

Special Issue

Macrophage Polarization: Learning to Manage It (4th Edition)

Message from the Guest Editor

Macrophages are crucial components of innate immunity. They possess high plasticity and the ability to differentiate in response to numerous stimuli. The physiological and/or pathological conditions characterize the environment in which the macrophages reside and determine their heterogeneity. There is a plethora of different specialized functional phenotypes, among which inflammatory (M1) and reparative (M2) subtypes are proposed, which are almost exactly opposite to each other. Two key cytokines, IFN- γ and TNF- α , are responsible for M1, or classical activation, while the alternate M2 activation is mediated mainly by IL-4 and IL-13. Interestingly, microRNAs and some immunomodulators are critical regulators of macrophage polarization. The link with many human diseases and infections, including cancer, autoimmunity and periodontitis, is to be found in the dysregulation of macrophage plasticity. Furthermore, recent studies on naturally occurring compounds emphasize their regulatory effects on macrophage polarization, suggesting that some of them could be promising for the treatment of sensitive diseases.

Guest Editor

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