

“Exosomes as Key Regulators of Signal Relay During Chemotaxis”

A Seminar Presented by

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Kachina Room, Student Union – 11:00 am

Hosted by Dr. Pascale Charest

Abstract and Research Interests: A wide range of cells exhibit the capacity to respond and migrate directionally in response to external gradients. This behavior is essential for a variety of processes including embryogenesis, wound healing, angiogenesis, and metastatic invasion. Dr. Parent’s research program is aimed at understanding how cells detect and respond to external chemotactic signals and, in particular, how the spatial and temporal relay of chemotactic signals between cells impacts single and group cell migration. By tagging various signaling proteins with the green fluorescent protein (GFP) Dr. Parent’s group has been able to visualize where, and when, various cascades are activated in live cells. This has led to the proposition of novel mechanisms that explain how chemotactic gradients are amplified. To gain insight into these processes, three complementary model systems are exploited: the social amoebae *Dictyostelium discoideum*, mammalian neutrophils, and breast cancer metastatic cell lines. In addition to combining biochemical, cell biological and genetic approaches, Dr. Parent collaborates with physicists to quantitatively describe the movements, with single cell resolution, of large groups of cells, and extract metrics that are relevant to the biological response studied. Such a plurality of model systems, along with a trans-disciplinary approach to their study, empowers Dr. Parent to understand signal transduction pathways in complex physiological settings, and directly translate her findings to clinically important processes such as leukocyte migration to sites of inflammation and cancer metastasis.