

**TITLE**

**DIAGNOSIS OF PORCINE CYTOMEGALOVIRUS BY QPCR**

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**CONTENT**

**Background and Objectives**

Porcine cytomegalovirus (PCMV) inhabit the nasal cavity of pigs and can cause rhinitis. Detection of inclusion bodies by histopathology has been the gold standard when diagnosing PCMV. As PCMV are present in the nasal fluid of a high proportion of healthy pigs, detection of the virus by conventional PCR is inconclusive. The hypothesis is that the amount of PCMV in the nasal secretions are higher in pigs with inclusion bodies compared to healthy pigs. Thus, the objective of this study was to compare the quantitative results of qPCR on nasal swabs with the histopathological examinations.

**Material & Methods**

Nasal swabs and nasal mucosa from piglets with signs of upper respiratory disease were tested by real-time qPCR and histopathology. The qPCR results were reported on a continuous log<sub>10</sub> scale, and the histopathology was reported on a qualitative scale, declaring no pathological signs of PCMV, inconclusive signs or definite signs of PCMV. Results were compared by ROC-curves with area under the curve (AUC), stating the overall test validity. The optimal cut-off value for the PCR test was established using plots of sensitivity (Se) and specificity (Sp) at different qPCR cut-off values.

**Results**

In total, 46 piglets were examined. The prevalence of piglets with inconclusive or definite signs of PCMV was 65%, whereas 41% of the piglets had definite histopathological signs. When including both the suspected and definite pathological signs, the ROC curve AUC were 0.83, Se=0.70, Sp=0.89 and the optimal cut-off of 5.83log<sub>10</sub>. The ROC curve only including definite histopathological signs of PCMV showed an AUC=0.96, Se=0.89, Sp=0.96 and an optimal cut-off of 7.16log<sub>10</sub>.

**Discussion & Conclusion**

The conclusion is that qPCR on nasal swap samples can be used as a diagnostic tool for diagnosing PCVM in piglets with a cut-off for the PCR test between 5.83log<sub>10</sub> and 7.16log<sub>10</sub>.