

# PROGRESS REPORT



## Working Toward an Immunotherapy for Osteosarcoma

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**SPONSORS:** Samoyed Club of America Research and Education Foundation

**RESULTS:** Results are encouraging but more work needed to establish the protocol as a reasonable alternative or adjunctive therapy for osteosarcoma in dogs.

**SUMMARY:** Researchers will investigate the effectiveness of combining radiation therapy with an immune-stimulating agent to help slow the spread of osteosarcoma, the most common bone tumor in dogs.

**THE PROBLEM:** Osteosarcoma is the most common primary bone tumor in large- and giant-breed dogs, with an estimated 10,000 new cases diagnosed annually. Conventional therapies include surgical amputation of the affected limb followed by chemotherapy. Despite treatment, most dogs eventually succumb to metastatic disease, or cancer spread, within two years of diagnosis. Recently, immunotherapy has been heralded as a breakthrough for the management of many diverse cancer types, but few studies have investigated this approach in canine osteosarcoma.

**THE PROJECT:** Morris Animal Foundation-funded researchers at the University of Illinois evaluated a combination radiation therapy and an immune-stimulating agent, called CpG ODN, in dogs with osteosarcoma tumors of the leg.

**PROJECT UPDATE:** The team fell short of their patient recruitment goals, due in part to the pandemic and the reluctance by some owners to delay limb amputation. The team reports the following:

"The major and important translational findings from this investigation is that leveraging the Cancer-Immunity cycle through combination ionizing radiation and peritumoral CpG ODN injections is safe in pet dogs with osteosarcoma, and there are interesting and favorable progression free intervals being achieved in some pet dogs treated. These findings provide strong impetus to further incorporate and explore this Cancer-Immunity cycle strategy in a larger cohort of pet dogs with osteosarcoma that could be powered sufficiently to demonstrate significant improvement in progression free intervals."

We have been encouraged that radiation therapy can induce an immunogenic form of cell death in cancer cells and that CpG ODN 2395 can stimulate the immune system sufficiently to slow the development of osteosarcoma in the lungs. We have generated interesting data that can serve the foundation for a larger study to definitively validate if our immunostimulatory approach could be considered a good option for pet owners wanting to fight osteosarcoma without the use of chemotherapy."

**POTENTIAL IMPACT:** Results could provide the basis for additional therapy for this terrible cancer.

**Thanks to the generous sponsors of this study!**