SIgN Immunology Seminar

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Polycomb Group Protein Ezh2 Regulates Integrin-Dependent Leukocyte Migration via Talin Methylation

Host
Dr Alessandra Mortellaro
Singapore Immunology Network, A*Star

Date
Tuesday
18 March 2014

Time
11am – 12pm

Venue
SIgN Seminar Room
Immunos Building
Level 4
Biopolis

Cell migration is a highly dynamic process that requires temporal and spatial coordination between integrin activation and disassembly of adhesion complexes. Talin, which is a key molecule that controls these processes by linking integrins to the actin cytoskeleton, is functionally regulated by various post-translational modifications. Here we show that a lysine methyltransferase, Ezh2, critically regulates integrin signaling and governs the adhesion dynamics of neutrophils and dendritic cells (DCs) via talin methylation. Ezh2 deficiency impaired integrin-dependent transendothelial migration of innate leukocytes and restricted disease progression in an experimental autoimmune encephalomyelitis *model* of multiple sclerosis. Ezh2 recruitment by guanine nucleotide exchange factor Vav1 to mediate talin methylation was essential for the regulation of adhesion structure turnover in DCs. Our data demonstrate for the first time that leukocyte migration and adhesion dynamics are critically regulated by polycomb group protein Ezh2 through talin methylation.