IDENTIFICATION AND FUNCTION OF NEUROENDOCRINE NETWORKS IN TICKS

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Ticks are vectors of numerous pathogens (e.g. arboviruses, *Rickettsia*, *Anaplasma*, *Ehrlichia*, *Coxiella*, *Borrelia*, *Babesia*) causing serious diseases in animals and humans. These pathogens are usually stored in the salivary glands and gut, and transmitted into the vertebrate bloodstream during feeding of the tick. The salivary glands and gut receive elaborate innervations from the brain, but very little is known about regulatory mechanisms controlling the activity of these organs and associated transmission of pathogens. Therefore, we used immunohistochemistry, DNA probes, molecular cloning, qRT-PCR, RNAi and bioinformatics to identify possible regulatory molecules and receptors controlling activity of these organs. Our data indicate that various neuropeptides and receptors are expressed at specific time during development and blood feeding to control salivation, digestion and associated transmission of pathogens.