

Rapid and Cost Effective Multiplex Disease Detection Kit for Shrimps



Technology Overview

HRM technology is based on the dissociation behavior of dsDNA due to increasing temperature. It begins with PCR amplification of the region of interest in the presence of double stranded DNA binding dye followed by a melting curve. HRM can offer high multiplexing ability over conventional PCR and real-time PCR. Currently shrimp pathogens are detected using real-time PCR assay using Taqman probes which are expensive. Conventional PCR method is time consuming and tedious and it needs post PCR processing to see results which will also result in loss of sensitivity. Currently, all diagnostics tests are on monoplex format which can detect only single pathogen at any given time, thus in cases like co-infection, five tests are required which takes long turnaround time and can be very expensive. Our novel HRM based assay for shrimp pathogens is simple, rapid and cost-effective for simultaneous detection of multiple shrimp pathogens (WSSV, IHHNV, MBV and NHPB) and has a great potential for high throughput screening assay for shrimp aquaculture industry.

Features & Specifications

- The technology is simple, rapid and cost-effective (turn-around time is 2 hours and does not need post-PCR processing).
- The technology comprises of unique combination of primer sets which allows simultaneous detection of 4 shrimp pathogens (WSSV, IHHNV, MBV and NHPB) in a single tube.
- In terms of specificity and sensitivity performance of assay is at par or better than all current PCR technologies.

Customer Benefits

- Customers who adopt this technology for their testing services will get a rapid, cost effective and powerful management tool to better monitor their shrimp farms and take preventive actions against shrimp pathogens which can lead to economic losses.
- This technology will allow for a better management of shrimp farms, carrier status can be easily detected which can help farm management to control and prevent economic losses. Using diagnostic test as a tool, it will be easy to trace the origin of disease outbreak and comply with biosecurity guidelines which can control spread of disease.
- Regulatory authority testing shrimp pathogens can save manpower and can handle more numbers of test samples by using multiplex HRM assays. Multiplex assay for various shrimp pathogen can help industry players to generate more revenue due to faster turnaround time.

Potential Applications

- Regulatory bodies and companies providing service and regulatory laboratories can use this multiplex assay as it saves time and resources and it is cost effective. The assay can also be marketed as multiplex diagnostics kit.
- Standard regulatory requirements for import and export require pathogen-free status of shrimp. Broodstock producers dedicated to production of broodstock, hatchery operators who are producing post larvae and farmers who are growing post larvae to marketable size will benefit with such diagnostic test to ensure pathogen-free status of their stocks.

