Call: 9th Call – JPIAMR Joint Call on Diagnostics and Surveillance 2019

Title: Concomitant IDentification and Antibiotic REsistance profile of bacteria in one hour with an adaptive targeted single Mass Spectrometry analysis

Acronym: IDAREMS

Project composition

Type	Name	Institute	Country
Coordinator	Jérôme Lemoine	Institut des Sciences Analytiques	France
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Partner	Frederic Robin	UMR1071, CNR Résistance aux antibiotiques Université Clermont Auvergne	France
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Abstract
Bloodstream Infection (BSI) is annually responsible of hundred thousand estimated deaths worldwide. The time frame for identification and antimicrobial susceptibility testing of the causative agent(s) of BSI directly impact the delay in the administration of appropriate antimicrobial therapy and, consequently, the clinical outcome of patients. MALDI-TOF mass spectrometry obviously revolutionized routine microbial identification by drastically shortening the delay of the identification (ID). There is however no consensus on a universal and affordable tool for shortening the characterization of putative antibiotic resistance mechanisms. Within a 5-year time horizon, IDAREMS project should lead to the marketing of a disruptive IDAREMS tool for clinical diagnosis of blood stream infection (BSI) based on a new patented targeted proteomics technique named Scout-MRM, carried out by tandem mass spectrometry (MS). The innovation lies in the ability of concomitantly identifying a pathogen and profiling the phenotype of antibiotic resistance mechanisms directly from an aliquot of positive blood culture in less than one hour. IDAREMS project is structured over three main work packages: WP1) the development by partner 1 (France) of a prototype assay for concomitant identification and rapid diagnostics of antimicrobial resistance in Gram-negative bacteria using a limited number of antibiotic-resistant bacterial isolates provided by partner 2 (France), partner 3 (Poland) and partner 4 (Thailand); WP2) the validation of the assay through blind testing of new clinical strains; WP3) technician training and deployment of the validated assay in the respective partner's clinical platforms.