**Neutrophil Heterogeneity in Health and Disease**

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Neutrophils are a vital component of the immune system, playing a crucial role in defending the body against infections and maintaining homeostasis. Recent research has revealed that neutrophils exhibit remarkable heterogeneity both under steady-state conditions and during various diseases. Many research groups explore the multifaceted nature of neutrophils, shedding light on their diverse functions and contributions to health and disease. We identified and characterized lung resident neutrophils at steady state. During infections, neutrophils play a central role in pathogen clearance. However, dysregulated neutrophil responses can lead to excessive inflammation, contributing to tissue damage in conditions like sepsis and acute respiratory distress syndrome. Given the critical role of neutrophils in innate immune defense against invading bacteria, elucidating the mechanisms and nature of neutrophil dysfunction during sepsis is of utmost importance. Notably, distinct neutrophil populations emerge during certain pathological conditions; however, the specific immunophenotypic markers for dysfunctional neutrophils remain unknown. Using experimental sepsis models that feature immunosuppression, we identified a new population of pathogenic neutrophils that are generated during the initial stages of sepsis that contribute to systemic immune suppression. The detailed characteristics of the new neutrophil population and their immunological roles would be discussed.