

## **An ABC Transporter of *Rhipicephalus (Boophilus) microplus***

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In the hard tick *R. microplus* the cattle hemoglobin digestion results in the production of high amounts of heme, a promoter of free radical formation. After the hemoglobin digestion in digestive cell, free heme is uptaken to specialized organelle, named hemosome, through a membrane transporter protein. ATP-binding cassette (ABC) transporters are integral membrane proteins that actively transport diverse substrates across the cellular membranes and are involved in many cellular processes, as heme transport in bacteria, trypanosomatides and mammalian cells and drug extrusion, conferring microorganism and cancer cells, resistance to a large spectrum of drugs. In previous work, we described the presence of ABC transporters in hemosoma membrane involved in heme and acaricide uptake. In this work, we aim the cloning of an ABC transporter from tick digestive cells and characterization of its physiologic importance. In the *R. microplus* Gene Index a 3'end sequence with high similarity to ABC transporter was identified and a 5'RACE was performed to identify the 5' end sequence. From 3' and 5'end sequence, primers were designed to cloning the complete nucleotide sequence from ABC transporter. By PCR a 2-kb amplicon was obtained, cloned in pGEM T vector and sequenced. Sequence analysis revealed conserved domains of ABC transporters, as nucleotide binding domain (NBD) with Walker A e Walker B motif, and ABC signature domain. At the present time, a RNAi assay has in process to characterize the significance of this ABC transporter in tick physiology and a screening of its transcription levels in different tick resistance populations to define ABC transporter implication in acaricide resistance. Support by CAPES, CNPq, FAPERGS, FAPERJ and INCT-EM.