

**P1363 Isolation and characterization of a novel *mcr-5* carrying *Escherichia coli* plasmid from chicken faeces in Germany**

Katharina Juraschek\*<sup>1</sup>, Maria Borowiak<sup>1</sup>, Dina Shamoun<sup>1</sup>, Silvia Schmoger<sup>1</sup>, Alexandra Irrgang<sup>1</sup>, Mirjam Grobbel<sup>1</sup>, Annemarie Käsbohrer<sup>1</sup>, Burkhard Malorny<sup>1</sup>, Jens André Hammerl<sup>1</sup>

<sup>1</sup> German Federal Institute for Risk Assessment, Berlin, Germany

**Background:** Colistin is considered as an important antibiotic of the last-resort, which will be only used for the treatment of severe human infections with multidrug-resistant Gram-negative bacteria. Since 2015, several mobile colistin resistance genes were described coding for enzymes of the phosphoethanolamine-transferase family. To date, eight different *mcr*-genes have been characterized, mediating resistance to colistin in different bacterial genera (especially in Enterobacteriaceae).

**Materials/methods:** By molecular screening on *mcr-1* to *-5* using the multiplex PCR of Rebelo et al. (2018), an *E. coli* isolate recovered in 2013 from chicken feces was identified to carry a *mcr-5* resistance gene. Antimicrobial resistance testing according to the CLSI-guideline was performed. MIC-data were interpreted using the ECOFFS of EUCAST. The genome of the *mcr-5*-plasmid was deduced by whole-genome sequencing using different platforms (MiSeq, Illumina and Minlon, Nanopore). Bioinformatic analyses were performed to determine the genome structure and composition of the plasmid and isolate.

**Results:** Within this study, a novel *mcr-5* plasmid-prototype was identified in the *E. coli* isolate from the German national monitoring of zoonoses in food and livestock in 2013/2014. The genome of the plasmid pEC1897-13 was 38 kb in size. Bioinformatics revealed that the plasmid belongs to the IncFII group, but represents a novel pMLST-allele that is closely related to the allele FII-82. Interestingly, pEC1897-13 obviously comprises all necessary components of a functional IncF conjugative-transfer system. However, up to now no self-transmission of the plasmid was observed by filter mating studies.

**Conclusions:** The impact of the plasmid pEC1897-13 for the transmission of colistin resistance is unknown. In contrast to most of the described *mcr-5* carrying plasmids, pEC1897-13 carries a complex IncF-like transfer system that might be functional under specific circumstances although currently it is not transferred under tested experimental conditions.

