A FATTY ACID-BINDING PROTEIN IN RHODNIUS PROLIXUS MIDGUT

Bittencourt-Cunha PRB; da Silva, ICA; Fantappie, MR; Atella GC

Instituto de Bioquímica Médica (IBqM) e Instituto Nacional de Entomologia Molecular.- UFRJ- RJ - Brasil

Fatty acid-binding proteins (FABP) are members of a superfamily of cytoplasmic hydrophobic ligand-binding proteins. In insects, gut lumen absorbs blood-derived free fatty acids (FFAs), converting them mainly to phospholipids and diacylglycerols. The three main organs involved in lipid metabolism are: the midgut, responsible for the absorption; the fat body the lipid storage tissue; and the ovary, which is involved in egg formation. Adult females of Rhodnius prolixus were fed; their tissues were dissected, and analyzed by real-time PCR and western-blotting using specific antibody made by us in mouse. Results showed that the expression of FABp was 3 times higher in the midgut when compared to the other tissues. However, the amount of FABp in the tissues was very similar, showing a possible regulation during the transcription. In the midgut, FABp expression changes during blood digestion reaching the highest level of mRNA in the 3rd day after feeding. Preliminary results showed that the amount of FABP is altered by the blood digestion, leading us to believe that blood digestion regulates FABp. In this work we produced a specific antibody for Rhodnius prolixus FABp. We also demonstrated that FABp is present in different tissues in similar amounts, despite the difference in mRNA levels. Moreover in the midgut the FABP was found in different amounts in the days after the blood meal.

Supported by: CNPq, FAPERJ and IFS
Key Words: Fatty acid-binding protein/ Lipid metabolism/ Rhodnius prolixus