

Evaluation of the AnDiaTec AcuPig® PRRSV *real time* RT-PCR for the detection of NA and EU strains

Introduction

Due to its high economic impact, Porcine Reproductive and Respiratory Syndrome (PRRS) is one of the most important diseases in swine industry worldwide. Infection with PRRS virus (PRRSV) is characterized by respiratory problems and weakening of the immune system. In pregnant sows infection usually results in abortions, early farrowing, stillbirths, and high pre-weaning mortality. PRRSV is transmitted through nasal secretions, saliva, feces, and urine, as well as through airborne transmission of aerosols.

PRRS viruses show very high genomic sequence and antigenic variation and are subdivided into two genotypes: the North American (NA) and the European (EU). However, diagnostic assays have to reliably detect all PRRSV strains as viruses of both genotypes cause similar pathogenesis.

AcuPig® PRRSV *real time* RT-PCR Kit

The test procedure can be performed manually or automated:

70min 2-step lysis of
EDTA blood or serum

RNA extraction of tissue,
saliva, or blood samples



AcuPig® PRRSV *real time* RT-PCR

Evaluation of AcuPig® PRRSV - Specificity and analytical sensitivity

Specificity:

▪ Numerous PRRSV strains (NA and EU genotype) and non-PRRSV strains were tested and correctly identified.

Analytical sensitivity:

▪ 100 to 200 viral particles per 1mL EDTA blood or serum deliver C_T values of 39 – 40 (determined with strains SD-23983 (NA genotype) and Lelystad (EU genotype)).

Evaluation of AcuPig® PRRSV

- Proficiency panels

German ring trial (Truyen et al., 2006; J Vet Med 53: 68-74)

- „Qualitative set“: sample positive or negative
- „Differentiation set“: sample NA or EU genotype

2 US proficiency panels (ring trials)

- 20 samples (3 EU, 12 NA genotypes, 5 negatives)
- 25 samples (14 NA, 3 EU and NA genotypes, 8 negatives)

- ➔ All samples were correctly identified.
- ➔ All genotypes were precisely determined.

Evaluation of AcuPig® PRRSV

- Comparison to other commercial RT-PCRs

TABLE 1: Comparison of the AcuPig® PRRSV *real time* RT-PCR Kit to 2 commercially available real time RT-PCR kits

Number of samples	Results AnDiaTec RT-PCR	Results RT-PCR A	Results RT-PCR B
322	positive	positive	positive
9	positive	positive	negative
2	positive	negative	negative
921	negative	negative	negative
Total number of samples	Positive AnDiaTec RT-PCR	Positive RT-PCR A	Positive RT-PCR B
1243	333	331	322
	True Positive AnDiaTec RT-PCR	True Positive RT-PCR A	True Positive RT-PCR B
	333/333	331/333	322/333
Diagnostic Sensitivity		99,39%	96,70%

Summary

- Sensitive and reliable assay for the detection of PRRSV in blood, tissue, and saliva samples
- Easy-to-use protocol – fully automatable
- Differentiation of NA and EU genotypes



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