



ACVIM

AMERICAN COLLEGE OF VETERINARY INTERNAL MEDICINE (ACVIM)

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Osteosarcoma Immunotherapy Study Has Potential To Benefit Both Dogs and Humans Featured at 2014 ACVIM Forum, June 4-7 Nashville, Tennessee

(Denver, Colo.) Osteosarcoma is a highly aggressive bone tumor that affects at least 10,000 dogs annually in the United States. It is most commonly seen in the adult large and giant breeds such as Rottweilers, Labrador retrievers, greyhounds, Newfoundlands, Irish wolfhounds, Great Danes and Scottish deerhounds.

It is estimated that 90-95 percent of canine osteosarcoma subjects have microscopic metastatic disease (spread of cancer cells to other parts of the body at the time of diagnosis). Standard of care includes removal of the primary tumor—usually by amputation—followed by chemotherapy. Systemic chemotherapy given after amputation delays the development of metastatic disease; however, despite treatment, most dogs die of the disease within one year of diagnosis.

A new option may be available in the future if Dr. Nicola Mason's research at the University of Pennsylvania School of Veterinary Medicine produces satisfactory results. Mason, an assistant professor of medicine, is evaluating the first vaccine for canine osteosarcoma and will provide attendees at the 2014 ACVIM Forum an update on that work in the presentation "Osteosarcoma Vaccine Research" at 4:25 p.m. Thursday, June 5 at the Gaylord Opryland Resort & Convention Center in Nashville.

The approach harnesses the power of the dog's immune system, "training" it to seek out and destroy cancer cells that remain after amputation and chemotherapy.

Over a century ago, an orthopedic surgeon named William Coley recognized that human sarcoma patients with concurrent bacterial infections that caused high fevers had improved overall survival times compared to those sarcoma patients without infection. This led him to develop a therapeutic concoction of live bacteria that he injected into patients with bone sarcomas. He documented improved survival and in some cases, complete remission in individuals with the aggressive disease by using this early form of "immune therapy."

Mason's team is employing similar immune therapeutic strategy to treat dogs with osteosarcoma that have undergone the standard of care treatment (amputation and chemotherapy) to prevent metastatic disease. "The concept is that administration of the Listeria-based (genetically modified bacteria) vaccine will activate the patient's immune system and educate it to recognize cells that express the target molecule," says Mason.

Dogs are given the live bacterial vaccine intravenously, Mason explains, and it induces a mild transient fever on the day of vaccination. The dogs are usually treated as outpatients and return home the same day. "We have found highly encouraging results when the vaccine is given to patients that have no evidence of metastatic disease at the time of the study enrollment, which is three weeks after the last chemotherapy is administered. Four out of the first five dogs vaccinated are alive at least two years after their initial diagnosis, which is more than twice their expected survival duration. The vaccine has not yet shown any serious short- or long-term side effects, either."

Mason says the results have led researchers to evaluate whether this vaccine may be able to directly target and kill the bone tumor itself, perhaps eliminating the need for amputation in the future.

In a second study, the team is evaluating the effect of combined palliative radiation therapy plus immune therapy with the Her2/neu Listeria vaccine on dogs with osteosarcoma that cannot undergo amputation.

“Since dogs with osteosarcoma represent spontaneous bona-fide model of the same disease in children, it is likely that the same approach will provide significant survival benefits in children with the same disease,” Mason says.

Media Note: Accredited members of the media may attend the 2014 ACVIM Forum at no charge. However, you are required to register with the ACVIM. For media registration, please fill out a [registration form](#) or contact Laurie Nelson at Laurie@ACVIM.org or 303.231.9933.

On-site Press Room

Location: Gaylord Opryland Resort & Convention Center

Hours:

Wednesday June 4, 2:00–5:00 pm

Thursday June 5, 8:00 am–5:00 pm

Friday June 6, 12:00–5:00 pm

Saturday June 7, 8:00 am–12:00 pm

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About the American College of Veterinary Internal Medicine (ACVIM)

The American College of Veterinary Internal Medicine (ACVIM) is a nonprofit organization dedicated to improving the lives of animals and people through education, training and certification of specialists in veterinary internal medicine, discovery and dissemination of new medical knowledge, and increasing public awareness of advances in veterinary medical care.

The ACVIM hosts the ACVIM Forum, an annual continuing education meeting where cutting-edge information, technology and research abstracts are showcased for the veterinary community. More than 3,000 veterinary specialists, veterinarians, technicians and students attend.

The ACVIM is the certifying organization for veterinary specialists in cardiology, large animal internal medicine, neurology, oncology and small animal internal medicine.

To find out more about ACVIM specialists, please visit www.ACVIM.org.