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OSCI
Ontario Stem Cell Initiative

Dr. John Dick
Ontario Institute for Cancer Research

External Seminar Series 2013

Thursday, May 16th - 4:00pm to 5:00pm

6 - Tanz Neuroscience Building, Lower Level
University of Toronto, 6 Queen's Park Circle
**Refreshments will be served*

Specification of hematopoietic stem cells.

David Traver, PhD
Professor, University of California San Diego

Recently, we have utilized the unique strengths of the zebrafish embryo to image directly the birth of HSCs from hemogenic endothelium comprising the ventral wall of the dorsal aorta. Our current efforts are aimed at elucidating the signaling pathways that are required to specify HSCs through aortic endothelial intermediates. Notch signaling is required across vertebrate phyla to specify HSCs. Our current results suggest that Notch is required iteratively during development to generate HSCs, and is required both intrinsically and environmentally to pattern the aorta and HSCs. One environmental requirement is found within the somite, where the expression of two key Notch ligands, DeltaC and DeltaD, is regulated by Wnt signaling. Also highlighting a key role for the somite in HSC specification is our recent work suggesting that FGF signaling in the somite is required for HSC emergence. Finally, modulation of adhesion molecules expressed either on somitic cells or on migrating posterior lateral mesodermal cells leads to loss of HSCs. Our current efforts are focused on understanding how each of these signaling pathways are integrated within the somite and relayed to the precursors of hemogenic endothelium to specify HSCs.

For more details, please contact:
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