

BioSyM Seminar Series 2017

Mechanobiology of collectively migrating cells

Dr. Andrea Ravasio

Research Scientist

Singapore-MIT Alliance for Research and Technology

Email: and.ravasio@gmail.com

Date : 05th June 2017, Monday
Time : 12 pm to 1 pm
Venue : Level 5, Perseverance Room



Abstract

Collective cell migration is the fundamental process during embryonic development, tissue regeneration, wound healing and cancer metastasis. In this talk, I will describe the mechanistic perspective we take to study complex multicellular dynamics. *In vitro* studies and *in silico* simulations suggest that the social behaviour of multicellular clusters can be explained with good accuracy by their mechanical properties and with minimal knowledge of various cellular signalling pathways. In particular, I will show how simple parameters – such as cell activity, cell density and the interactions between cells and their physical environment – are sufficient to describe the dynamics of complex multicellular system. Finally, I will illustrate how mechanistic perspective can be applied to test the behaviour of cancer cells in order to understand the mechanisms leading to cancer progression and metastasis.

Short Biography

Dr. Andrea Ravasio recently joined SMART - BioSyM. He received his MSc in Biology at the University of Milan (Italy) in 2004 and his PhD in Physiology at the University of Innsbruck (Austria) in 2009. He joined the Mechanobiology Institute (NUS) as Research Fellow in 2011 and became Senior Research Fellow in 2016. His research interests are cell migration, tissue dynamics, cell biophysics and biomechanics, bioengineering.