

## **Midgut Stretch Activates Signal Transduction Enzymes in *Rhodnius prolixus***

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*Rhodnius prolixus*, vector of Chagas disease, ingests a huge amount of blood and molecular mechanisms by which it handles with this blood meal remain unknown. The effect of anterior midgut stretch on intracellular signaling pathways is under investigation in our laboratory. We first evaluated mitogen activated protein kinase (MAPK) pathway, using antibodies against ERK (extracellular-regulated kinase). Our results showed that anterior midgut stretch activates ERK and such activation disappeared 24 hours after feeding insects with an artificial meal. ERK is phosphorylated/activated by MEK since insects fed with classic MEK inhibitors failed to phosphorylate ERK. This data corroborated the role of this MAPK pathway on this event. Identification of MEK activators is underway but they do not involve the uptake of extracellular calcium. The role of diuretic hormone 5-hydroxytryptamine (5-HT) on ERK activation was evaluated. Preliminary results showed that 5-HT abolished stretch induced ERK activation. In a second set of experiments, we identified a midgut tyrosine phosphatase, which was inhibited by classical tyrosine phosphatase inhibitors. Besides, we investigated the role of midgut stretch on this enzyme activity. The results showed no difference on tyrosine phosphatase activity. However, when we analyzed gene expression of a tyrosine phosphatase from midgut cDNA library, an increase induced by midgut stretch was observed.

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