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SIgN Immunology Seminar



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Breaking Barriers: Role of Integrins in Epithelial Homeostasis and Sterile Inflammation

Host
Dr Subhra Biswas/ Dr Florent Ginhoux
Singapore Immunology Network, A*Star

Date
Wednesday 11 May 2016

Time
11am – 12pm

Venue
SIgN Seminar Room
Immunos Building
Level 4
Biopolis

Integrins are heterodimeric trans-membrane receptors that connect the cellular cytoskeleton to the extracellular matrix and play a vital role in cellular processes such as proliferation, differentiation, migration and adhesion. We previously reported the generation/characterization of the conditional knockout of integrin β1 in murine skin epidermis. Further characterization of the β1 KO skin unexpectedly revealed a strong sterile inflammatory which is associated with the recruitment of immune cells from both the innate and adaptive immune system. This immune response is elicited during embryonic development in the presence of an intact barrier. We demonstrate that the molecular mechanism underlying the recruitment of immune cells in the integrin β1 KO involves de novo expression of integrin vβ6 in the basal cells of the epidermis, which activates a TGF-β driven inflammatory cascade resulting in the upregulation of dermal NFκB in a Tenascin C (TNC)-dependent manner. Importantly, treatment of β1 KO embryos in utero with small molecule inhibitors of TGF-βR1 results in a marked rescue of the ECM defects and amelioration of immune response, revealing an unconventional immuno-protective role for integrin β1 during BM remodeling.