McGill is looking for a partner to commercialize a diagnostic test initially for the field of clinical research, to develop a kit to detect mutations in TRPV4 polypeptide and diagnose patients who are predisposed to developing avascular necrosis (AVN). Osteonecrosis of the femoral head or avascular necrosis of the femoral head is the most common form of AVN, with 10,000 to 20,000 new cases diagnosed each year in the United States. AVN of the femoral head is a frequent complication in which bone death occurs as a result of interruption to blood flow at the level of the microcirculation. A blood-based test would provide an accessible diagnostic tool. The presence of mutations in the TRPV4 polypeptide and the predisposition to osteonecrosis of the femoral head in subjects have been protected in US patent application.

Applications

- A new biomarker for the identification of patients that are predisposed to developing avascular necrosis.
- These mutations are especially useful for screening agents for the prevention or treatment of osteonecrosis
- Gene therapy

Advantages

- It is critical to diagnose AVN as early as possible to prevent or delay progression of the disease and to develop better measures to preserve the joints.
- Impact of diagnostic in personalized medicine.
- There is presently no early diagnostic for AVN and this could modify the way patients are treated and followed up.
Dr. Chantal Seguin, MD. is Assistant Professor in the Department of Haematology at the Faculty of Medicine. Her research focuses on the cellular basis of osteonecrosis in human tissue and she developed a genetic-based rat model to examine progression of the disease. Her objective is to identify causative genes, explore their function and provide patients and families with improved diagnostic tools and treatment management. Research on vascular endothelial approach to osteonecrosis, alpha-2-macroglobulin molecular pathway, genotype-phenotype correlations, hereditary osteonecrosis, glucocorticoid-induced osteonecrosis.