

Code: 598 - **Title:** THE RECOMBINANT PEPTIDE rsbm7462T INDUCES PROTECTION AGAINST *Rhipicephalus microplus* INFESTATION ALONG WITH DIFFERENTIAL EXPRESSION OF ACUTE PHASE PROTEINS AND COMPLEMENT FACTORS

Authors: THIAGO ALMEIDA; RAQUEL MORAES PAIVA; FELIPE OLIVEIRA VIEIRA; ANA FLAVIA SILVA HELENO; BRUNA DIAS; BRUNA RIOS COELHO ALVES; JOHN FURLONG; MICHELLE MUNIZ; LETICIA CALDAS MENDONÇA; MARCIA C. DE AZEVEDO PRATA; MARCO ANTONIO MACHADO; JOAQUIN H. PATARROYO; WANESSA ARAUJO CARVALHO;

Institutions: UNIVERSIDADE FEDERAL DE JUIZ DE FORA; UNIVERSIDADE FEDERAL DE JUIZ DE FORA; UNIVERSIDADE FEDERAL DE JUIZ DE FORA; UNIVERSIDADE FEDERAL DE JUIZ DE FORA; EMBRAPA; EMBRAPA; EMBRAPA; EMBRAPA; EMBRAPA; EMBRAPA; EMBRAPA; UNIVERSIDADE FEDERAL DE VIÇOSA; EMBRAPA;

Keywords: *Rhipicephalus microplus*, acute phase proteins, vaccine

Rhipicephalus microplus tick is an important ectoparasite of livestock. Many laboratories in the world focus their effort in developing an efficient vaccine for tick control. It is noteworthy that tick saliva components can also trigger acute phase proteins response (APP) and block early proteins of classical and alternative pathways of the complement system, modulating its host immunity and influencing on vaccine efficacy. Since many APP and complement factors are related to tick resistance, we aimed to associate its gene expression with the efficacy of a vaccine based on a recombinant peptide expressed in *Pichia pastoris*. For this issue, we used 12 Holstein bovines aging from 6 to 10 months divided in two groups, one immunized with the peptide rsbm7462T and the other inoculated only with the supernatant of *P. pastoris*. For both groups three doses were administered with 30 days of interval. These animals were challenged with *R. microplus* larvae infestation and liver biopsies were collected. The RNA of hepatic biopsies were extracted and its quality evaluated by Bioanalyzer assays (Agilent). The RNA of hepatic tissues was reverse transcribed to cDNA and used for evaluate the gene expression of complement protein 3 (C3), complement protein 5 (C5), mannose binding lectin (MBL), haptoglobin (HP), serum amyloid A (SAA) and alpha-1 acid glycoprotein (AGP) taking Glyceraldehyde 3-phosphate dehydrogenase (GAPDH) as a reference gene. The vaccinated group presented less engorged female tick counts and larvae hatching than the control ones ($P < 0.05$; Turkey's Test). The results showed that C5, C3, AGP and HP genes were down regulated after vaccination and challenge with tick larvae infestation ($P < 0.05$, Student's *t* test). These results suggest that the successful vaccination with the recombinant peptide rsbm7462T promotes inflammation control by AGP and HP down regulation. These molecules may reduce the damage triggered by larvae fixation to the host skin due increasing secretion of antiinflammatory cytokines and interference with coagulation cascade impairing tick engorgement. The protective state in vaccinated animals is also related to an up regulation of SAA ($P < 0.05$, Student's *t* test) which may be involved with leucocytes chemotaxis to the site of larvae attachment, up regulation of interferon- γ (IFN- γ) by T lymphocytes and oxidative burst response in neutrophils, which are all related to tick resistance.

Financial support: CNPq, Embrapa and FAPEMIG

Print

SP 7129

IMMUNO 2016

CAMPOS DO JORDÃO

XLI Congress of the
Brazilian Society of Immunology
IX ESCI – Extra Section of Clinical Immunology
October 29 – November 2 / Campos do Jordão Convention Center



[WELCOME](#) [CONGRESS](#) [PROGRAM](#) [SPEAKERS](#) [REGISTRATION](#) [ABSTRACT](#) [AWARDS](#) [SOCIAL PROGRAM](#) [INFORMATION](#) [CONTACT](#)

ABSTRACT APPROVED

[DOWNLOAD](#)

[CLICK HERE FOR PROCEEDINGS](#)

[SUPPORT](#)



[DIAMOND](#)