Evaluation of an indirect enzyme-linked immunosorbent assay (ELISA) for detection of antibodies to the Apx toxins of Actinobacillus pleuropneumoniae

The reference strains of the 12 serotypes of Actinobacillus pleuropneumoniae express one or two of three different RTX exotoxins designated Apr I, Apr II and Apr III. The toxins are important virulence factors. In the present study, ELISAs with purified Apr I, Apr II and Apr III, respectively, as antigen were evaluated as candidates for serological diagnosis of Actinobacillus pleuropneumoniae infection in pigs. The pigs were inoculated with biotype 1, serotypes 1-12, and biotype 2, serotype 14, respectively. A strong humoral antibody response was seen to all the three antigens in most pigs irrespective of the serotype used for inoculation. However, titers to the exotoxins secreted by the serotype used for inoculation were generally highest. The results show that toxin proteins of Actinobacillus pleuropneumoniae are antigenically related and that a correlation between serotype and secretion of exotoxin is not revealed serologically in the ELISA test.