

Characterization of white spot syndrome virus(WSSV)structural protein VP38A (ORF314)

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ABSTRACT

White spot syndrome virus (WSSV) is a large DNA virus, which comprises three structural layers surrounding its core DNA, these layers include, an outer envelope, a tegument and a nucleocapsid. This study characterized a structural protein VP38A (WSSV-T1 ORF314, GenBank accession no. AF440570). Western blotting and immuno electronmicroscopy performed on the different salt concentrations Triton X-100 solution treated purified WSSV vireons, identified VP38A as an envelope protein. Membrane topology analysis showed that VP38A is exposed outside the virion but lacks a transmembrane domain. Co-immunoprecipitation assays demonstrated that VP38A could interact with VP28 and VP51A but not with VP19, VP24, VP26, VP32, VP37 and itself. Previous yeast two-hybrid screening experiment performed on a WSSV gene library displayed that VP38A was with autoactivation activity. This phenomenon was also confirmed there, implying that VP38A might act as a transcriptional factor. The above results demonstrate that VP38A is important, even essential, in WSSV infection and replication.

Keywords : White spot syndrome virus、WSSV、VP38A、 structural protein、 interactions、 autoactivation

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