

Introduction

The CSIRO Australian Centre for Disease Preparedness (ACDP) is a WOA Reference Laboratory for African swine fever and plays a vital role in infectious disease control through its ISO 17043-accredited Proficiency Testing (PT) programs and provision of high-quality diagnostic reference materials (RM). This PT program is instrumental in strengthening laboratory capability and capacity across the Asia-Pacific region by ensuring the accuracy and reliability of diagnostic testing for high-risk pathogens, including African Swine fever (ASF). To further support surveillance efforts, ACDP now offers an ASF serology panel designed for the detection of antibodies to ASF viruses belonging to genotype I and II. Participation in PT schemes provides laboratories with an independent assessment of their diagnostic performance, reinforcing their credibility and demonstrating technical competence. This is a key component of quality assurance and a mandatory requirement for laboratories accredited to ISO/IEC 17025.

Methods/Approach

Swine PCR Panel

- 15-20 samples
- ASF, CSF, PRRS and Influenza

ASF Serology panel

- 6 samples comprising antisera derived from pigs experimentally infected with genotype I and genotype II ASF viruses

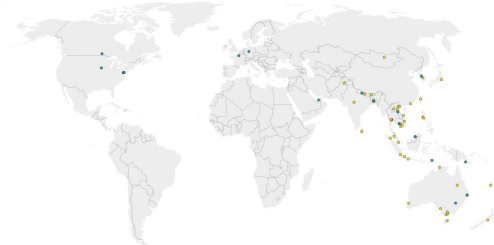
Samples are:

- Inactivated
- De-identified
- Barcoded
- Lyophilised for stability and reduced shipping cost



Delivered to over 100 laboratories worldwide

Swine PCR PT Swine Serology



Panels include:

- Positive samples: to assess assay sensitivity
- Negative sample(s): to assess specificity and/or contamination
- Identical/split sample pair: to assess repeatability and reproducibility

Table 1 A typical example for Swine diseases PCR PT panel.

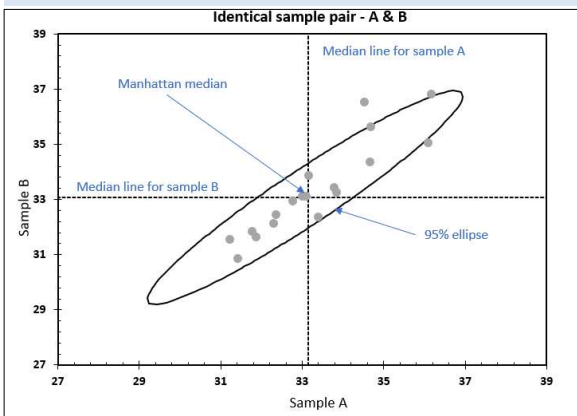
NO.	AGENT	SAMPLE ID	PAIRED	EXPECTED RESULT				
				ASF	CSF	SIV	PRRS-E	PRRS-S
1	Porcine Serum			Negative	Negative	Negative	Negative	Negative
2	ASF	BAT1V		Positive	Negative	Negative	Negative	Negative
3	ASF	GRG2007/		Negative	Negative	Negative	Negative	Negative
4	ASF	UGA 95/1	Identical S5	Positive	Negative	Negative	Negative	Negative
5	ASF	UGA 95/1	Identical S4	Positive	Negative	Negative	Negative	Negative
6	CSF	CSFV/1.3/dq/MV/1986/VRI 4167		Negative	Positive	Negative	Negative	Negative
7	CSF	CSFV/2.1/dq/GB/XXX/2000/2	Identical S8	Negative	Positive	Negative	Negative	Negative
8	CSF	CSFV/2.1/dq/GB/XXX/2000/2	Identical S7	Negative	Positive	Negative	Negative	Negative
9	CSF	CSFV/2.2/dq/TH1997/SW97-PK26		Negative	Positive	Negative	Negative	Negative
10	CSF	CSFV/2.2/dq/TH1997/SW97-PK26		Negative	Positive	Negative	Negative	Negative
11	SIV	H1N1 A/Swine/Pinjara/2011	Split (+) S12	Negative	Negative	Positive	Negative	Negative
12	SIV	H1N1 A/Swine/Pinjara/2011	Split (+) S11	Negative	Negative	Positive	Negative	Negative
13	SIV	H3N2 A/Swine/Mc/2017		Negative	Negative	Positive	Negative	Negative
14	PRRS-E	PRRS EU Lelystad		Negative	Negative	Negative	Positive	Negative
15	PRRS-E	PRRS EU Lelystad		Negative	Negative	Negative	Positive	Negative
16	PRRS-E	PRRS EU Lelystad		Negative	Negative	Negative	Positive	Negative
17	PRRS-S	PRRS SEA Vietnam (2010)	Split (+) S18	Negative	Negative	Negative	Negative	Positive
18	PRRS-S	PRRS SEA Vietnam (2010)	Split (+) S17	Negative	Negative	Negative	Negative	Positive
19	PRRS-S	PRRS SEA Vietnam (2010)		Negative	Negative	Negative	Negative	Positive

A comprehensive report is issued within 8 weeks of the close of testing. Laboratories are assigned a code to maintain confidentiality from other participants.

An overall assessment of “Acceptable” or “Unacceptable” is provided based on the qualitative results submitted.

To support laboratories in assessing assay performance, statistical analyses are conducted on quantitative data derived from sample pairs to help determine:

- Whether laboratories produce equivalent results
- Which laboratories are statistical outliers
- Whether observed inconsistencies are due to reproducibility issues (between laboratories) or repeatability issues (within a single laboratory)



Martin, J., (2017). Quality Control and Assurance, IntechOpen.

Conclusion

Proficiency testing serves as a proactive mechanism to assess and improve a laboratory's readiness to detect and respond to emerging disease threats. It offers independent evaluation of key diagnostic elements—such as sample handling, test methodologies, equipment performance, and staff capability—providing a comprehensive snapshot of laboratory competence. The ACDP PT program helps to maintain cutting-edge diagnostic capabilities critical for the prevention, control, and eradication of ASF and other swine disease that pose significant threats to pig production and wild suid populations.

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