S088

2-hour Symposium

State-of-the-art in rapid diagnostics

Phenotypic next generation antimicrobial susceptibility testing

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Routine antimicrobial susceptibility testing (AST) has not been innovated extensively over the past decades. Besides the use of new DNA technology for the detection of the selective presence or absence of a limited set of resistance genes, it are still the (automated) phenotypic methods that are considered the current Gold Standards. Methods such as broth dilution, disc diffusion, Etest and less than a handful of automated methods are still used for over 90% of all AST assays performed. These methods have been extensively validated, in some cases FDA approved and/or CE marked and they provide mostly quantitative measures of resistance and susceptibility of pathogenic bacteria towards most of the clinically used antibiotics. These methods are key elements in the control and cure of infections and in the screening for the emergence of antimicrobial resistance

However, many new phenotypic and molecular experimental methods have been developed over the last decade and exploited in research settings. Examples of such methods involve mass spectrometry, automated and dynamic detection of growing bacterial (micro-)colonies, calorimetric methods, methodologies based on the detection of fluorescent markers, micro-and nano-droplet technology, cantilever applications and several more. The novel phenotyping methods, their pro's and con's and their current positioning in the clinical microbiology lab will be presented and discussed during the presentation.