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MEETING ABSTRACT Open Access

Reprogramming in vivo th17 into th17/th2 by Sirp-α dendritic cells in the lungs

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Background

Dendritic cells (DCs) play a crucial role in the development of the adaptive immune response. Unbalance DC response can cause Th1, Th17 or Th2-mediated diseases. By *in vitro* manipulation, Th2 and Th17 cell lines can be reprogrammed into Th1. This highlights the notion of the plasticity of different populations of CD4 T helper cells. So far, the conversion of Th17 memory cells into Th2 cells has not been demonstrated in the tissues.

Methods

Mice were immunized by repetitive administration of inflammatory DCs loaded with OVA protein antigen (OVA-DC), locally (intra-tracheal) or systematically (intravenous). Mice were sacrificed 24h after the last challenge and lymph nodes, serum, lungs and bronchoalveolar lavage were collected to evaluate the immune response.

Results

We showed here, that administration of OVA-DCs generated antigen-specific CD4 T cells that produced IL-17, IL-13 and IL-4 (Th17/Th2) and expressed GATA-3 in the lungs and the lymph nodes. The immunized mice developed an IgE-independent lung inflammation that displayed resistance to treatment with corticosteroids. This inflammation was characterized by a mixed infiltration of neutrophils and eosinophils in the bronchoalveolar lavage. We demonstrated that airway inflammatory SIRP-a DCs converted *in vitro*-generated Th17 but not Th2 cell lines into Th17/Th2. Finally, passive transfer of Th17/Th2 cells was sufficient to drive airway inflammation in naïve mice.

Conclusion

We propose that immunization with inflammatory DCs, regardless of the route of immunization, induces chronic inflammation of the airways, which is associated with a Th2/Th17 response.

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