

# MBG FOCUS TALK

hosted by Ernst-Martin Füchtbauer



**Tuesday June 30 at 11:00**

William Scharff auditorium (søauditorierne, 1253 - 317)

**Michel L. Tremblay Ph.D**

McGill University

## **Translating the biology of protein tyrosine phosphatases into novel cancer and spinal cord injury treatments**

Dephosphorylation is obviously the main mechanisms used by tyrosine phosphatases to modulate signaling. Yet, the diversity of the phosphatome provides a large number of examples where PTP members act in innovative ways to maintain cellular homeostasis, and influence diseases progression. In this presentation, I will briefly review some characteristics of phosphatomes from different species and point to interesting features of the evolution of the tyrosine phosphatase gene families. Moreover, we will examine in more details the consequences of the negative modulation that PTPs place on signaling pathways. Using as an example PTP1B and JAK-STAT signaling we will present findings which support not only that PTP activities lead to a quantitative change in the downstream effectors of anti-inflammation, but also to major qualitative changes. More than only tampering signals, critical function of this PTP is to regulate the specific numbers and activities of the effector genes modulated by JAK-STAT signaling. I will provide different examples of PTPs in cancer, and in particular I will report on a novel oncogenic activity of the PTP4A2 that is substrate independent and involve the magnesium transport CNNMs gene family. Finally, I will address the function of the protein tyrosine phosphatase sigma as an outstanding target in axonal growth and spinal injuries.

Michel L. Tremblay, PhD, is a Full Professor in the Departments of Biochemistry and Oncology, as well as a James McGill Professor and holder of the Jeanne and Jean-Louis Lévesque Chair in Cancer Research, at McGill University. Dr. Tremblay's laboratory focuses on characterizing the function and regulation of several members of the Protein Tyrosine Phosphatase (PTP) gene family, using both biochemical and genetic approaches. He has more than 15 filed patents and 150 publications in the PTP field, and is recognized internationally for his work in relation to this gene family and its function in cancer, diabetes and neuroscience.