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# Regulatory T Lymphocytes: a Powerful Regulator of the Immunological System

Souza P.C<sup>1</sup>, Júnior A.S.A.<sup>A2</sup>

<sup>1</sup>Estudante do Curso de Biomedicina – UNINASSAU;

<sup>2</sup>Docente – UNINASSAU.

### ABSTRACT

**Introduction:** The immune system works by stimulating direct action against various antigens and also by means of “immune memory”. When the organism is induced by a responder to an antigenic aggression, action of several cells occurs by modeling this response, among them they are like regulatory T cells (Tregs). These represent a sub-population of CD4 + T lymphocytes characterized by the expression of the CD25 + molecule and by the nuclear factor FOXP3. **Objective:** To review the mechanisms of action of Tregs cells in the containment of the immune system. **Methodology:** The present work consists of a literature review. A localization of the articles was performed in the electronic databases Pubmed, Scielo and Lilacs, between 2012 and 2017. **Results and discussion:** currently, it is postulated that there are three mechanisms used by Treg cells for their abilities. What is the control of suppressive factors, including cyclic adenosine monophosphate (cAMP), suppressive cytokines such as TGF- $\beta$ , direct cytolysis or negative signaling through the CTLA-4 molecule, which will inhibit cell proliferation and differentiation. The second method, soluble suppression factors, such as IL-10 cytokines, TGF- $\beta$  and IL-35, or secretion of suppressive factors from antigen-presenting cells such as adenosine. The third mechanism is based on the competition for cytokines that signal through common  $\gamma$ -chain receptors (IL-2, IL-4 and IL-7), leading to immune cell apoptosis by growth factor deprivation. **Conclusion:** Tregs cells are potent regulators of the immune system that act by decreasing an immune system’s action excessively. It is believed that with a better understanding of the mechanism of action such as cells, such as Tregs seriously manipulated with a purpose to aid in the treatment of diseases with immune dysregulation.

**Keywords:** Tregs cells; FOXP3; Immunological modulation

### \*Correspondence to Author:

Souza P.C

Estudante do Curso de Biomedicina – UNINASSAU

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