

## Cells of Innate and Adaptive Immunity: A Matter of Class?

Following the early discoveries of phagocytosis by Elie Metchnikoff, much scientific attention was focused on research related to adaptive immune mechanisms [1]. This work has solved many complex and intellectually challenging mysteries such as antigen processing, immunologic memory, and mechanisms allowing the production of specific antibodies. These achievements have also been critical for the advancement of medicine, allowing clinical breakthroughs as exemplified by vaccination and transplantation. However, the innate immunity paradigm introduced by Charles Janeway has profoundly changed our perspective on the evolution and complexity of immunological pathways [2]. Could immune cells be divided into innate and adaptive immune cells, respectively, or is this a simplistic view? In recent years, novel concepts addressing the roles for epithelial cells and innate lymphoid cells have entered the scene [3]. Evolutionarily ancient cells, such as dendritic cells, macrophages, and neutrophils, collaborate and are part of the innate immune system. However, they also execute effector functions, as per instructions from the adaptive side of immunity. One example is the recognition of immobilized IgG on invading microorganisms by Fc receptors on neutrophils resulting in cytotoxic activities.

In this issue, our rapidly expanding insights into the roles of innate immune cells are summarized in an interesting review by Georg Gasteiger and his colleagues [4]. The view on the neutrophil, including its recruitment to sites of inflammation, life span, and the recently discovered formation of NETs are of particular interest [5–9]. Myeloid-derived suppressor cells, MDSCs, are a relatively recently identified and heterogeneous group of immature myeloid cells of monocytic and granulocytic origin that suppress effector immune cells, mainly T cells and natural killer cells [10, 11].

The sequence of immune responses has attracted increasing attention where basic and fast cellular defense is common through evolution while slower and more specific responses appear later [12]. Macrophages are required for all animal life and possess a plethora of key immune functions, not least reflected by their M1 and M2 polarization [13–15].

In many aspects, the cells of innate immunity provide the fundament for adaptive immunity. The review by Gasteiger et al. [4] in this issue updates the current knowledge on these important players.

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## References

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