using the directions and 99.44 % with the positive results. Similarly, in Salmotype, a S/P cut-off ≥ 1.3776 agreed 99.37 % with the negatives using kit directions and 99.45 % with positives.

The results of this study clearly indicate that results of both kits are not interchangeable and that normalisation of results by using S/P ratios did not serve to improve the agreement between tests. From our results, it is tempting to suggest that Salmotype detects a greater number of IgM positive pigs. The nature of these IgMs (salmonella-specific or not) is not known to us at this moment.

Reference:

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**SALMONELLA SEROLOGY – WHICH SAMPLES SHOULD BE USED: COMPARISON OF MEATJUICE AND SERUM SAMPLES OF THE SAME PIGS**

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Contamination of pork with *Salmonella typhimurium* is a potential source for fatal food born Salmonella-infections in humans. Screening programs are used in a number of countries to categorize pig farms into 3-4 Salmonella-risk-categories. A similar program will soon be implemented by the German government as well. A number of commercial ELISA-Testkits are registered in Germany for serum as well as meat juice samples. However little information is available regarding the question whether meat juice or serum samples of the same pigs will lead to the same results has not been investigated thoroughly.

**Purpose**
The investigation was performed to clarify if serum and meat juice samples from the same animal and taken at the same day would deliver comparable ELISA-results. Furthermore with a series of consecutive blood samplings on the same animals the time-effect on ELISA-results was to be investigated.

**Methods**
Random samples originated from two different slaughterhouses. Blood was taken immediately after the killing process and transported. Meat samples (1x1x1 cm) were taken from the carcasses. The meat was frozen and thawed in meatjuice-sampling tubes (Firma). A commercial ELISA test (Enterisol® Salmonellen-Diagnostikum, Boehringer Ingelheim Vetmedica GmbH), a mixed-ELISA based on the polysaccharide fraction of Salmonella-O-Antigen (1, 4, 5, 6, 7, 12) was used according to the test instructions. For the longitudinal study the same, randomly selected finisher pigs of one farm were sampled 3 times at different time points (jugular vein). All samples were tested with the same Testkitbatch at the same day.

**Results**
Slaughterhouse 1 (Graph 1)
PP-values of samples originating from slaughterhouse 1 showed a very good correlation between serum and meat juice (Graph 1). Not only were the qualitative ELISA-results the same between the matching samples but also the quantitative results (PP-values) were almost identical in most of the cases.
Slaughterhouse 2 (Graph 2)
Again a fairly good correlation can be seen between the PP-values of the matching samples (Graph 2).

However some sample-pairs differed considerably and generally the serum-samples showed a higher PP-value compared to the meat juice samples.

**Graph 1:** ELISA results of blood and serum samples taken from the same pigs at slaughterhouse 1

**Graph 2:** ELISA results of blood and serum samples taken from the same pigs at slaughterhouse 2

**Consecutive blood sampling**
The results show a very good correlation between blood samples taken up to 10 days apart. Some animals show a slight increase in PP-values whereas others show a slight decrease. However most of the samples taken at timepoint 1 and 10 days later have the same qualitative result in the ELISA and a very similar quantitative result.
**Discussion**

The results of this investigation show that meat juice and serum samples of the same animals can give almost identical ELISA-results. However, correct sampling technique is an important factor.

The serum samples in slaughterhouse 2 show generally higher results than the meat juice samples of the same animals and in some cases different qualitative results are achieved. A conclusive explanation for this has not been found yet, investigations are ongoing. In other cases meat juice samples show higher results than serum samples and this is usually explained with blood contamination of the meat juice sample.

A variety of factors can influence the quality of meat juice samples like sampling location, sample size, contamination with blood and timing of sampling. Especially the timing might be critical as meat samples taken soon after the killing of the animal will contain more blood than samples taken a longer time after the killing-process, as more blood will have dripped out of the carcass by then.

Blood samples may be the more standardized samples. As the examination of blood samples taken on different days shows the results are not significantly influenced even if the samples are taken up to 10 days apart. Naturally samples that have a PP-value close to the cut-off level can produce qualitatively different results when the same animals are sampled a few days later. However given the fact that the Salmonella control programs are based on herd results rather than on results of single pigs this should not significantly alter the categorization of the whole herd.

**Conclusions**

The ELISA-Test "Enterisol® Salmonellen Diagnostikum" can deliver almost identical results in meat juice and serum samples from the same animals.

Blood samples may be the better defined samples.

Blood samples taken in a period of up to 10 days will deliver quantitatively almost identical results.