

# Charaterization of white spot syndrome virus (WSSV) structural protein VP11(ORF394)

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## ABSTRACT

White spot syndrome virus (WSSV) is a large enveloped virus. The WSSV viral particle consists of three structural layers that are surrounding its core DNA: an outer envelope, a tegument and a nucleocapsid. This study characterized a WSSV structural protein, VP11 (WSSV-T1 ORF394, GenBank accession no. AF440570). Immuno electromicroscopic analysis and Western blot hybridization of the intact viral particles and the separated viral components, the results showed that VP11 is an envelope protein. Membrane topology prediction demonstrated that VP11 is a type transmembrane protein with a highly hydrophobic transmembrane domain at its N-terminal, and a C-terminal exposed on the virion surface. Immunofluorescence assay performed on VP11 transfected Sf9 cells demonstrated a similar result. However, trypsin digestion analysis of virions gave a controversial conclusion. Binary Co-immunoprecipitation assays performed between VP11 and other a major WSSV structural proteins, respectively, VP11 was found to interact with both VP51A and itself. Yeast two-hybrid assay revealed that VP11 possessed autoactivation ability. We hypothesized that VP11 might act as a transcriptional factor. VP11 thus might play an important role in the replication of WSSV, not only in viral particle assembly but also in regulating at viral gene expression.

Keywords : white spot syndrome virus (WSSV)、VP11、structural protein、protein interaction、autoactivation

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