



Morris Animal
FOUNDATION



OSTEOSARCOMA INITIATIVE 2016

Morris Animal Foundation's Osteosarcoma Initiative focuses on innovative approaches to combat aggressive and fatally metastatic osteosarcoma in dogs. Stopping cancer from spreading is one of the major challenges faced by veterinary oncologists today. This is especially true for osteosarcoma, a type of malignant bone tumor. Unfortunately, almost all dogs diagnosed with osteosarcoma eventually are lost to metastatic disease.

OSTEOSARCOMA IS:

- an aggressive tumor that rapidly spreads throughout the body
- the most common primary bone tumor affecting dogs
- often found in limbs but can arise from any bone
- usually treated with surgery followed by chemotherapy (despite intervention, most dogs survive less than one year after diagnosis)
- more common in large and giant breeds, but all dogs can get this cancer
- rarely seen in cats
- similar to pediatric osteosarcoma in humans
- approximately 10 times more frequent in dogs than people

A VISION OF HEALTH FOR DOGS WITH OSTEOSARCOMA

For more than 30 years, Morris Animal Foundation has funded studies to improve the quality of life for dogs with osteosarcoma. Recently funded studies have zeroed in on ways to optimize chemotherapy selection, control pain and find new therapeutic targets. While safe and effective treatment options currently are available to treat the primary cancer, better treatments are needed to stop metastasis or spread of the cancer. Thanks to our Osteosarcoma Initiative, researchers now have additional funding to explore new ways to stop or curb disease spread, and improve survival time for dogs with this aggressive cancer.

BY THE NUMBERS

COMMITMENT

FOR INITIATIVE:

\$5 million invested in new research

5 years funding

FOCUS

CURRENTLY FUNDED INITIATIVE STUDIES:

2 clinical trials

2 new therapeutic targets

1 patient-tailored chemotherapy

IMPACT

CHANGE DISEASE STATISTICS:

10k dogs diagnosed in the U.S. each year

4k-8k die annually from metastatic disease

90% cancer has already spread upon diagnosis

80% die within two years of diagnosis

20% TO 50% greater risk for male dogs



OUR INVESTMENT IN CANINE OSTEOSARCOMA

Since 1985, Morris Animal Foundation has invested more than \$3 million in osteosarcoma research. Over a five-year period, the foundation is investing an additional \$5 million to focus solely on testing promising new drugs and identifying new therapies to target metastatic disease, the primary cause of death in dogs with osteosarcoma. Morris Animal Foundation is helping investigators around the world improve outcomes for dogs with this common canine cancer.



evaluate the effectiveness of a promising anti-cancer agent

Previously funded research found that the drug rapamycin showed promise in treating dogs with osteosarcoma. In the first study under our new Osteosarcoma Initiative, researchers refined the recommended dose of oral rapamycin for dogs with osteosarcoma. In two offshoot clinical trials, researchers are evaluating the effectiveness of oral rapamycin as a post-surgery therapy in client-owned dogs to combat metastatic disease.

look for new therapy targets

Signaling pathways are groups of molecules that work together to control one or more cell functions, such as cell division or cell death. Recent studies have shown that the fibroblast growth factor signaling pathway is abnormally activated in a variety of human tumors. Our researchers are investigating the role of this pathway in bone cancer spread and its potential as a new therapeutic target.

understand why and how canine osteosarcoma tumors spread

Recent studies suggest that tumors release vesicles (membrane-bound collections of genes and proteins) and cell fragments into the bloodstream. When these vesicles and cell fragments reach the lungs, their presence attracts tumor cells to the area, initiating metastatic growth. Our researchers are studying how these products influence metastasis in hopes of finding new treatment targets.

develop patient-tailored treatments

Studies have shown that cancer gene signatures – patterns of how genes are expressed within individual tumors – can predict whether a tumor will respond to a specific chemotherapy. Determining a tumor's gene signature allows patients to be treated with drugs most likely to provide the greatest benefit. Our researchers are testing a newly developed gene-expression model's ability to determine the best chemotherapy protocol for dogs with bone cancer based on their tumor's gene signature.



ABOUT MORRIS ANIMAL FOUNDATION:

Morris Animal Foundation is a nonprofit organization that invests in science to advance animal health. The foundation is a global leader in funding scientific studies for companion animals, horses and wildlife. Learn more at morrisanimalfoundation.org.

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