

COMPETITIVE ADVANTAGES

- **No sample preparation;**
- **No specific technical skills;**
- **Rapidity** (30-120 min);
- **Quantitative measure** / without subjective interpretation;
- **Result traceability/** Quality management.

APPLICATIONS/MARKETS

- Health applications: In vitro diagnostic for testing antimicrobial resistance in clinical samples/ (blood cultures, clinical isolates and many other clinical samples analysis : urine, broncho-alveolar liquid, ...);
- Environmental/Food applications: monitoring / quantitative detection of β -lactam resistant strains in water or food samples.

INTELLECTUAL PROPERTY

- Patent application: «Nouvelle méthode pour détecter la présence de bactéries productrices de beta-lactamases» - filled in France on April 3rd 2015 – international filling (PCT) on April 1st 2016.

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PRESENTATION

A **NEW** method for **RAPID** and **SPECIFIC** detection of **β -lactamase-producing bacteria.**

This new method, based on a cost-effective electrochemical detection with disposable sensors, allows the **direct analysis of the sample** without the need of a previous isolation step, and **provides a quantitative result easy to read without misinterpretation** of intermediate colors, as it may sometimes be the case in colorimetric assays.

The method allows **rapid (30-120 min) and specific detection** of both 3rd-generation cephalosporins and carbapenem-resistant bacteria.

VALIDATION

- Analysis of 95 strains (liquid cultures and isolates) characterized for the β -lactamase content with susceptibility testing and at molecular level, including penicillinases (n = 13), chromosome-encoded cephalosporinases (n = 7), ESBLs (n = 48) representing the most common ones (CTX-M, SHV, TEM, VEB), overproduced cephalosporinases (n = 9) and carbapenemases (n = 18) with OXA-48 (n = 14), KPC-2 (n = 3) and NDM-1 (n = 1) types.
- Specificity rates of 95 % and 100 % for 3rd generation cephalosporins and carbapenem-resistance testing, respectively.
- In progress: Applications to blood culture analysis and to quantitative detection in water samples.

