

ANTIGEN DETECTION FOR SIV DISEASE IN PIGS USING A COMMERCIAL RAPID TEST AND VIRUS ISOLATION IN A NON-VACCINATED FARM IN MEXICO

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Introduction

Influenza virus is an important cause of respiratory syndrome in pigs. Common routine diagnostic tests in Mexico include clinical signs, antigen detection in lung samples by immunohistochemistry (IHC) and two methods to detect antibody levels in sera (ELISA and IHA). For serum antibody testing, there is no means to differentiate between infectious and vaccination antibodies. Virus isolation requires time and specific techniques are not available in all diagnostic laboratories. Antigen capture tests (Becton-Dickinson and Synbiotics) used in humans to detect type A influenza virus can also be used with good results when pigs are selected during the viral shedding period. The drawback to these tests is that there is only a short (3-5 day) window of shedding post-infection. The purpose of this study is to determine the correlation between the Flu-Detect[®] (Synbiotics) antigen capture test with virus isolation for SIV diagnosis in swine.

Materials and Methods

Pigs were chosen from a non-vaccinated farm in Mexico. 100 samples from nasal swabs were analyzed from the reproductive herd (25), Site 2 (50) and Site 3 (25). Sampling criteria were typical flu-like clinical signs and a body temperature over 40 °C. One swab was taken from each nostril; one was used to perform the rapid test and the other one to isolate the virus. MDCK cells (pretreated trypsin) were used to isolate the virus, monolayers were inoculated with 200 µl of a filtered and centrifuged sample, and cells were incubated for 72-120 hours. The cells were observed for cytopathic effects and hemagglutination from supernatant.

Results

Of the 100 samples taken, 10 were positive to rapid test detection. The following table shows the distribution of positive animals to SIV on the rapid test.

Production Stage	Total Samples	Total Positives	%
Reproductive Herd	25	0	0
Site 2 (3-10 weeks age)	50	9	18
Site 3 (11-25 weeks age)	25	1	4
TOTAL	100	10	10

Of the 10 samples positive on the rapid test, 8 were also positive on viral isolation. None of the samples negative on the rapid test were positive on virus isolation.

Discussion

Pathogenesis of SIV virus after infection involves virus replication in respiratory epithelium, resulting in cell death. This process takes 3 to 5 days. The presence of fever

correlates well with virus isolation. We found that the positive samples all came from animals that showed rectal temperatures above 41°C. The pigs from this farm were non vaccinated and we began to detect positive piglets from the 6th week of age mainly due to passive immunity decrease. It is important to note that we could not find any sows positive to the virus. In conclusion, the rapid test worked similarly to virus isolation. The rates of detection were higher in pigs with high fevers and clinical signs. The key to SIV diagnosis is proper animal selection.

References

Snelson H.: Maximizing the diagnostics potential of SIV Antigen Capture. *J. of Swine Health and Production*. 2001; 9: 85