

WHITAKER BIOMEDICAL ENGINEERING INSTITUTE

DEPARTMENT OF BIOMEDICAL ENGINEERING and BIOMATERIALS AND TISSUE ENGINEERING CENTER

FRIDAY SEMINAR SERIES

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Assistant Professor

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Department of Chemical Engineering and Applied Chemistry
University of Toronto**

“Systematic Approaches to Predicting and Controlling Stem Cell Output”

DATE: November 18, 2005

TIME: 1:00 p.m. – 2:00 p.m.

PLACE: **Clark 110**

Host: Dr. Jennifer Elisseff

Abstract:

The success of many stem cell-based technologies depends on quantitative control over stem cell fate through the specific application of exogenous factors that direct endogenous signal transduction pathways. We hypothesize that an integrative approach, incorporating both cell population dynamics (selective pressures, differential growth rates, autocrine and paracrine stimulation, etc.) and individual cell fate decisions (self-renewal, differentiation, survival), is required to accurately predict and control *in vitro* stem cell output. We apply these principles to the development of technologies for the propagation of umbilical cord blood-derived stem cells, and the control of embryonic stem cell self-renewal and early lineage-specific commitment. Our results not only guide the design of novel bioprocess for stem cell-based therapies, but also provide insight into common themes that govern the regulation and evolution of heterogeneous primary cell culture

Any questions, contact 410-955-3132.

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