



# Prognostic profiling of porcine viruses with oral fluids

Oral fluids allow the swine industry to generate a more accurate and reliable monitoring approach, where early detection can result in faster response time

## Provide more convenience and value to your customers:

- A single oral fluid sample can be used to test for multiple pathogens including porcine reproductive and respiratory syndrome virus (PRRSV), porcine circovirus type 2 (PCV2), and swine influenza virus (SIV)
- A screening tool that can be used in addition to blood, serum, and/or nasal swabs
- An opportunity to potentially increase the number of pigs tested
- A workflow compatible with existing laboratory processes

## Testing oral fluids is a powerful tool for the diagnosis of swine diseases:

- Used as a sample matrix, testing oral fluids allows for the detection of nucleic acid from the respective viruses in an early infection stage with the same performance (sensitivity) as blood, serum, and other validated matrices
- It is an efficient tool for prognostic profiling to estimate the circulation of pathogens in a swine population and for effective herd health monitoring

## Sampling recommendation

The figure below delineates the number of pens that should be sampled in order to be able to detect PRRSV in oral fluids with a confidence level of 95%, 99%, or 99.99% (Figure 1).

Prevalence of PRRSV (%) (determined in serum)	Confidence level		
	95%	99%	99.99%
0	68	105	210
10	19	29	58
20	6	9	19
30	3	4	8
40	1	2	4
50	1	2	3
60	1	1	2
70	1	1	2
80	1	1	2
90	1	1	1
100	1	1	1

Figure 1. If the serum prevalence is higher than 50%, only one pen of 10 animals will be taken for a confidence level of 95%.

### High correlation between oral fluid and blood/serum

Results from two field studies demonstrated an excellent correlation between the  $C_t$  obtained with blood/serum and oral fluid. The correlation between oral fluid and blood/serum results are close to 90% (Figures 2 and 3).

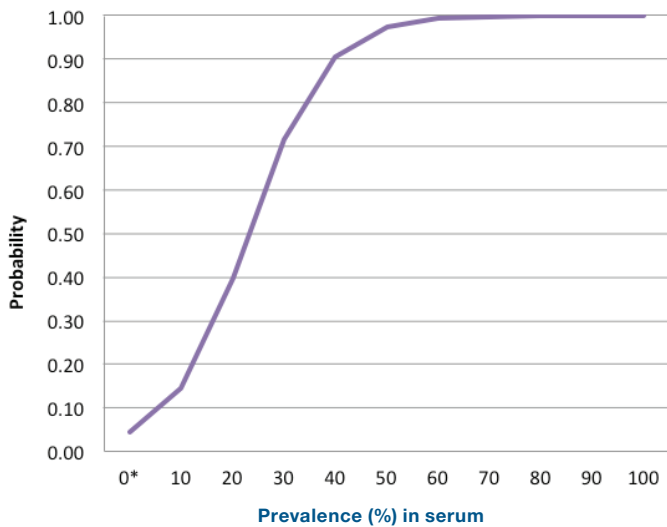


Figure 2. Correlation between the prevalence of PRRSV in serum and the detection in oral fluid.

### The GenoTube Livestock swab is designed to quickly dry and stabilize fluid samples

Prevalence of PRRSV (determined in serum)	Probability (0-1) to detect PRRSV in oral fluid
0	0.043
10	0.147
20	0.397
30	0.717
40	0.907
50	0.974
60	0.993
70	0.998
80	0.999
90	0.999
100	0.999

Figure 3. The probability (0-1) to detect PRRSV in oral fluid samples was 0.15, 0.40, 0.72, 0.91, and 0.97 for a serum prevalence (%) of 10, 20, 30, 40, and 50, respectively. If the serum prevalence is higher than 50%, the probability to detect this virus in oral fluid samples is close to 1.



Figure 4. GenoTube Livestock swab.

## Sampling

To help ensure accurate results for multiple pathogens

(i.e., PRRSV, PCV2, and SIV):

- Use high-quality cotton ropes
- Maintain cold chain (4°–7°C) during transport to the laboratory and test within 3 days of sampling



## Nucleic acid extraction and purification

One purification process with magnetic beads to help provide:

- Effective and easy-to-use kits
- Consistent purification of DNA and RNA
- Minimize cross-contamination by using optimized protocols

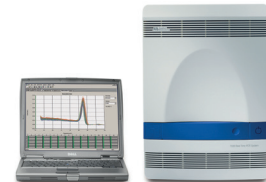


Magnetic particle processors

## Amplification

Amplify PRRSV, PCV2, and SIV nucleic acids from viruses with real-time PCR:

- Ready-to-use kits or assays
- Internal positive control (IPC) enables monitoring of nucleic acid isolation efficacy, as well as PCR inhibition
- Rapid and cost-effective
- Enables consistent results



Real-time PCR systems

Optimized PCR workflows combining sample prep and amplification solutions

Ordering information

Product	Type	Quantity	Cat. No.
<b>Purification and extraction</b>			
MagMAX-96 Viral RNA Isolation Kit	—	96 tests	AM1836
MagMAX-96 Viral RNA Isolation Kit	—	480 tests	AM1836-5
MagMAX Pathogen RNA/DNA Kit	—	480 tests	4462359
MagMAX CORE Nucleic Acid Purification Kit	—	100 tests	A32700
MagMAX CORE Nucleic Acid Purification Kit	—	500 tests	A32702
<b>Real-time PCR</b>			
VetMAX-Gold SIV Detection Kit (USDA-licensed)	Real-time PCR	100 tests	4415200
VetMAX-Gold SIV Subtyping Kit	Real-time PCR	100 tests	4485541
VetMAX Porcine PCV2 Quant Kit	Real-time PCR	100 tests	QPCV
VetMAX PRRSV EU & NA 2.0 Kit	Real-time PCR	100 tests	A35751
<b>Related products</b>			
GenoTube Livestock	Sampling	1 piece	9062010

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