Rapid Diagnostic Tools For Contagious Equine Metritis

Smriti Shringi, Texas Tech University –One Year Grant

This study focuses on the development of a rapid field test and confirmatory laboratory assay for the detection of Taylorella equigenitalis, enabling early diagnosis and improved outbreak control of contagious equine metritis. If proven accurate, could also reduce time and complications of shipping requirements for breeding animals.

Contagious Equine Metritis (CEM) is a serious reproductive disease caused by Taylorella equigenitalis (TE) that spreads during breeding and can disrupt international trade, breeding programs, and equine health. Detecting TE is challenging because the bacteria grow slowly, are often present in low numbers in healthy-looking carriers, and can be confused with other closely related bacteria. Multiple genital swabs collected from multiple sites from each animal are often required to improve the sensitivity of current diagnostics. These challenges mean current testing methods are slow, complicated, and sometimes miss infected animals.

Our project aims to create faster, more reliable diagnostic tools. Building on our earlier research, we have identified genetic and protein markers unique to TE and will use these to develop two assays: a multiplex digital PCR (dPCR) assay for laboratory confirmation and a lateral flow assay (LFA), similar to at-home pregnancy test, for rapid, in-field screening at breeding and quarantine sites. These tools will complement existing methods, enabling earlier detection, quicker outbreak response, and better disease surveillance. By improving detection and control of CEM, this project will protect horse health, prevent costly breeding disruptions, and maintain international trade standards. Faster, accurate diagnostics will safeguard valuable horse bloodlines, support breeders, and strengthen the biosecurity and sustainability of the U.S. equine industry.

Importance to Industry: This project will improve CEM detection and control by developing a rapid, easy-to-use field test (LFA) and a highly sensitive laboratory test (dPCR). These tools will allow breeders, veterinarians, and regulators to identify infected horses earlier, reduce economic losses from breeding disruptions, protect international trade, and safeguard valuable horse bloodlines. Additionally, the production of new reagents, such as antibodies and proteins unique to CEM-causing bacteria (TE), will support the development of future prevention and control strategies. By enhancing disease surveillance and outbreak response, the project will strengthen both equine health and the long-term sustainability of the US and global horse industry.

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