Journal of Immunology Research

Hindawi

Special Issue on

Targeting the Mononuclear Phagocyte System in Inflammatory Disease and Cancer

CALL FOR PAPERS

The mononuclear phagocyte system (MPS) consists of both macrophages and dendritic cells. These antigen-presenting cells play a major role in both inflammatory diseases and cancer. As sentinels of the immune system, the MPS continuously samples changes in the microenvironment, such as barrier breakage, shifts in metabolism due to nutrient depletion, and increases in oxygen consumption which can lead to hypoxia. The sensing of an altered microenvironment and the action of the MPS often result in changes to both phenotype and function of myeloid cells. Identifying the myeloid cell subset based on their phenotype and function enables us to target specific pathogenic cells in the tissue and achieve better efficacy without the risk of unwanted side effects. In the past, the limited availability of disease tissues and the difficulty in isolating sufficient tissue-infiltrating myeloid cells made it challenging to understand the functional role of these cells in disease. With the advent of single cell transcriptomic, metabolomic, tissue flow cytometry and CyTOF based technologies, it is now possible to work with a limited amount of tissue and generate single cell level information. Single cell RNA-seq has enabled us to profile all myeloid cells in tissue in an unbiased manner and classify them based on their gene expression profile. Metabolic profiling of myeloid cells in diseases and healthy tissue is opening the door to novel target identification. Tissue flow cytometry allows researchers to understand the protein expression pattern without artifacts introduced by tissue processing. CyTOF is enabling us to profile immune cells in tissue with unprecedented scope and is helping us to identify unique subtypes. Taken together, these modern-day technologies are providing the capability to better understand myeloid cell biology and are allowing us to revisit techniques to target myeloid cells in inflammatory disease and cancer.

This special issue aims to discuss the functional phenotypes of myeloid cell subsets in various inflammatory diseases and cancer. Both original research and review articles are welcomed. Submission of research work utilizing single cell RNA-seq, immunometabolism, CyTOF, and tissue flow cytometry to identify novel myeloid cell targets is encouraged.

Potential topics include but are not limited to the following:

- Single cell RNA-seq profiling of tissue-infiltrating dendritic cells and macrophages in inflammatory diseases, autoimmune diseases and cancer
  - Identification of disease specific myeloid cell subsets
  - Study establishing changes in myeloid cell subsets with disease progression
  - Functional characterization and their role in disease pathogenesis
- Immunometabolism and altered function of dendritic cells and macrophages in inflammation and cancer
  - Role of Immunometabolism in differentiation and function of myeloid cells
  - Change in metabolism of nonimmune tissue cells and their impact on myeloid cells
  - Identification of novel metabolic targets and their modulatory benefits as therapy

Authors can submit their manuscripts through the Manuscript Tracking System at https://mts.hindawi.com/submit/journals/jir/tmps/.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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