

part V
R.A.



Differential expression of CXCL10 in peripheral blood of resistant and susceptible cattle to tick infestation

Domingues, R^{1,2}; Gasparini, K¹; Bernardo, KB¹; Reis, DRL¹; Guimarães, SEF²; Machado, MA¹

¹ Embrapa Gado de Leite, CNPGL, Juiz de Fora, MG, ² Universidade Federal de Viçosa, UFV, Viçosa, MG
machado@cnppl.embrapa.br

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The cattle tick, *Rhipicephalus (Boophilus) microplus*, is a major threat to the improvement of cattle production in tropical and subtropical countries worldwide. Generally, zebuine breeds are more resistant to infestation with ticks than taurine breeds. The resistance to *R. microplus* infestation is heritable and has generally been thought to be largely immunologically mediated, although the roles of other components such as grooming and cutaneous vasculature have been demonstrated. Several works report that *B. t. taurus* cattle show an inflammatory response to infestation, while *B. t. indicus* develop a T-cell-mediated response to infestation. In a recent study there was observed a significant greater infiltration of $\gamma\delta$ T cells in the area around the mouthparts of the larvae in *B. t. indicus* when compared to *B. t. taurus*. CXCL10 is the major cytokine responsible for the chemoattraction of $\gamma\delta$ T cells. The aim of this work was to evaluate the expression of chemokine CXCL10 gene in the peripheral blood of resistant and susceptible animals. From a Gyr x Holstein F2 population with an ample variation in resistance to tick, six highly resistant and six highly susceptible animals were selected. The animals were infested with almost 20,000 tick larvae and the peripheral blood were collected before and 24 and 48 hours after the infestation. Real time RT-PCR was done to evaluate the expression of CXCL10 gene, using HPRT and GAPDH as housekeeping genes. REST (2009) software was used to data analyses. Analyzing the gene expression before and after infestation in the same group of animals, the gene was up-regulated only at 24h after infestation by a mean factor 2.20 ($p < 0.05$) in the susceptible group, while in the resistant group the up-regulation of the gene was observed 48h after infestation by a mean factor of 3.38 ($p < 0.05$). When compared the gene expression between the two groups at the same times of infestation, no difference were observed before and 24h after infestation, but at 48h after infestation the resistant group expressed more CXCL10 by a mean factor of 5.05 ($p < 0.05$). These results show an activation of immune response in all animals in response to tick infestation, being stronger in resistant group and help to explain the difference population of cells in the skin around the attach site by suggesting a greater traffic of $\gamma\delta$ T cells in resistant animals. Financial Support: CNPq and Fapemig

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