

P016 Role of microRNAs in the functional memory of chronically activated Th lymphocytes

Anna-Barbara Stittrich, Andreas Radbruch

German Arthritis Research Center Berlin

When naïve T helper (Th) lymphocytes are stimulated by antigen they differentiate into functionally distinct subsets depending on the cytokine signal they receive. Upon reencounter with the antigen, the Th cells mount the same functionally distinct response without the need for the cytokine signal. They have acquired a memory.

However, this memory is still plastic and can be adapted in response to adverse signals. Repeated stimulation of Th cells by antigen, as it occurs during the course of chronic inflammation, leads to changes in cell survival, migration and cytokine memory and is thought to induce pathogenicity of the Th cells. The transition from acutely stimulated protective memory Th cells to chronically activated pathogenic memory Th cells is highly elusive. Our goal is to analyze the role of microRNAs in the differentiation and function of memory Th cells. By microarray analysis we have identified several microRNAs that are differentially expressed between once and repeatedly stimulated Th cells. We also found differences between Th1 and Th2 cells. By gain/ loss-of-function experiments we want to identify target genes of these miRNAs. Knowledge about how the functional memory of chronically activated Th cells is regulated might enable new therapeutic strategies for chronic inflammatory diseases.