



International Alliance for  
Biological Standardization

## Avoiding Antimicrobial Resistance: Veterinary Use of Phages for Prevention, Therapy and Control of Bacterial Infections

November 19-20, 2024  
Virtual Meeting

### **Phage therapy in pigs: observations on the control of zoonotic pathogens in pork production**

Globally, swine are the most significant source of terrestrial meat production after poultry, contributing over a third of the global meat supply. Like poultry, pigs are often reared intensively, which increases productivity and profitability, but can also introduce vulnerabilities to infectious diseases. Many of the diseases which infect pigs also affect humans, including those caused by prominent gastrointestinal pathogens such as Salmonella and pathogenic E. coli. The incidence and impact of these diseases in pork production have been mitigated to some degree by biosecurity measures, vaccination and use of antimicrobials. The use of antimicrobials as 'growth promoters' and through prophylaxis and metaphylaxis has been associated with a significant increase in bacterial pathogens resistant to these agents and alternative approaches are urgently needed. Bacteriophage (phage) have been mooted as potential alternatives to conventional antimicrobials in pork production as they are able to target specific pathogenic genera without affecting commensal microbiota. Phage have been used experimentally in both the biocontrol of pathogens in pigs, as well as biosanitation of carcass surfaces after slaughter. In the pig gut, phage treatment typically reduces the target pathogen by 2-3 log<sub>10</sub> CFU/g compared with challenged control animals, and has been linked to improvements in clinical scores of disease. Further research is needed on the impact of phage on the gut microbiota, although the limited published work so far indicates that the effects are negligible. Additionally, work is also required on the most effective mode and dosage of phage and how to address phage resistance.