



## RESEARCH PROGRESS REPORT SUMMARY

**Grant 01806:** A Novel Virus-Based Anti-Tumor Treatment for Canine Osteosarcoma

**Principal Investigator:** Dr. Bruce F Smith, VMD PhD

**Research Institution:** Auburn University

**Grant Amount:** \$118,848.00

**Start Date:** 3/1/2013                      **End Date:** 8/31/2015

**Progress Report:** End-Year 2

**Report Due:** 2/28/2015                      **Report Received:** 2/26/2015

**Recommended for Approval:** Approved

---

*(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:**

Osteosarcoma is an aggressive canine bone cancer, accounting for around 6% of all canine cancers. Even with the standard-of-care therapy of amputation and chemotherapy, the prognosis is poor, with most dogs dying due to tumor spread (metastasis) within one year, and less than 20% surviving to 2 years following diagnosis. Therefore, improved strategies to treat metastatic disease are needed. In this respect, viruses can be engineered to multiply in, and kill, tumor cells and yet spare normal cells. We have developed a virus and have demonstrated that it can be both safely administered to patient dogs and have potential efficacy in treating osteosarcoma. While this virus was hypothesized to kill osteosarcoma cells through its replication, we have recently recognized the possibility that the virus stimulates an immune response to tumor, in addition to itself. In this study, we propose to examine the interaction of this virus with the immune system of dogs, including assessing any potential increase in immune response to the tumor. Patient dogs with a confirmed diagnosis of osteosarcoma will be treated with the virus following limb amputation, which will then be followed by 4-6 cycles of carboplatin chemotherapy. The dogs will be assessed for immune-responses to the virus and tumor, viral levels, and survival time.



**Grant Objectives:**

In this study, we propose to examine the interaction of this virus with the immune system of dogs, including assessing any potential increase in immune response to the tumor.

**Publications:**

None at this time.

**Report to Grant Sponsor from Investigator:**

We have continued to enroll dogs in the clinical trial and hope to enroll several more through the no-cost extension. Currently, approximately 25% of the dogs treated with the virus appear to be surviving for a year or more, which is substantially greater than the survival rate reported for the current standard of care. Interestingly, surveys of blood, feces and urine for virus DNA do not show the same second peak of virus at 72 hours post injection that we saw in a preliminary study. Data is now being collected on antibody levels to tumor and appears to show both pre-existing antibodies to tumor, as well as enhancement of those antibodies and the formation of new antibodies to the tumor post treatment. We are now in the process of evaluating other immune parameters in the dogs treated to date.