

## **Antimicrobial Activity of a Single Wap Domain (SWD)-Containing Protein from *Litopenaeus vannamei* against *Vibrio parahaemolyticus* Acute Hepatopancreatic Necrosis Disease (AHPND)**

**Authors :** Suchao Donpudsa, Suwattana Visetnan, Anchalee Tassanakajon, Vichien Rimphanitchayakit

**Abstract :** The Single Wap Domain (SWD) is a type III crustin antimicrobial peptide whose function is to defend the host animal against the bacterial infection by means of antimicrobial and antiproteinase activities. A study of LvSWD from *Litopenaeus vannamei* is reported herein about its activities and function against bacteria, particularly the *Vibrio parahaemolyticus* AHPND (VPAHPND) that causes acute hepatopancreatic necrosis disease. The over-expressed mature recombinant (r)LvSWD exhibits antimicrobial activity against both Gram-positive and Gram-negative bacteria, especially VPAHPND. With four times the MIC of rLvSWD, the treated post larval shrimp infected by VPAHPND is able to survive longer with the 50% survival rate as long as 78 h as compared to 36 h of the infected shrimp without rLvSWD. To a certain extent, we have demonstrated that the rLvSWD can be applied to protect the post larval shrimp.

**Keywords :** crustin, *Litopenaeus vannamei*, *Vibrio parahaemolyticus* AHPND, antimicrobial activity

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