



Molecular cloning, characterization, and expression of Rab5B, Rab6A, and Rab7 from *Litopenaeus vannamei* (Penaeidae)

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ABSTRACT. The Rab protein family belongs to a superfamily of ras-like GTP-binding proteins. Rab proteins regulate many steps of membrane trafficking. In this study, three Rab family members, Rab5B, Rab6A, and Rab7, designated LvRab5B, LvRab6A, and LvRab7, were cloned from *Litopenaeus vannamei*. The full-length cDNA sequences of LvRab5B, LvRab6A, and LvRab7 were 1383, 873, and 767 nucleotides in length and they encoded proteins of 211, 212, and 205 amino acids, respectively. Using qRT-PCR, the mRNA expression levels of the three proteins were determined in the hepatopancreas of *L. vannamei* at different stages after infectious hypodermal and hematopoietic necrosis virus and white spot syndrome virus challenge. The results indicated that the mRNA expression levels of LvRab5B, LvRab6A, and LvRab7 were all significantly up-regulated after virus injection, suggesting that these genes may play essential roles in the immune response to viral infection in shrimp.

Key words: *Litopenaeus vannamei*; Rab5B; Rab6A; Rab7