Seminar Announcement

PHYSIOLOGY
National University of Singapore

Title **Nuclear Mechanics and Genome Regulation**

Speaker **Assoc Prof GV Shivashankar**
Mechanobiology Institute & Department of Biological Sciences
National University of Singapore

Date Friday, 31 May 2013

Time 12.00 nn – 1.00 pm

Venue Seminar Room
Level 1, MD9, Dept of Physiology, NUS

Abstract
Physico-chemical signals from the extracellular matrix impinge on cellular geometry resulting in altered functional nuclear landscape and gene expression. These alterations regulate diverse biological processes including stem-cell differentiation, developmental genetic programs and cellular homeostatic control systems. However the mechanisms underlying these processes are unclear. Using a multidisciplinary approach, combining high resolution live-cell imaging, micro-patterned substrates and single-cell mechanics experiments, our laboratory investigates the biophysical principles underlying the coupling between nuclear mechanics and genome regulation during stem-cell differentiation and in differentiated cells. In these projects, we engage in a number of collaborations with both theoretical and experimental groups. I will describe our ongoing work that provides mechanistic links between nuclear mechanics, chromosome organization and regulation of genetic information.

Biography

Shivashankar is currently the Deputy Director of the Mechanobiology Institute and tenured Associate Professor at the Department of Biological Sciences, National University of Singapore. Prior to relocating to Singapore in 2009, he was a tenured faculty at the National Centre for Biological Sciences, Tata Institute of Fundamental Research Bangalore, India. With a background in experimental physics, his research interests turned to biological systems during the course of his Ph.D. work (1994-1999) at The Rockefeller University, New York, USA. His long-term interests in information control have led him to explore the link between geometry and genome assembly and its implications to mechanoregulation of genetic information within the nucleus of living cells. He was awarded the Birla Science Prize in 2006, the Swarnajayanthi Fellowship in 2007 from the Department of Science & Technology, India and elected to the membership of the Indian Academy of Sciences in 2010.

Convener: **Assoc Prof Reshma Taneja**

All Are Welcome