

A RAPID (1 HOUR), SIMPLE TEST FOR THE PACIFIC OYSTER PATHOGEN *Vibrio coralliilyticus* BASED ON DETECTION OF THE SHELLFISH VIBRIOSIS TOXIN VcpA WITH A SENSITIVE LATERAL FLOW “DIPSTICK” IMMUNOASSAY.

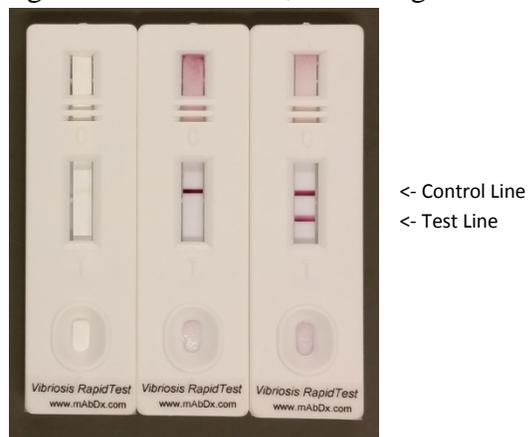
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Vibrio coralliilyticus (Vc) is a shellfish pathogen that causes serious production disruptions in shellfish hatcheries and is currently difficult to detect and manage. We have developed a novel lateral flow immunoassay (LFA), the *Vibriosis RapidTest*, that can detect Vc contamination of pacific oysters and are working to determine how best to deploy the test in shellfish hatcheries. The test is a rapid (1 hour) LFA that can measure extremely low levels of a protein toxic for shellfish (the VcpA metalloprotease) secreted by pathogenic *Vibrio* species. We report here that the LFA test can measure VcpA levels as low as 5 ng/ml, which is 20-fold lower than the level of VcpA that causes noticeable mortality of shellfish larvae in the laboratory. We also show that the test can detect VcpA in infected larvae within 30 minutes of inoculation of healthy larvae with Vc in a controlled laboratory setting.

LFAs are simple and easy to perform (home pregnancy test kits are common examples) and do not require any external instrumentation other than an eyedropper to apply several drops of sample, e.g., larval cultures, to the sample port. Readout is visual and can be qualitative (plus/minus) or quantitative. A plus/minus test is shown below but the *Vibriosis RapidTest* can also measure VcpA over a wide range of concentrations, from 5 ng/ml to 500 ng/ml.



Pre-test Negative Positive

We anticipate that the *Vibriosis RapidTest* will provide hatchery operators with real-time, on-site, early detection of Vc contamination. The test will be a major improvement over current Vc detection protocols, which take several days and require extensive off-site laboratory analysis.