

Abstract

Regulatory T lymphocytes (Treg) are the population of CD4⁺CD25⁺Foxp3⁺ T cells. Treg have an irreplaceable role in the regulation of immune system thereby contributing to immunological tolerance and to suppression of peripheral autoreactivity. Formation, development and correct function of Treg depend on expression of key transcription factor Foxp3, which is used as a specific Treg marker. In humans, Treg exist in two different subpopulations. Each of these subpopulations differs functionally and in point of formation. Naturally occurring Treg (nTreg) are formed in thymus to maintain peripheral tolerance. Induced Treg (iTreg) are formed in periphery by the activation of naive CD4⁺ T lymphocytes. After discovering that Treg cells play important role in development and progression of cancer, many research groups restored Treg issue. Treg are expressed in significantly higher amounts in cancer patients, when compared with healthy controls and in these patients Treg can effectively inhibit antitumor immune response with possible fatal consequences. Therefore Treg become one of the main cancer immunotherapy barriers and substances depleting or modulating Treg activity would increase effectiveness of anti-cancer vaccines.

Keywords

Regulatory T cells, Foxp3, cancer, immunotherapy