a marker will allow canine hemangiosarcoma to be diagnosed more reliably through the use of fine needle aspiration and avoid costly and invasive surgery to obtain a diagnosis of this devastating disease. Thus far, we have been able to identify three human markers which cross-react with canine tissue. We have used the marker to successfully identify the types of cells that become cancerous in hemangiosarcoma. We have also looked at one of the markers in depth (named CD62E) to determine the sensitivity and specificity. The final results are still being determined, but will tell us how reliable this marker is in identifying the correct tissue and to make sure we have limited numbers of false positive or false negative tests.