STRUCTURAL AND FUNCTIONAL CHARACTERIZATION OF AURORAS KINASE ENZYME FROM CATTLE TICK, *Rhipicephalus microplus*

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Abstract. The *Rhipicephalus microplus* - whose primary host is the cattle - causes economic loss, making it the main target of control and eradication programs in herds of South America. The search for new bioactive compounds for tick infestation control through rational approaches is important to obtain new molecular targets and drugs. Previous studies have shown the cell cycle enzymes can play a key role in the tick control, especially with CDK. However, other proteins such as Aurora kinase (AK) might play a crucial function in the tick development. This enzyme belong to the family of serine/threonine kinases and it is important for the cell cycle regulation specially in mistosis. The Aurora kinases are overexpressed in several types of human cancer cells. In recents studies a new drug has been created including cct 137690 (Tocris), an potent inihibitor of AK A,B and C. In this study we analyzed the effects of cct 137690 in embryonic BME26 tick cells.**Objective.** Characterize the function and structure of the AK from R. *microplus* and observe the effects of the specific inhibitor cct 137690 in tick embryonic BME26 cell line.**Materials and methods.** BME26 cell line was treated with different concentrations of cct 137690.Cell viability was determined by the MTT assay. Cell morphology was analyzed under fluorescent microscopy with DAPI and Phalloidin markers. Additionally computational analyses of molecular docking was also conducted. **Results.** The compound was able to inhibit cell growth at 10μM and molecular docking showed bond strengths between the inhibitor and the protein. **Conclusions.** Aurora kinase seems to play an important role in the cell cycle of ticks, the coumpound appears reduce BME26 viability. However, further studies will be made for a better understanding the importance of Aurora kinase to the tick.