

SlgN Immunology Seminar



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Using conditional gene targeting to study
dendritic cells in a mouse model for multiple
sclerosis

Host
Prof Burkhard
Becher
on Sabbatical at
Singapore
Immunology
Network, A*Star

Date
Thursday,
13 June 2013

Time
11am – 12pm

Venue
SlgN Seminar Room
Immunos Building
Level 4
Biopolis

Mature dendritic cells (DCs) are established as unrivaled antigen-presenting cells (APCs) in the initiation of immune responses, whereas steady-state DCs induce peripheral T cell tolerance. Using various genetic approaches, we depleted CD11c⁺ DCs in mice and induced autoimmune CNS inflammation. Unexpectedly, mice lacking DCs developed aggravated disease compared to control mice. Furthermore, when we engineered DCs to present a CNS-associated autoantigen in an induced manner, we found robust tolerance that prevented disease, which coincided with an upregulation of the PD-1 receptor on antigen-specific T cells. Additionally, we showed that PD-1 was necessary for DC-mediated induction of regulatory T cells. Our results show that a reduction of DCs interferes with tolerance, resulting in a stronger inflammatory response, and that other APC populations could compensate for the loss of immunogenic APC function in DC-depleted mice.