SIgN Immunology Seminar

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"Actin dynamics modulate mechanosensitive immobilization of E-cadherin at adherens junctions."

Host
Dr Alessandra Mortellaro
Singapore Immunology Network, A*Star

Date
Wednesday
15 October 2014

Time
11am – 12pm

Venue
SIgN Seminar Room
Immunos Building
Level 4
Biopolis

Mechanical stress is increasingly being shown to be a potent modulator of cell–cell junctional morphologies in developmental and homeostatic processes. In particular, the interplay between contractility, actin dynamics and cadherin recruitment largely remains to be uncovered. Here we devised a suspended cell doublet assay to quantitatively assess the correlation between myosin II activity and local E-cadherin recruitment. The single junction of the doublet exhibited a stereotypical morphology, with E-cadherin accumulating into clusters of varied concentrations at the rim of the circular contact. This local recruitment into clusters derived from the sequestration of E-cadherin through a myosin-II-driven modulation of actin turnover. We exemplify how the regulation of actin dynamics provides a mechanism for the mechanosensitive response of cell contacts and clarify the relationship between intercellular forces, dynamics of the underlying actin network and adhesion strength.