

Figure 3-19 Maturation of mononuclear phagocytes. **A**, In the steady state, some tissue macrophages, including microglia and alveolar macrophages, may be derived from embryonic precursors and populate the tissues. The development of macrophages from hematopoietic precursors and monocytes may be more prominent when tissue macrophages need to be increased or replenished, as after injury and during inflammation. **B**, The morphology of a monocyte and activated macrophage.

are not actively microbicidal and the cytokines may actually inhibit the classical activation pathway; instead, the principal function of alternatively activated (M2) macrophages is in tissue repair. They secrete growth factors that promote angiogenesis, activate fibroblasts, and stimulate collagen synthesis. It seems plausible that

in response to most injurious stimuli, the first activation pathway is the classical one, designed to destroy the offending agents, and this is followed by alternative activation, which initiates tissue repair. However, such a precise sequence is not well documented in most inflammatory reactions.

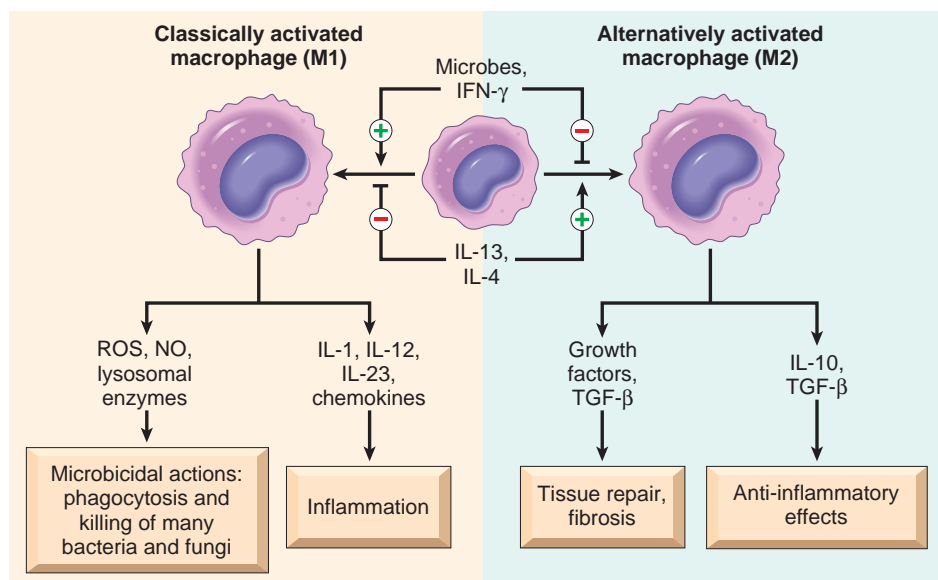


Figure 3-20 Classical and alternative macrophage activation. Different stimuli activate monocytes/macrophages to develop into functionally distinct populations. Classically activated macrophages are induced by microbial products and cytokines, particularly IFN- γ . They phagocytose and destroy microbes and dead tissues and can potentiate inflammatory reactions. Alternatively activated macrophages are induced by other cytokines and are important in tissue repair and the resolution of inflammation.