Animal Science-2013

OMICS Group Conferences
Accelerating Scientific Discovery

International Conference on
Animal & Dairy Sciences

July 23-24, 2013 Embassy Suites Las Vegas, USA

A peptide of the ribosomal protein P0 shows a high efficacy as vaccine against ticks

Alina Rodríguez Mallon

Center for Genetic Engineering and Biotechnology, Cuba

Abstract

Ticks are vectors of infectious agents causing human and animal diseases. They are also cause of great economic losses in the agriculture. The use of pesticides is the main measure to control these ectoparasites. However, the intensive use of chemicals causes food contamination, environmental pollution and development of resistance by ectoparasites. Vaccination is an alternative to control tick infestation. Although new tick proteins have recently been identified as potential protective molecules, only a limited number of them have been evaluated as antigens in vaccination trials. So this issue is an unsolved problem worldwide.

More than 80 proteins are found in eukaryotic ribosomes. P0 protein is essential for the assembly of the 60S ribosomal subunit. However, the use of this protein as an immunogen against ticks is limited by the high degree of amino acid identity to the antigen between ticks and mammals. This paper identifies an immunogenic region of the ribosomal protein P0 of the *Rhipicephalus* genus, which is not preserved with regard to the host's protein. A peptide of 20 amino acids of this region showed a high efficacy as a vaccine against infestations of *Rhipicephalus sanguineus* and *Rhipicephalus Bhoophilus microplus* ticks in immunization and challenge experiments in rabbits and cattle. In both experiments, a marked decrease in the tick viability was observed, suggesting the promising possibilities of this peptide for effective control of ticks. This finding could help to improve the efficiency and productivity of the livestock industry and reduce the use of chemicals in agriculture.

Biography

Alina Rodríguez Mallon completed his Bachelor studies on Biochemistry from Havana University. She has worked on Animal Biotechnology in the Center for Genetic Engineering and Biotechnology, Havana, Cuba (CIGB) since 1990. Her PhD work was developed on ticks. She developed postdoctoral studies at Stazione Zoologica di Napoli "Anton Dohrn" under supervision of Prof. Roberto Di Lauro and at EMBL under supervision of Prof. Hans Shöler. She is the head of Animal Health Projects at CIGB since 2008. She has published more than 20 papers in reputed journals and serving as an editorial board member of 2 journals. She is member of the Scientific Council at CIGB.