# Abstract

Strict regulation of the immune response is critical for appropriate protection against infection, preventing tissue damage, and maintaining homeostasis. A significant part of this regulation is mediated at the level of signaling pathways in which tyrosine phosphorylation plays a key role. It is regulated by the action of protein tyrosine kinases and protein tyrosine phosphatases (PTP). An important PTP expressed on all nucleated hematopoietic cells is the CD45. Its role has been studied primarily in T- and B-lymphocytes. There CD45 plays an important role in antigen-induced signaling and signaling triggered by other stimuli. It becomes apparent that also in neutrophils CD45 plays an importat role in many mechanisms that contribute to appropriate protection against infection. These include, for example, adhesion, extravasation, chemotaxis, phagocytosis, production of cytokines and oxidative burst. In many cases, CD45 affects these processes by regulating Src family kinases. Other means of CD45 participation in specific pathways are often not clear. This thesis summarizes our current understanding of role of CD45 in neutrophil granulocytes and its effects on the function of these cells.