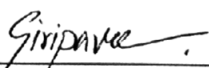


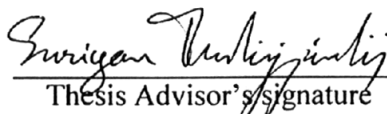
Siripavee Sricharoen 2005: Cellular Immune Reaction in Response to White Spot Syndrome Virus (WSSV) Infection in Freshwater Crayfish, *Pacifastacus leniusculus*. Doctor of Philosophy (Agricultural Biotechnology), Major Field: Agricultural Biotechnology, Interdisciplinary Graduate Program. Thesis Advisor: Mr. Suriyan Tunkijjanukij, Dr. Scient. 87 pages.
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Degranulation of crayfish granular cells was enhanced by the Ca^{2+} ionophore A23187, lipopolysaccharide-peptidoglycan (LPS-PGN), and peroxinectin. Nine proteins were released upon Ca^{2+} ionophore A23187 stimulation. Six of them were characterized and found to be a masquerade-like protein (cMas I), a masquerade-like serine proteinase (cMas II), a mannose receptor protein (MRP), a vitelline membrane outer layer protein I (VMO-I), and two antimicrobial peptides (AMPs). Seven and six proteins were found when using peroxinectin and LPS-PGN as triggers, respectively, and all of them were also released by the Ca^{2+} ionophore A23187 treatment.

White spot syndrome virus (WSSV) has caused mortality in a variety of crustaceans, including shrimp, crabs and crayfish. WSSV-injected crayfish showed similar symptoms as infected shrimp, but no appearance of white spots on the cuticle or reddish body color were observed. WSSV interaction with crayfish hemocytes, the semigranular cells (SGCs) were found to be more susceptible to WSSV than granular cells (GCs). Infected GCs were resistant to degranulation induced by phorbol 12-myristate 13-acetate (PMA) or hemocyte lysate supernatant (HLS), but not the Ca^{2+} ionophore A23187. Therefore, the protein kinase C (PKC) pathway might be affected by WSSV during its replication inside the cells. It was also found that WSSV inhibited the proPO system and apoptosis in hemocytes. WSSV might produce some anti-apoptotic factors during its infection cells. However, the mechanism of this phenomenon has still to be elucidated.



Student's signature



Thesis Advisor's signature

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