

# Characterization of white spot syndrome virus(WSSV) structural protein VP41B(ORF298)

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## ABSTRACT

White spot syndrome virus (WSSV; genus *Whispovirus*, family *Nimaviridae*) is a widely occurring virus which attacks cultured shrimp and many other crustaceans and has caused severe mortalities and huge economic losses to the shrimp farming industry globally. WSSV is a large enveloped DNA virus. The protein components of the WSSV virion have been established and at least 58 structural proteins are currently known. In this study, a novel WSSV structural protein, VP41B (WSSV-TW ORF298) was characterized. vp41B is composed of 903 bp encoding a polypeptide of 300 aa with a theoretical mass of 41 kDa. Recombinant VP41B (r41B) was expressed and antibody against r41B was successfully produced. Western blot analysis of viral protein fractions suggested that VP41B is a viral envelope protein. Membrane topology assay demonstrated that the VP41B is located on the inner surface of envelope. Yeast two-hybrid assays revealed that VP41B associated directly with other 12 WSSV structural proteins and most of them are envelope proteins. VP41B is also with self-association activity forming several types of polymer. VP41B can also interact with 3 *Penaeus monodon* receptor proteins, including pmCBP, pmRACK1, and F1 ATP synthase beta subunit. The above data suggest that the VP41B may be important in virion assembly and play a role in cell recognition, as well as in attaching the virus to the cell.

Keywords : WSSV、VP41B、structural protein、protein interaction

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