

SILENCING OF *PENAEUS MONODON* RAB7 ON INFECTIOUS HYPODERMAL AND HEMATOPOIETIC NECROSIS VIRUS INFECTION

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ABSTRACT

Infectious hypodermal and hematopoietic necrosis virus (IHHNV) is a single-stranded linear DNA virus belonging to the *Parvovirus* family. This virus causes runt-deformity syndrome (RDS) and physical abnormalities in *L. vannamei*. The previous evidence suggests that Rab7 may be involved in an endosomal trafficking process for virus replication in shrimp. In this study, dsRNA corresponding to an endogenous *Rab7* gene of *P. monodon* (dsRNA-PmRab7) was used to study the inhibitory effect against IHHNV through RNAi pathway. Rab7 of *L. vannamei* (LvRab7) can be knocked down approximately 96% after 2 days and 100% after 4 days post injection of dsRNA-PmRab7. Suppression of LvRab7 mRNA by using dsRNA-PmRab7 showed inhibition of IHHNV replication in both the co-injection experiment of IHHNV and dsRNA-PmRab7, and the experiment of dsRNA-PmRab7 injection 2 days before IHHNV challenge. In the therapeutic effect of dsRNA-PmRab7 on IHHNV replication, the low dose injection of dsRNA-PmRab7 (0.63 µg/g shrimp) at 1 day after IHHNV challenge can inhibit IHHNV replication after 5 days. Furthermore, the double injection of dsRNA-PmRab7 (2.5 µg/g shrimp) at 1 and 5 day (s) after IHHNV challenge can reduce IHHNV replication after 10 days. These results suggest that LvRab7 is involved in IHHNV replication in *L. vannamei*.

KEY WORDS: dsRNA/ ENDOSOMAL TRAFFICKING/ IHHNV/ PmRab7/ RNAi

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