



The role of acid phosphatase during sucking blood of *Haemaphysalis longicornis**

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In this study, a novel acid phosphatase was isolated from *Haemaphysalis longicornis* which may affect the reproductive development of the tick. The gene was isolated from a cDNA library named *HLACP* and analyzed by bioinformatics. Then, the spatial and temporal expression patterns of the genes were analyzed by real-time PCR. In addition, combined with RNAi interference platform and protein modification omics, the changes of protein expression and modification level of *H. longicornis* before and after blood feeding were analyzed after interference with *HLACP*. It has a histidine phosphatase domain and belongs to the histidine protein phosphatase family. The expression of *HLACP* was found in all developmental stages of *H. longicornis*, and the expression of *HLACP* was the highest in the adult starvation stage and decreased significantly after blood feeding. Tissue expression profile analysis showed that the expression of *HLACP* was highest in the ovary, followed by midgut, and relatively low in salivary glands and Malpighian tubules. The results of RNA interference showed that after knockdown of *HLACP* expression, engorged body weight and egg production were significantly reduced, but hatching rate was not significantly different. In this study, we identified the sequence of *HLACP*, which may be involved in the blood-feeding process of ticks, and can affect the reproductive process. This study provides a research basis for further exploring the mechanism of acid phosphatase in blood meal digestion and reproductive development in these ticks.

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