Review > Allergy. 2011 Aug;66(8):989-98. doi: 10.1111/j.1398-9995.2011.02576.x. Epub 2011 Mar 6.

Th17 cells: new players in asthma pathogenesis

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PMID: 21375540 DOI: 10.1111/j.1398-9995.2011.02576.x

Abstract

CD4+ T effector lymphocytes are distinguished in different subsets on the basis of their patterns of cytokine secretion. Th1 cells, thank to IFN-γ production, are responsible for cell-mediated immunity against intracellular pathogens, Th2 cells, through the production of IL-4, provide some degree of protection against helminthes, and Th17 cells, via IL-17, promote neutrophils recruitment for the clearance of bacteria and fungi. However, beyond their protective role, these T-helper subsets can also be involved in the pathogenesis of several inflammatory diseases. Asthma is an inflammatory disease characterized by different clinical phenotypes. Allergic asthma is the result of an inflammatory process driven by allergen-specific Th2 lymphocytes, whereas Th17 cells are mainly involved in those forms of asthma, where neutrophils more than eosinophils, contribute to the inflammation. The identification in allergic asthma of Th17/Th2 cells, able to produce both IL-4 and IL-17, is in keeping with the observation that different clinical phenotypes can coexist in the same patient. In conclusion, a picture in which different T-cell subpopulations are active in different phase of bronchial asthma is emerging, and the wide spectrum of clinical phenotypes is probably the expression of different cellular characters playing a role in lung inflammation.