TLR11 AS A RECEPTOR FOR PROFILIN AND FLAGELLIN

Summary

Family of Toll-like receptors (TLR) is a group of transmembrane proteins, which recognize pathogen associated molecular patterns (PAMPs). Unique feature of these molecules is the presence of multiple leucine-rich repeats in the extracellular domain and a TIR domain located in the cytoplasmic part of the receptor. The key role of TLR receptors stems from their ability to connect innate and acquired immunity by regulating the immune responses against invading pathogens. Until now, thirteen TLRs have been discovered, out of which ten have been found in humans (TLR1-TLR10), and twelve (TLR1-9 and TLR11-13) in mice. Each TLR receptor recognizes and binds evolutionarily conserved molecules; in consequence a cascade of proteins is activated which leads to the expression of many different genes. TLR11 molecule belongs, along with TLR12 and TLR13, to Toll-like 11 receptor family found in the endosomal membrane of murine dendritic cells, macrophages and epithelial cells. Flagellin which builds bacterial flagella and *T. gondi* profilin are main ligands for that receptor. Although humans have an orthologue of TLR11 gene, it is nonfunctional due to the presence of many stop codons. Plentiful publications suggest that the lack of expression of TLR11 in humans can be one of the causes for increased susceptibility to some of the pathogens whose PAMPs are recognized by that receptor..