

Introductory Talks by New Researchers @ BioSyM

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E-cadherin's extracellular domains determine key epithelium mechanical phenotypes

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Date: 28th November 2016, Monday

Time: 12 pm to 1 pm

Venue: Perseverance Room, Enterprise Level 5

Abstract

Cadherins ensure mechanical coupling between cells in intercellular adhesion. Cell-cell adhesion considerably differs between cells expressing cadherins of type-I (e.g. E-cadherin) and type-II (e.g. cadherin-7), predominantly due to the difference in the cadherins' extracellular regions. Using chimeric extracellular cadherin (EC) domains, and micromechanical techniques, we show that distinct EC repeats of E-cadherin differentially modulate cell-cell separation forces, and cell cortical tension, which further regulate epithelial tensile strength, ductility, and ultimately migration.

Short Biography

Darwesh joined Prof. Harry Asada's group at SMART-BioSyM in May 2016 as a senior postdoctoral associate. He got his PhD from the Department of Orthopaedics and Traumatology, University of Hong Kong. He carried out his first postdoctoral work at MBI, Singapore. His research interests include multiscale biomechanics, cell-cell adhesion, tissue engineering and microfluidics. His current work at SMART, in collaboration with Prof. Lisa Tucker-Kellogg's group at Duke-NUS, involves pressure ulcer formation in 3D cultured bio-artificial muscles and their regeneration using satellite cells.