



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

Department of Cellular and Physiological Sciences



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****CPS SPECIAL SEMINAR TIME****

12:30 PM Monday, December 17th, 2018

Location: LSC3

Hosted by Dr. Guy Tanentzapf

Using Wnt/Planar Cell Polarity (Wnt/PCP) to define tumor stem cells in pediatric rhabdomyosarcoma

Tumor growth and relapse are driven by subpopulations of tumor stem cells, yet mechanisms driving cancer cell fate choices, maintenance and self-renewal are not fully understood. I found that Van Gogh-like 2 (Vangl2), a core regulator of the non-canonical Wnt/planar cell polarity pathway (Wnt/PCP), regulates self-renewal in rhabdomyosarcoma (RMS) – a common pediatric sarcoma of muscle. Wnt/PCP signaling is essential during development and recent work has linked this pathway to human disease including cancer growth and metastasis. However, roles for Wnt/PCP in regulating tumor self-renewal had not been previously described. VANGL2 is expressed in a majority of human RMS, specifically within early mononuclear progenitor-like cells, and is required for continued tumor growth and maintenance. Vangl2 expression enriches for tumor stem cells in a zebrafish model of embryonal rhabdomyosarcoma (ERMS) and can elevate stem cell frequency, revealing a specific role for Wnt/PCP in tumor stem cell fate decisions. Furthermore, RhoA-dependent signaling downstream of Vangl2 affects self-renewal in vitro of human RMS. My future studies aim to uncover the specific mechanistic consequence of polarity related signaling on sarcoma tumor stem cell biology and identify novel therapeutic opportunities for vulnerable patient populations.

Refreshments will be available outside LSC3!!!