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## Molecular epidemiological investigation of porcine circovirus types 2 and 3 and Mycoplasma hyopneumoniae

## **Prof. Guoping Liu**

Yangtze University, Jingzhou, China

Statement of the Problem: Porcine circovirus type 2 (PCV2) has been identified as the causal agent of postweaning multisystemic wasting syndrome (PMWS). Porcine circovirus type 3 (PCV3) is an emerging virus that is pathogenic to pigs, and there is no commercial vaccine. Mycoplasma hyopneumoniae (Mhp) can cause respiratory disease in pigs. Infections with PCV2, PCV3 and Mhp have caused serious economic losses to the pig industry. The purpose of this study is to clarify the prevalence and variation of PCV2, PCV3 and Mhp in large-scale pig farms in China. Methodology & Theoretical Orientation: Clinical samples were systematically collected from large-scale pig farms in China, PCV2, PCV3 and Mhp were detected, and positive samples were sequenced and analyzed. Findings: four major branches, namely, PCV2a, PCV2b, PCV2c, and PCV2d, concern PCV2 molecular epidemiology in China, with PCV2a, PCV2b, and PCV2d dominating. PCV3 has a wide range of infection in China, which can not only infect pigs at different growth stages, but also be distributed in different tissues and organs of infected pigs, and can be transmitted horizontally and vertically. PCV3b is replacing PCV3a as the dominant strain in parts of central China. Mhp can be transmitted horizontally and vertically, and is most easily detectable in fan and water curtain samples in environmental samples. Conclusion & Significance: PCV2, PCV3 and Mhp are widely prevalent in China and continue to mutate. This study provides a data basis for the construction of an early warning and monitoring system for PCV2, PCV3 and Mhp in large-scale pig farms, as well as the development of vaccine screening and immunization procedures.

## **Biography**

Guoping Liu was in charge of the conclusion of strategic technology cooperation agreements with major domestic large-scale farming conglomerates to establish a system for early warning, control, and eradication of significant swine diseases such as African swine fever, porcine reproductive and respiratory syndrome, pseudo-rabies, porcine parvovirus infection, and diarrhea syndrome. He has been extensively involved in the construction of a long-term system for early warning, purification, and eradication of major diseases in pig farming. His contributions have made a significant impact on the pig farming industry in areas such as bioproducts, healthy farming, disease control, disease surveillance and purification, and industrial planning.

guoping.liu@yangtzeu.edu.cn

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