

Abstract

Immune system provides host protection against invading pathogens. However, aberrant activation can lead to development of autoimmune diseases or cancer. Understanding the mechanisms of inflammation and immune responses is crucial for treatment of such conditions and reestablishing immune balance. Toll-like receptors and interleukin-1 family receptors are a key component of the innate immune system. Their downstream molecules, MyD88 and IRAK4, are essential for receptor signaling as their deficiency causes host susceptibility to infection. On the other hand, overactivation of this pathway was shown to be able to promote autoimmunity and cancer. The main focus of this text will be to summarize current knowledge about the mechanism of IRAK4 signaling and how it can be exploited in the development of therapeutics.

Keywords

IRAK4, MyD88, Toll-like receptors, IL-1 receptor, cytokines, autoimmunity, cancer