

PORK SAFETY

Title: Characterization of Multiple-Antimicrobial Resistance among Swine Salmonella **NPB #98-218**

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Abstract:

Forty-two *Salmonella* isolates obtained from diseased swine were genetically characterized for the presence of specific antimicrobial resistance mechanisms. Twenty of these isolates were *S. typhimurium* DT104 and the other 20 were non-DT104 salmonella strains. PFGE was initially employed to determine the genetic relatedness among the *Salmonella* isolates and revealed twenty distinct genetic patterns among the 42 isolates. However, all DT104 isolates fell within two distinct genetic clusters. Other *Salmonella* isolates genetically grouped together within their specific species.

All DT104 isolates displayed the pentamer resistance phenotype to ampicillin, chloramphenicol, streptomycin, sulfamethoxazole, and tetracycline (ACSSuT). Resistance to sulfamethoxazole, tetracycline, streptomycin, kanamycin, and ampicillin was most common among the non-DT104 *Salmonella* isolates. The presence of integrons among these *Salmonella* isolates was also investigated. All DT104 strains contained two chromosomal integrons of 1000 and 1200 base pairs. DNA sequencing revealed that the two integrons contained genes encoding resistance to streptomycin and ampicillin, respectively. None of the non-DT104 strains showed this same pattern although several strains possessed integrons of 1000 bp or larger. Several of the non-DT104 strains did not possess any integrons. This research suggest that integrons contribute to antimicrobial resistance among swine *Salmonella* but are not responsible for all resistance phenotypes observed.

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