

IMMUNOMODULATORY AND MORPHOPHYSIOLOGICAL EFFECTS OF *Rhipicephalus sanguineus* s. l. (ACARI: IXODIDAE) SALIVARY GLAND EXTRACTS

M.R. Abreu¹, M.C. Pereira¹, P.U. Simioni¹, E.F. Nodari¹, L.N. Paiatto¹ & M.I. Camargo-Mathias¹

¹PPG Biologia Celular e Molecular, Depto. Biologia, IB, Universidade Estadual Paulista (UNESP), Rio Claro, SP, Brasil.

The *Rhipicephalus sanguineus* s. l., popularly known as “brown dog tick”, has the dog as preferential host, but this species has been reported to parasitize other mammals including humans, showing significant medical-veterinary importance, once they transmit several important pathogenic agents during the feeding period. The tick saliva is a complex mixture that has several functions, including the capability to modulate the hemostatic, inflammatory and immunologic systems of the host allowing pathogens to settle. Despite the knowledge about the immunosuppressive action of the tick saliva, little is known about the mechanisms involved in this process and the morphophysiological effects caused by the exposure to the salivary gland extract, taking into consideration the differences of periods of the glandular cycle. Thus, the objective of the present study was to analyze the *in vitro* effects of salivary gland extracts obtained from *R. sanguineus* s. l. female ticks fed on host rabbits for 2 (SGE2 – Salivary Gland Extracts of 2 days) and 4 days (SGE4 - Salivary Gland Extracts of 4 days) on J774 cells (monocyte macrophages cell line) and verify the occurrence of morphological and immunomodulatory alterations suffered by these cells when exposed to different concentrations of these extracts, using for this purpose flow cytometry and microscopy techniques. The results showed that SGE2 and SGE4 at the concentration of 4 µg/mL presented cytotoxicity for the J774 cells exposed for 24 and 48 hours; SGE2, at the concentration of 2 µg/mL (48-hour exposure) and 1 µg/mL (24-hour exposure) and SGE4 at the concentrations of 2 and 1 µg/mL (48-hour exposure) showed proinflammatory activity, confirmed by the increased secretion of NO and proinflammatory cytokine (IL-2), and the presence of morphological characteristics detected by microscopy; SGE2 and SGE4 at the concentration of 0.5 and 0.1 µg/mL presented immunomodulatory activity, demonstrated by a decrease in the secretion of NO and proinflammatory cytokines (IL2, IL-6 and TNF-α) and increase in the synthesis of IL-10, confirmed by the morphophysiological analysis. These unprecedented data are extremely relevant research topic to be developed in order to identify the processes involved in the ectoparasite-host relationship, as well as development of new and efficient tick control strategies.

Keywords: ticks, immunomodulation, morphology, cytokines, saliva.

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