



**Funded Study: Treatment for
Canine Appendicular Osteosarcoma
With a Novel Anticancer Nanoparticle**
University of Illinois Cancer Care Clinic and
Comparative Oncology Research Laboratory



Study Title: Phase I trial- Development of bone-seeking nanoparticles encapsulating doxorubicin for canine appendicular osteosarcoma

Purpose of the Study: Osteosarcoma is the most common bone tumor affecting the dog, with approximately 8,000 new cases diagnosed annually. Conventional therapies for managing osteosarcoma include amputation of the affected limb with concurrent administration of chemotherapy. For dogs not suitable for amputation, controlling bone tumor pain remains of utmost importance. Although palliative radiation therapy and intravenous aminobisphosphonates provide some analgesia, their duration of effect is short-lived. As such, there remains the need for discovering newer and better localized therapies which will ultimately improve quality of life for dogs diagnosed with appendicular osteosarcoma.

Encouragingly, bone-seeking nanoparticles may provide a new way to locally deliver high concentrations of anticancer agents directly to the bone tumor microenvironment, while sparing the systemic organs from conventional toxicity. As such, it is hoped that bone-seeking nanoparticles will eventually have a definitive role for improving treatments in dogs with osteosarcoma. The first phase of this study is to characterize the local biodistribution and to identify a safe dosage of bone-seeking nanoparticles encapsulating doxorubicin in osteosarcoma-bearing dogs. This will be achieved by treating dogs with a single dosage of bone-seeking nanoparticle encapsulating doxorubicin, and evaluating biologic effects as determined by appropriate surrogate markers.

Inclusion Criteria

- Dogs with suspected or confirmed **treatment naïve** appendicular osteosarcoma.
- No existing kidney, liver, heart disease, or bone marrow disease.

Treatment

- All dogs will be treated with a single infusion of bone-seeking nanoparticles encapsulating doxorubicin
- All dogs will be reevaluated weekly with additional diagnostics (days 7, 14, and 21)
- All dogs will have their diseased leg amputated at the Veterinary Teaching Hospital on day 21

Compensation

- The study will pay for the following: Initial examination and recheck fees, blood work (initial and weekly rechecks), imaging studies and hospitalization (initial and weekly rechecks), leg radiographs, oral analgesics for 21 days, and credit pet owners with \$1500.00 for limb amputation.
- To receive credit of \$1500.00 for limb amputation, it is required that the surgery to be performed at the Veterinary Teaching Hospital 21 days after infusion of bone-seeking nanoparticles
- All other diagnostics for confirming osteosarcoma diagnosis and assessing metastatic disease including thoracic radiographs and abdominal ultrasound, as well as small miscellaneous charges will be the financial responsibility of the pet owner.

Contact Information: Please feel free to contact Nancy George of the Oncology Service at (217)-244-7789 to refer a patient to the University of Illinois Cancer Care Clinic or for any additional information. Referring veterinarian and/or client calls are welcome.