



*Short Communication*

## Differential expression of genes in resistant versus susceptible Gyr x Holstein cattle challenged with the tick *Rhipicephalus (Boophilus) microplus*

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Genet. Mol. Res. 9 (4): 1974-1979 (2010)

Received May 13, 2010

Accepted July 18, 2010

Published October 5, 2010

DOI 10.4238/vol9-4gmr905

**ABSTRACT.** The bovine tick *Rhipicephalus (Boophilus) microplus* causes major losses in cattle production systems in tropical regions. *Bos indicus* breeds are more resistant to ticks than *B. taurus* breeds. Resistance genes could be an alternative to control this parasite. We examined the pattern of gene expression of three calcium-binding-protein genes: translationally controlled tumor protein 1 (TPT1), allergen Bos d3 (S100A7), calcium channel protein transient receptor potential vanilloid 6 (TRPV6), and the cysteine proteinase inhibitor gene (CST6). These genes were selected from cDNA libraries prepared from skin biopsies taken from resistant and susceptible Gyr x Holstein F<sub>2</sub> animals. These biopsies were also used to study the expression level of these genes through real-time PCR analysis. The relative expression levels of the S100A7, TPT1, TRPV6, and CST6 genes were 2.01 ± 0.6, 1.32

$\pm 0.9$ ,  $1.53 \pm 1.2$ , and  $2.03 \pm 0.7$  times higher in the susceptible group, respectively. Skin lesion tissue from the susceptible animals showed significantly more mRNA transcripts of these genes in comparison with the resistant animals ( $P = 0.001$ ). However, this hypersensitivity does not seem to protect the susceptible animals against tick infestation.

**Key words:** qRT-PCR; Tick resistance; S100A7; TPT1; TRPV6; CST6