

## Detection and Quantification of PRRSV

Gallant Custom Laboratories is offering a real-time RT-PCR test, which can be multiplexed for the simultaneous detection of North American (NA) and European (EU) strains of Porcine Reproductive and Respiratory Syndrome virus (PRRSV) in swine.

PRRS is characterized by abortions in sows and gilts and respiratory symptoms, especially in young pigs and is one of the most economically important diseases in swine. Transmission of PRRS virus through semen to sows and gilts has been well documented, making effective monitoring of boar studs essential in the prevention of downstream infection.

Since this is complicated by time restraints, real time RT-PCR is an ideal solution for providing cost-effective, rapid and sensitive results.

## How Does the Test Detect PRRSV?

Real-time PCR utilizes fluorescence detection and sophisticated software to measure the production of PCR products as the amplification reaction occurs. This reaction is conducted in a single tube that is not re-opened once the reaction has been initiated to minimize the risk of cross-contamination of samples. The technique employs primers and probes selected from the highly conserved nucleocapsid gene (ORF 7) and the 3'-untranslated region of the PRRSV genome. The methodology used by Gallant Custom Laboratories employs 3 primer sets from these regions to improve sensitivity and detection of NA variant strains.

## Benefits of the Test

- The real-time RT PCR test is a robust test and minimizes false positives by utilizing a closed tube system to prevent cross contamination.
- It is highly sensitive.
- This multiplexed test will detect, differentiate and when requested, quantify both NA and EU PRRSV strains simultaneously.
- Positive and negative controls are included in every PCR reaction run to ensure that no RNA contamination of the test system occurred from extraction to PCR amplification and that all parameters of the test were satisfactory for the detection of NA and EU PRRSV RNA.
- We archive samples for a minimum of 30 days.

- We offer timely service and rapid turn around time with results provided the next business day for submissions received before 10 AM.
- The cost effectiveness and speed of the test allows for increased monitoring, improving the likelihood of early detection.

## How Did Our Test Measure Up During Validation?



After a process of assay optimization, Gallant Custom Labs assessed the sensitivity and specificity of this test using over 100 serum samples. Serum samples were collected and split by attending veterinarians who agreed to

participate in our validation. One serum set was submitted to the vets' current Ontario test provider, where they were tested using nested PCR technology. A duplicate set was sent to Gallant for testing.

Where results were in disagreement, these samples were forwarded to a third independent laboratory for verification using the Tetracore® real-time RT PRRSV assay.

Comparison of Gallant results and the results provided by the veterinarians' current test provider (Lab 1) showed 94% agreement of the data. The 6% of samples that were in disagreement were forwarded to a third laboratory (Lab 2). Lab 2 confirmed 6 out of 7 of the Gallant results. Consequently, 99% of Gallant's results were confirmed based on the data from two independent laboratories.

Verification of Discordant Samples		
Lab 1 Nested PCR Data	Gallant Real-time Data	Lab 2 Real-time Data
-	+	+
+	-	-
+	-	-
+	-	<b>suspect</b>
<b>Weak +</b>	-	-
-	+	+
-	+	+