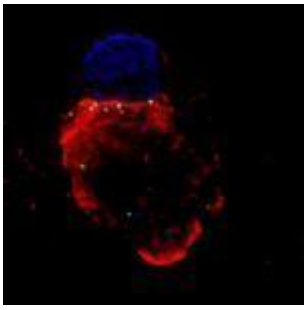
SIV infection of Tfh Cells in monkeys



There are multiple subsets of CD4+ T cells: Th1, Th2, Th9, Th17, Th22 to name a few, which are defined by the cytokines they liberate that direct specific immune responses. Follicular T helper cells (Tfh) are another subset of CD4 T cells and are more defined by their location within follicular areas of lymphoid tissues. The major role of these cells is to provide the necessary help to B cells to produce antigen-specific antibodies. A major question is whether these cells become dysfunctional during HIV infection and whether they can become infected.

In the Dec 7th edition of PLoS Pathogens, Moukambi et al focused on the impact of SIV infection on Tfh cells in the spleen of rhesus macaques (RMs). They showed a significant decrease in splenic Tfh cells in during acute infection which was “associated with lack of sustained expression of the Tfh-defining transcription factors, Bcl-6 and c-Maf but with higher expression of the repressors KLF2 and Foxo1”. They interpreted this as the inability of Tfh to differentiate and function, which would explain the decreased percentages of memory B cells and diminished titres of SIV-specific IgG.

Imaging of the lymph nodes and spleen also showed a dramatic “remodelling” of lymphoid architecture and the disruption of cellular interactions, a requirement for maintenance of memory B cells and Tfh cells. When they looked for integrated SIV during early infection, splenic Tfh cells were clearly

infected and their numbers were intriguingly more abundant in monkeys who were progressing slowly. The authors conclude that not only spleen Tfh are rendered dysfunctional during acute SIV infection, but they also represent sanctuary sites for SIV.

Moukambi, F. et al. 2015. Early Loss of Splenic Tfh Cells in SIV-Infected Rhesus Macaques. *PLOS*.