

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

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ABSTRACT

Protein kinase C (PKC) plays important role in 20-hydroxyecdysone (20E) signal transduction, however, little is known about the exact role of PKC in this process. In my research, PKC-regulated phosphorylation in 20E signal transduction is investigated in the salivary gland of *Drosophila melanogaster*. Our experiments demonstrate that PKC-regulated phosphorylation is responsible for the intracellular localization of ecdysone receptor (EcR) and its heterodimeric partner, ultraspiracle protein (USP), which is possibly due to the forming of receptor complex with chaperons. We also confirmed PKC-regulated phosphorylation is required in 20E induced protein expression and identified 14 proteins induced by 20E but inhibited by PKC inhibitor. Using 2D Western blot and phospho-(Ser) PKC substrate, we were able to identify four phosphorylated PKC substrates in 20E signal transduction process, which may function in 20E-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 *D. melanogaster* with dsRNAs.