



REHABILITATION AND BIOMEDICAL ENGINEERING SEMINAR SERIES

organized by

Research Centre for Musculoskeletal Bioengineering
Department of Health Technology and Informatics, The Hong Kong Polytechnic University

co-organized by

Joint Universities Consortium on Biomedical Engineering
(JUCBE)

MECHANOTRANSDUCTION IN BONE: TOWARDS A MOLECULAR MECHANISM

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Date : **20 October 2008 (Monday)**
Time : **12:00 noon - 1:00 pm**
Venue : **Room Y516, 5/F, Block Y, Lee Shau Kee Building,
The Hong Kong Polytechnic University**

Abstract:

Many tissues and cells are known to be able to sense and respond to their mechanical environment. However, in all but a few specialized sensing cells, the mechanism by which biophysical signals are transduced into changes in gene expression and protein activity is unknown. In bone, our research suggests that cells are sensitive to the dynamic movement of extracellular fluid that occurs due to loading. Our laboratory has shown that exposing bone cells to oscillatory fluid flow in cell culture results in specific changes in gene expression and protein modification. We have previously characterized these changes and the intracellular signaling pathways responsible for regulating them. Our current focus is on determining the molecular mechanism that transduces extracellular mechanical signals into intracellular chemical signals. In this seminar I will present our most recent candidates as well as efforts underway to translate these findings into animal models.

Biosketch:

Dr Jacobs received his BSc in System Science and Mathematics from Washington University in 1988 and his MSc and PhD in Mechanical Engineering from Stanford University in 1989 and 1994 respectively. Before joining Columbia in 2008, Dr Jacobs was on the faculty of Pennsylvania State University and Stanford University.

Any enquiries, please contact Ms. Candy Yung at 3400-8577.

All are Welcome!