

Microfluidics for cell culture: Studies of cell populations and cell-cell interactions

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Massachusetts Institute of Technology**Friday, February 26, 2010 • 2:00 – 3:00 PM • Seminar Room: UTEB 150****Abstract**

Microfluidic systems have gained rapidly in popularity for use in cell culture. They now provide the capability to control many of the critical biochemical and biophysical factors, allow for co-culture of multiple cell types, and can be imaged in real time at high resolution. These capabilities have opened the door to studies not previously possible with an in vitro system. For example, one can combine several different cell types and examine their interaction, and their response to time-dependent flows and delivery of growth factors. In this talk, several examples will be presented drawn from the following: angiogenesis, axonal guidance, liver tissue engineering, and stem cell differentiation.

Biography

Roger Kamm is the Germeshausen Professor of Mechanical and Biological Engineering and former Associate Head of the Department of Mechanical Engineering at MIT. A primary objective of Kamm's research group has been the application of fundamental concepts in fluid and solid mechanics to better understand essential biological and physiological phenomena. Spanning a wide range, research in the Kamm lab has addressed issues in the respiratory, ocular and cardiovascular systems. More recently, his attention has focused on two new areas, the molecular mechanisms of cellular force sensation, and the development of new scaffold materials and microfluidic technologies for vascularized engineered tissues. Kamm has a long-standing interest in biomechanics education, and has played key roles in developing both graduate and undergraduate bioengineering programs at MIT. He is the 2010 recipient of the Lissner Award from the American Society of Mechanical Engineers, a Fellow of the American Institute for Biomedical Engineering, the Biomedical Engineering Society, American Society of Mechanical Engineers, and the American Association for the Advancement of Science. He is the former chair of the US National Committee on Biomechanics, current chair of the World Council on Biomechanics, and Director of the Global Enterprise for Micro Mechanics and Molecular Medicine (GEM⁴).

Refreshments will be served starting 15 min. prior to the seminar

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