



ENCONTRO 10ª EDIÇÃO  
DE INVESTIGAÇÃO  
JOVEM

UNIVERSIDADE  
DO PORTO

## **BOOK OF ABSTRACTS**

---

10<sup>TH</sup> MEETING OF YOUNG RESEARCHERS  
OF UNIVERSITY OF PORTO

**U.** PORTO

# IJUP

ENCONTRO  
DE INVESTIGAÇÃO  
JOVEM

104ª EDIÇÃO

UNIVERSIDADE  
DO PORTO

U.PORTO

# ORAL SESSIONS



- 12524 | Dispersion of plasmid-mediated colistin resistance by MCR-1 in pork-associated clinically relevant clones of *Salmonella* from Portugal  
 Campos, Joana, UCIBIO/REQUIMTE. Laboratório de Microbiologia, Faculdade de Farmácia, Universidade do Porto, Portugal  
 Cristino, Luís, Faculdade de Ciências da Nutrição e Alimentação, Portugal  
 Ribeiro, Sofia, Faculdade de Ciências, Portugal  
 Mourão, Joana, UCIBIO/REQUIMTE. Laboratório de Microbiologia, Faculdade de Farmácia, Universidade do Porto, Portugal  
 Peixe, Luísa, UCIBIO/REQUIMTE. Laboratório de Microbiologia, Faculdade de Farmácia, Universidade do Porto, Portugal  
 Antunes, Patrícia, UCIBIO/REQUIMTE. Laboratório de Microbiologia, Faculdade de Farmácia, Universidade do Porto, Portugal; Faculdade de Ciências da Nutrição e Alimentação, Portugal

The first transferable gene conferring colistin (Col) resistance, *mcr-1* gene, was recently described in Enterobacteriaceae from several sources in China. Further worldwide reports of *mcr-1*, and of its variant *mcr-2* until now sporadic, have been associated mostly with animal sources, suggesting that its emergence is due to extensive Col use in food-producing animals. In this study, the presence of *mcr* genes in several *Salmonella* serotypes/clones obtained from different sources and regions of Portugal (2002-2016) was studied.

We analysed 1351 *Salmonella* isolates (66 serotypes), from several sources/regions (2002-2016) for the presence of *mcr-1*/*mcr-2* genes (PCR/sequencing). The susceptibility to Col and other antibiotics (AB) (microdilution/disk diffusion methods-EUCAST/CLSI), detection of other AB/metal (MT) resistance genes (PCR/sequencing), conjugation assays, plasmid characterization (ISApI1/PCRPBRT/pMLST/sequencing), genomic location (I-CeuI/S1-PFGE-hybridization) and clonality (XbaI-PFGE/MLST) were also performed.

MCR-2 was not detected, but MCR-1 was present in 1.3% of the isolates, (clinical/CL-n=5, pork/P-n=11 and animal-production/FP-n=1) from several regions (2011-2016). All presented resistance MICCol=4-8 mg/L and co-resistance to other AB and mostly carried several MT genes. They belonged to clinically relevant MDR serotypes/clones of S.1,4,[5],12:i:- [n=13/European clone-CL+P], S.Typhimurium [n=2-European clone-P/n=1-DT104 clone-CL] or S.Rissen (n=2-P), frequently associated with pig production and human infections. The *mcr-1* was located in 2 plasmid types, IncX4 or IncHI2 (ST4/non-typeable), most transferable.

Our study evidenced the acquisition of *mcr-1* by clinically relevant MDR *Salmonella* clones, with probable origin in pigs, in Portugal since at least 2011. The dissemination of those successful MDR clones and/or plasmids with *mcr-1* is of concern, since Col is frequently the only therapeutic alternative in infections with MDR Gram-negative bacteria.