

The role of IL-17 in kidney transplantation - abstract

Naive CD4⁺ T-lymphocytes (Thp) can develop into Th17 line in the presence of TGF- β and IL-6.

Th17 cells are characterized by expression of Ror- γ t and by production of interleukin-17 (IL-17). It is secreted as a glycoprotein homodimer. Binding to IL-17 receptor (IL-17R), which is present in all cell types, stimulates the production of proinflammatory cytokines and chemokines. The ratio of Th17:Treg in the graft showing signs of rejection is higher than in the graft without rejection. The presence of IL-17 in a culture of proximal tubular epithelial cells (PTEC) stimulates the production of IL-6, IL-8, MCP-1 and C3 complement component. Simultaneous action of IL-17 and CD40L synergistically increases the production of IL-6, IL-8 and RANTES. Signaling from the receptor on the surface of PTEC associated with its increased expression is effected via the src kinase and MAP kinase, and probably leads to the transcription factor NF- κ B. In rat models of transplantation, the IL-17 appears in allografts on the second day after surgery, the level rises until the fifth day, then decreases and disappears before the death of the animal. IL-17 is not detectable in isografts and negative controls. It appears before the IFN- γ , which had been considered a trigger of rejection. In patients with transplanted kidneys, an increased amount of IL-17 in monocytes in the graft infiltrate and urinary sediment was also observed during the rejection. Although there is a study not indicating elevated levels of IL-17 in rejected graft, most of the data support the hypothesis that interleukin-17 is one of the important triggers of the recipient's immune response leading to rejection of transplanted kidneys. Particularly, its presence in urine of transplant patients might be suspicious with respect to rejection mechanisms.