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:** 2/28/2015

Progress Report: End-Year 1

Report Due: 2/28/2014 **Report Received:** 2/26/2014

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:

The clinical trial portion of this project has continued and 6 dogs have been enrolled (with an additional 2 pending). All 6 dogs have done well with the virus injection and have gone home as scheduled and no major side effects have been seen. All of the dogs have had their final blood draw (4 weeks post injection). One dog was euthanized shortly after its final blood draw due to orthopedic complications (cruciate tendon rupture) and a second was recently euthanized due to recurrent disease at 6 months post treatment at the site of limb sparing surgery. It is too soon to know how the remaining dogs have responded to the treatment, as we still need to run the appropriate assays and to monitor their progress. We have successfully harvested and grown osteosarcoma cells from every dog and we have validated most of the assays to be performed on the samples from these dogs. Experimental sample have begun to be assessed for virus quantitation (blood, urine, feces) and immunologic assays have been started for several parameters.