# COMPARATIVE EVALUATION OF DIFFERENT ELISA SYSTEMS FOR *INTRA VITAM* DIAGNOSIS OF PORCINE *SALMONELLA* INFECTION CAUSED BY *S.* TYPHIMURIUM AND *S.* INFANTIS

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## SUMMARY

Salmonellosis is one of the most important enteric infections in man and in livestock. Various serotypes of *Salmonella enterica* can cause a variety of clinical and subclinical infections, which are mainly self-limiting gastroenteritis or systemic diseases. Beside *Salmonella* (*S.*) Typhimurium, *S. Derby* and *S. infantis* are the most important cause of porcine *Salmonella* infections. Although pigs usually do not develop clinical salmonellosis, they become carriers and shedders resulting in a substantial disease-causing potential for humans via meat and faeces.

*Salmonella* infections can be directly diagnosed in the piggery or at the slaughterhouse by isolating salmonellae with various established cultural methods or by serodiagnosis using lipopolysaccharide-based ELISA-systems or a whole-cell-lysate based standard ELISA test. These serological results are used to classify pig herds in one of three categories. Category 3 has the highest prevalence of *Salmonella* infection, defined as at least 40 percent of the pigs examined being seropositive. Category 2 herds have a moderate number of antibody-positive pigs, whereas, herds of category 1 have no or only a low prevalence of antibody-positive pigs.

The object of this study was the comparative evaluation of four indirect *Salmonella* ELISA tests approved in Germany to detect *Salmonella* infection of pig caused either by *S. typhimurium* or *S. infantis*. Three tests are based on a LPS-antigen and directed against specific IgG antibodies. The fourth test is based on a purified *S. typhimurium* whole-cell-lysate antigen and discriminates between *Salmonella* specific IgM-, IgA-, and IgG- antibodies. In a longitudinal study 6 weeks old hybrid piglets were orally infected with *S.* Typhimurium or *S. infantis*. During an observation period of 120d clinical and bacteriological parameters were weekly monitored and serum samples were in parallel investigated by the respective ELISA methods.

The results of the evaluation of the ELISA tests (sensitivities) are presented. It became obvious that the tested LPS-ELISA systems failed to detect *S. infantis* infected pigs (which shed the pathogen in high amounts throughout the study) until day 90 after infection, whereas, the whole-cell-lysate ELISA detected significant more *S. infantis* infected pigs in the early stage of infection. In contrast, all investigated ELISA-systems detected the majority of the *S. typhimurium* infected pigs beginning at day 24 post infection.