CD4+ T Cells

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Th1/Th2 cells
Th1-polarised cells are responsible for control of intracellular pathogens such as viruses and some bacteria. IL-12 and IFN-γ are important cytokines involved in Th1 responses, and the intracellular transcription factors T-bet and STAT-4 are essential for Th1 cell differentiation and function. Th2 polarised cells are important in the defence against large extracellular organisms such as helminths, utilising cytokines such as IL-4, IL-5 and IL-13, promoting eosinophilia, mastocytosis and goblet cell hyperplasia. Gata-3 and STAT-6 are essential for Th2 cell differentiation and function.

Allergy/Autoimmunity
If the Th1/Th2 balance is disturbed there can be severe consequences. Asthma and allergy are Th2-driven and some autoimmune diseases, such as type 1 diabetes and multiple sclerosis are Th1-driven.

Th17 cells
This is a recently discovered T helper cell subset, characterised by its production of IL-17. IL-23 promotes the expansion of these cells and Th17 cells have been linked to several inflammatory conditions such as arthritis and IBD.

Treg cells
Regulatory T cells are a subpopulation of cells that maintain homeostasis and tolerance within the immune system. Subsets include inducible Tregs, CD25+CD45RBloTregs etc.