Differential expression analysis of energy metabolism genes in embryonic *Rhipicephalus microplus* cells (BME26) in response to glucose concentration conditions

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**Introduction:** The application of chemical acaricides is widely used to control ticks, although the disadvantages and limitations of both methods are recognized. The release of acaricides into the environment and the development of tick acaricide resistance are some of these problems. Many areas have achieved progress in recent years in order to replace classical control methods, using the vaccination and the application of biocontrol agents. Nevertheless, despite the acquisition of molecular information has increased recently, the comprehensive understanding of molecular mechanisms, including the energy metabolism regulation, which aid on the identification of potential antigens for improved vaccines are still incomplete.

**Methods:** In this work we determined the transcription of genes involved in the energy metabolism regulation in *Rhipicephalus microplus* embryo cell line BME26 in response to glucose treatment. Control cells (cells maintained with 14,41mg of glucose); Low-glucose cells (cell maintained without glucose) and High-Glucose cells (cells maintained with 28,82mg of glucose).

**Results:** Alterations on the energy resources availability (glucose) change the transcription of glycolytic and gluconeogenesis genes, as well as genes involved in the synthesis and degradation of glycogen, major carbohydrate catabolism and anabolismo pathways. The results suggest that several genes as GS, GsK3, PEPCK and GPase present mutual genic regulation when the BME26 cells were treated with different glucose concentrations.

**Conclusion:** Leading to a better understand of the glucose metabolism genetic regulation in this tick cell line, describing the behavior of important genes involved in cellular energy balance, and thus bring out potential antigens for improved vaccines and novel targets for acaricide action to control the tick *R. microplus*.

**key Words:** Metabolism, Tick, Cell

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