

# SPOTLIGHT ON Illinois Veterinary Medicine

Advancing animal health and welfare through research

## Novel immunotherapy offers promising weapon against canine melanoma

Timothy M. Fan, DVM, PhD, DACVIM (Oncology, Internal Medicine)\*; Laura D. Garrett, DVM, DACVIM (Oncology);  
Kim A. Selting, DVM, MS, DACVIM (Oncology), DACVR (Radiation Oncology);  
Peter D. Constable, BVSc(Hons), PhD, DACVIM (Internal Medicine, Nutrition)

College of Veterinary Medicine, University of Illinois, Urbana, IL

\*Corresponding author: Dr. Fan (t-fan@illinois.edu)

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**H**alf of dogs over 10 years of age will die of cancer. One such cancer, oral melanoma, is very aggressive with an ability to invade surrounding tissues and metastasize. The standard treatment regimen—often surgery and multiple radiation doses—gives most dogs with advanced metastatic disease only a few additional months of life.

“We are good at shrinking the primary tumor, but once it has spread our treatment options become very limited,” says Dr. Tim Fan, director of the Comparative Oncology Research Laboratory at the University of Illinois College of Veterinary Medicine.

Dr. Fan and his colleagues have worked for more than 2 decades to advance the treatment of cancer in companion animals through a convergent science approach. The Illinois comparative oncology program, uniting national leaders Drs. Fan, Laura Garrett, and Kim Selting, combines innovative treatment with compassion for pets and their families, centered on the human-animal bond. In 2019 the program invested in a state-of-the-art Varian TrueBeam linear accelerator to expand treatment options.

The comparative oncology program synergizes with the health science initiative launched by the University of Illinois, bringing together research scientists and healthcare professionals to address the most pressing medical problems, including cancer. The College of Veterinary Medicine serves as a powerful clinical partner for advancing cancer discovery efforts, with faculty members playing key roles in the Cancer Center at Illinois and the Carl R. Woese Institute for Genomic Biology’s theme, Anticancer Discovery from Pets to People.

The latest research breakthrough uses a novel anchored immunotherapy for oral melanoma in dogs. A clinical trial launched in July 2022 partners with Ankyra Therapeutics, a Boston-based biotech company. A new drug named cANK-101 was created with canine interleukin-12, combined with an inert “anchor,” and injected into tumors to trigger an anticancer immune response. The anchor retains the drug in the tumor microenvironment and minimizes side effects such as a cytokine storm and systemic inflammatory response.



Drs. Tim Fan, Laura Garrett, and Kim Selting pose with the oncology team by the linear accelerator in 2019.

Treated patients do not require surgery or radiation; this means that veterinarians without advanced surgical training or specialized equipment could provide cANK-101 therapy.

“The ability to keep the cytokines local is what makes Ankyra’s approach innovative,” says Dr. Fan. He continues, “The goal is to train the dog’s own immune cells to be effective at controlling the tumor locally as well as targeting cancer cells throughout the body. If the new treatment is effective, it could have very important spin-offs. It could open the door for new therapies that could be widely available and transformative for veterinarians to add to the toolbox for dogs with melanoma.” Researchers will also use this trial to inform and guide a similar trial for people.

The comparative oncology program is expanding by the addition of a \$15 million oncology center to the University of Illinois Veterinary Teaching Hospital, 3 new oncology faculty positions, and additional staff and resources for the oncology clinical trials program. This will make high-quality cancer care, such as the new immunotherapy for melanoma, more widely available.