

**P1792 Evaluation of flow cytometric antimicrobial susceptibility test from FASTinov for detecting enzymatic resistance to beta-lactamic drugs on Enterobacteriaceae**

Sofia Costa-de-Oliveira<sup>1</sup>, Rita Teixeira-Santos<sup>1</sup>, Ana Teresa Silva<sup>2</sup>, Ana Silva-Dias<sup>1</sup>, Inês Martins-Oliveira<sup>1</sup>, Acácio Gonçalves Rodrigues<sup>1</sup>, Cidália Pina-Vaz<sup>\*1</sup>

<sup>1</sup>FASTinov, SA, <sup>2</sup>Faculty of Medicine, University of Porto, Department of Microbiology

**Background:** Understanding the underlying mechanism of resistance to a such important class of antimicrobials as the beta-lactamic drugs is very important either for clinical, public health or infection control purposes. FASTinov developed a disruptive MAR kit that enables the fast determination of the antimicrobial phenotype and additionally provides the underlying mechanism of resistance, based on EUCAST protocol. In this study the performance of the FASTinov MAR kit was assessed directly on blood cultures.

**Materials/methods:** Thirty blood cultures (BD) were spiked with well characterized bacteria strains, including all recommended AST control strains, inoculated with human blood (Cambridge Bioscience) and incubated until obtaining a positive flag. A protocol for extraction of microorganisms from BD bottles was followed according instruction for use. The FASTinov MAR kit was inoculated afterwards the microplate which enables to detect the main mechanism of resistance to beta lactamics such as ESBL (Enterobacteriaceae type I and II), AMPc and carbapenemases, was analysed using a BD Accuri<sup>TM</sup>C6 Plus Flow Cytometer. The result, automatically provided was compared with the underlying mechanism previously determined by molecular biology. In order to check the diagnostic validity of FASTinov MAR kit to detect the main mechanisms of resistant, sensitivity and specificity were calculated. The agreement proportion (PA) between FASTinov MAR kit and EUCAST protocol was calculated.

**Results:** Data revealed that FASTinov MAR kit was indeed able to detect ESBL, carbapenemases, and AmpC positive strains, with a sensitivity of 1.00. The specificity of FASTinov MAR kit was 0.92 for detection of ESBL, 0.95 for carbapenemases, and 0.95 for AmpC. Regarding carbapenemases, only one false-positive KPC result and one false-positive MBL result were observed. The PA between FASTinov MAR kit and EUCAST protocol was 0.96.

**Conclusions:** FASTinov MAR kit demonstrated to be a fast and reliable test to characterize the underlying enzymatic mechanism of resistance regarding beta-lactamic drugs.