



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

Department of Cellular and Physiological Sciences



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****CPS SEMINAR TIME****

12:30 PM Thursday, March 21, 2019

Location: LSC3

Hosted by Dr. Kopp

"Extracellular vesicles and invadopodia: Providing insight into disease progression and targets for therapeutic development"

Treatment of cancer with surgical resection, radiation, and (neo)-adjuvant chemotherapy is more effective when cancer is confined to the primary site. The disease becomes much harder to manage when it becomes metastatic because of the variable response to conventional therapies and is the primary cause of patient-related death. The clinical importance of metastasis is well-established; however, we are still limited in our ability to discern metastatic potential from a primary tumor and to prevent metastatic disease. My lab investigates extracellular vesicles (EVs) as blood-based clues, giving insight into an individual's disease to detect, diagnose and monitor cancer. The cargo contained within an EV is representative of the cell of origin containing lipids, proteins, glycans and nucleic acids. Direct enumeration of tumor-derived EVs and/or profiling of their molecular cargo in patient body fluids have been shown to provide valuable information about the biology of the tumor. We are using nanoscale flow cytometry to identify tumor-derived EVs and profile their protein and glycan composition to risk-stratify patients for directing patient treatment. To improve treatment options for high-risk cancer patients work in my focuses on invasion promoting structures termed invadopodia which we, and others, have demonstrated as key mediators of metastasis. Invadopodia are dynamic actin-rich protrusive structures which apply a physical force to their surroundings and mediate protease-dependent extracellular matrix degradation. Invadopodia have been studied *in vitro* and *in vivo* to provide new, crucial, insights into their function, highlighting their therapeutic potential. Recently, we have characterized a new function for invadopodia, that of chemotactic response. Using the chick embryo's chorioallantoic membrane (CAM) model, we were able to interrogate this process *in vivo*. Results expand on our understanding of how these structures respond to environmental cues and suggest that cancer cells may undergo site specific invasion events based on invadopodia chemosensing. Our work continues to expand on EVs as biomarkers for cancer and to understand the diverse processes invadopodia regulate to identify key mediators for therapeutic development.

Join us for coffee and cookies at Noon in LSC 1416!!!

For more information please contact [Dr.Kopp<janel.kopp@ubc.ca>](mailto:Dr.Kopp@janel.kopp@ubc.ca)