Mechanisms of peripheral tolerance to allergens.

Abstract:
The immune system is regulated to protect the host from exaggerated stimulatory signals establishing a state of tolerance in healthy individuals. The disequilibrium in immune regulatory vs effector mechanisms results in allergic or autoimmune disorders in genetically predisposed subjects under certain environmental conditions. As demonstrated in allergen-specific immunotherapy and in the healthy immune response to high-dose allergen exposure models in humans, T regulatory cells are essential in the suppression of Th2-mediated inflammation, maintenance of immune tolerance, induction of the two suppressive cytokines interleukin-10 and transforming growth factor-β, inhibition of allergen-specific IgE, and enhancement of IgG4 and IgA. Also, suppression of dendritic cells, mast cells, and eosinophils contributes to the construction of peripheral tolerance to allergens. This review focuses on mechanisms of peripheral tolerance to allergens with special emphasis on recent developments in the area of immune regulation.