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Poster

CHARACTERIZATION OF *EHRLICHIA RUMINANTIUM* MEMBRANE PROTEIN, ERGA_CDS_01230 AND ITS ROLE IN ADHESION TO THE HOST CELL.

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Abstract: Outer membrane proteins participate to pathogens adhesion to host cells and therefore often mediate cell infection. Such is the case for *Ehrlichia ruminantium*, an obligate intracellular bacterium that is transmitted by ticks and responsible for cowdriosis, a fatal disease of domestic and wild ruminants. Several experimental vaccines were developed, but the great genetic and presumably antigenic diversity of *E. ruminantium* make difficult to obtain an effective vaccine against all strains present in the field. In order to propose novel strategies to control cowdriosis, the interaction of *E. ruminantium* with its host cell, particularly the associated adhesion mechanisms must be first deciphered. A membrane protein of *E. ruminantium*, ERGA_CDS_01230, a probable iron transporter, initially identified by proteomics approaches in our group, was here studied for its role in host cell adhesion. The recombinant protein was expressed with post-translational glycosylation modifications and tagged GFP/Histidine in *Leishmania tarentolae.* Using cell biology approaches, we show that recProt01230 is able to adhere to bovine host cells and interacts with proteins from the cell lysate and the "membranes/ organelles" sub-fraction. Furthermore, recProt01230 does not adhere to heparan sulfate but other membrane polysaccharides seem to play a role in *E. ruminantium*'s adhesion to the host cell. Indeed, preliminary experiments have shown that degrading dermatan sulfate and chondroitin sulfate at the cell surface is associated with a reduction of the number of bacteria in the host cells. Moreover, CDS ERGA_CDS_01230 is over expressed at early stages of infection when bacteria begin to attach to their host. So, our results show the implication of ERGA_CDS_01230 in the adhesion of *E. ruminantium* to host cells. ERGA_CDS_01230 also induces a humoral response in the vaccinated animals. In conclusion, ERGA_CDS_01230 could be a new promising target for vaccine or therapeutics development.