

Public Abstract

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Title:Proteomics identification of differentially expressed and phosphorylated proteins in 20-hydroxyecdysone (20E) signal transduction pathway in salivary gland of *Drosophila melanogaster*

Protein kinase C (PKC) plays important role in insect molting hormone signal transduction, however, little is known about the exact role of PKC in this process. In my research, PKC-regulated phosphorylation in molting hormone signal transduction is investigated in the salivary gland of *Drosophila melanogaster* (fruit fly). Our experiments demonstrate that PKC-regulated phosphorylation is responsible for the intracellular localization of the subunits of molting hormone receptor complex, which is possibly due to the forming of a more complicated receptor complex with chaperons. We also confirmed PKC-regulated phosphorylation is required in molting hormone induced protein expression and identified 14 proteins induced by molting hormone but inhibited by a PKC inhibitor. Using 2D Western blot and phospho-(Ser) PKC substrate antibody, we were able to identify four phosphorylated PKC substrates in molting hormone signal transduction process, which may function in molting-induced gene transcription/translation process or in ecdysteroid transporting. In addition, PKC isoforms in the salivary gland were also investigated by RNA interference (RNAi). For the first time, we showed the successful application of RNAi technology by soaking the salivary glands of fruit fly with dsRNAs.