

**Dr. Albert J.M. Yee**

## **Treating Cancer Spread to the Spine: Translating Research from the Clinic to Bench and Back**

'Translational Research' aims to address an area of clinical need, bringing important questions back to the laboratory 'bench-top' setting so that new discoveries and therapies can be developed, evaluated, and translated back to useful clinical treatments. This research projects aims to

- i) understand how important molecules (i.e. extracellular matrix molecules such as versican, hyaluronic acid) interact with cancer cells and play a role in cancer invasiveness and spread (i.e. 'metastasis') to bony tissues. This is important so that new potential targets for cancer treatment can be identified
- ii) develop and refine relevant pre-clinical orthopaedic models of surgery to test the potential feasibility, effectiveness, and safety, of new therapies to treat cancer spread in the spine. Several pre-clinical scale up models will be evaluated.
- iii) Pre-clinical testing of promising late stage minimally invasive surgical therapies (e.g. photodynamic therapy, bone specific radiofrequency ablation) in developed models.

Relevance: Patients with cancer spread to bone (bone metastases) are living longer due to improved cancer therapies. The risk of skeletal related events (bone fracture, spinal cord compression from cancer spread) during the time course of their bony disease is not insignificant. Treatment is a multi-modality approach and new adjuncts to the current armamentarium are aimed to improve quality of life and lessen skeletal related medical complications.