

## **BBD-PP-14**

### **TITLE**

COMPARISON OF METABOLIC ADAPTATION AND BIOFILM FORMATION OF ACTINOBACILLUS PLEUROPNEUMONIAE FIELD ISOLATES FROM THE UPPER AND LOWER RESPIRATORY TRACT

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### **CONTENT**

#### Background and Objectives

Most outbreaks of porcine pleuropneumonia in swine populations are triggered by additional abiotic or biotic factors in already colonized pigs. It can be hypothesized, that most of the older pigs carry the pathogen in their tonsils, at which stressors might activate infection. As it was shown before, *Actinobacillus pleuropneumoniae* strains of the same genotype develop a metabolic adaptation depending upon the sampled tissue either in the lower or in the upper respiratory tract in the early stage of infection, at which the oxygen availability might be decisive.

#### Material & Methods

In this study, pairs of *A. pleuropneumoniae* isolates were recovered from tonsillar as well as lung tissue from 20 pigs suffering from acute clinical signs of pleuropneumonia and showing characteristic pathological lung alterations. Metabolic adaptation of the isolates to the porcine upper and lower respiratory tract was investigated using Fourier-Transform Infrared (FTIR-) spectroscopy as a high resolution metabolic fingerprinting method. The *A. pleuropneumoniae* isolates were also tested for biofilm production using a microtiter plate assay.

#### Results

The 32 strains belonging to serotype (ST) 2 showed metabolically adaptations to the organ tissue similar to those previously observed under experimental conditions (Sassu et al., 2017). Almost all strains showed biofilm formation, but no difference in the biofilm production was found between the lung and tonsillar isolates. However, isolates belonging to ST 2, 5, 6 and 9/11 showed differences in biofilm production.

#### Discussion & Conclusion

Our study supported, that *A. pleuropneumoniae* field isolates are generally able to form biofilms, although in a serotype specific manner.