

The role of adaptive immunity in the recruitment/differentiation of alternatively activated macrophages.

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Macrophages are activated through the classical pathway by TLR or IFN receptor engagement whereas alternatively activated macrophages (AAMF) are induced by Th2 cytokines such as IL-4 and IL-13. We present evidence that AAMF, as opposed to CAMF are part of adaptive immunity and require CD4+ T cell help. RAG deficient mice and MHC class II deficient mice do not recruit AAMF in response to a nematode parasite model, *Brugia malayi*. The absence of AAMF is associated with increased neutrophilia, suggesting that a function of these cells is the dispersal of neutrophils. Costimulation through CD28 and ICOS is not required for the differentiation of macrophages that express the AAMF markers Ym1 and Fizz1. Interestingly, macrophages recruited in ICOS^{-/-} mice appear to fall into an intermediate phenotype since they cannot suppress IFN- γ production by naïve CD4+ T cells. We conclude that classical macrophage activation is an integral part of innate immunity whereas alternative macrophage activation is an arm of adaptive immunity.