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Phenotypic and Genotypic Characterization of Porcine RNA Viruses isolated from diarrheic piglets highlights its zoonotic potential

Inhalt

Background: Swine harbor diverse viruses with zoonotic potential, necessitating continuous surveillance. This study investigated the prevalence and molecular characteristics of Parainfluenza Virus 5 (PIV5) and Enterovirus G (EV-G) in diarrheic piglets in northern China.

Methods: A total of 232 fecal samples from diarrheic piglets in Heilongjiang Province were analyzed by viral isolation, molecular characterization, phylogenetic analysis, and pathogenicity studies.

Results: A PIV5 strain was isolated and found to be closely related to strains previously detected in pigs and lesser pandas in China. The virus infected multiple mammalian cell lines, including human cells, indicating cross-species transmission potential. An indirect ELISA based on recombinant nucleocapsid protein showed high sensitivity (94.1%) and specificity (96.4%), while serological testing of 530 sera revealed a prevalence of 75.7%. EV-G was detected in 37.5% (87/232) of samples, and four G1-PLCP strains carrying a 639-nt papain-like cysteine protease insertion were isolated. These strains infected multiple cell lines and caused mild disease in piglets.

Conclusion: The broad host tropism of PIV5 and the circulation of recombinant EV-G strains highlight their importance to swine health and their potential implications for public health.

Keywords

Parainfluenza Virus 5 (PIV5)
Enterovirus G (EV-G)
Diarrheic Piglets
Zoonotic Potential
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Yes, I am a Junior Scientist.

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