



INSTITUTE FOR COMPARATIVE
CANCER INVESTIGATION

2018 ICCI Cancer Research Symposium

Wednesday, May 30th, 9:00am-5:00pm, Room 1714 OVC LLC

Invited Guest Speaker (1:45): **Margarete Akens, DVM, PhD**

Techna Institute at the University Health Network, Department of Medical Biophysics, Department of Surgery, Spine Program and Collaborative Program in Musculoskeletal Sciences, University of Toronto

Osteolytic, osteoblastic and mixed bone metastases in a rat model: What are the effects of cancer and its treatment on the bone?

Bone is a preferred site for cancer metastases. Depending on the primary cancer, bone lesions are osteolytic (bone resorbing), osteoblastic (bone forming) or mixed (osteolytic and osteoblastic). Pre-clinical murine models are used to study the effect of metastases on bone quality and properties as well as cancer treatment effects. We have established and extensively studied an osteolytic and mixed osteoblastic/osteolytic metastases model in the rat and recently established an osteoblastic metastases model. The metastases are established by the intra-cardiac injection of $1.5-2.0 \times 10^6$ cells (HeLa (human adenocarcinoma cells) cause osteolytic lesions; ACE-1 (canine prostate carcinoma) cause mixed lesions; ZR-75-1 (human breast carcinoma) cause osteoblastic lesions). The development of bone metastases in the appendicular bones and vertebrae takes approximately 2 weeks with the HeLa and ACE-1 cells and around 3-4 months with the ZR-75-1 cell line.

Dr. Margarete Akens is a Scientist at the Techna Institute at the University Health Network in Toronto and an Assistant Professor at the Department of Medical Biophysics and Department of Surgery and a Faculty member of the Spine Program and Collaborative Program in Musculoskeletal Sciences at the University of Toronto. Dr. Akens studied veterinary medicine at the Justus-Liebig University in Giessen, Germany, and practiced as an equine veterinarian prior to pursuing a career in research. She received her PhD from the Faculty of Veterinary Medicine at the University in Zurich, Switzerland in 2002. Her research interests includes bone related cancers and bone repair with focus on the development of innovative treatment options. She is interested in the effect of ionizing and non-ionizing radiation on bone and joints and has extensive experience working with pre-clinical animal models. Additionally, she is interested in comparative oncology and facilitating the collaboration between Veterinarians and Physicians to accelerate the knowledge about cancer biology and clinical care.