

Immunoassay for rapid diagnosis of infectious diseases caused by *Pseudomonas aeruginosa*

CSIC, CIBER-BBN and UAB have developed an immunochemical method for diagnosis of infections produced by *Pseudomonas aeruginosa*. The immunoassay is fast and efficient, with low LOD and adaptable to point-of care devices.

An offer for Patent Licensing and/or R+D collaboration

Sensitive pyocyanin and its metabolites quantification system

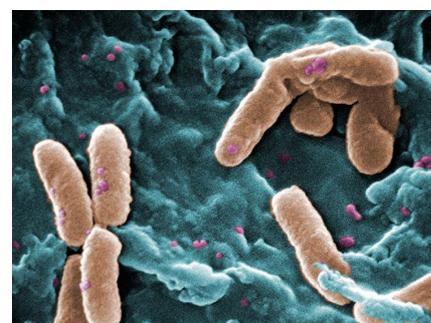
Pseudomonas aeruginosa is among the leading causes of infections in hospitalised and immune compromised patients and is associated with significant morbidity and mortality. It is a frequent cause of nosocomial infections such as pneumonia, cystic fibrosis, urinary tract infections (UTIs), and bacteraemia.

Current standard available microbiological assays are low sensitive, expensive and time consuming, requiring several days to provide results for an appropriate treatment. Thus, lack of rapid and specific diagnostic tools become in an overuse of broad spectrum antibiotics contributing to acquisition of resistance to such drugs.

We present an immunochemical method for specific identification of *Pseudomonas aeruginosa* infections, based on the use of polyclonal antibodies having broad specificity for pyocyanin and related metabolites secreted by this bacterium.

This method, that might allow medical providers to select more appropriate antibiotics earlier in the course of the infection, could be used on different immunochemical analytical configurations, including microplate ELISA, test-strip, immunosensors or any other format suitable for further implementation on Point-of-Care (PoC) devices with better sensitivity and specificity than current methods.

Assay validation is being carried out in sputum, blood, endotracheal aspirates (BAS) and bronchoalveolar lavage (BAL) samples of infected patients.



Pseudomonas aeruginosa is a relatively common type of infection encountered in hospitals

Main advantages and applications

The main features of the developed ELISA test are:

- High sensitivity. Limit of detection (LOD) between 0.4 for 1-OHphenazine and 0.6 nM for pyocyanin in sputum samples.
- Specificity. Cross-reactivity with other phenazine pigments different from those of interest is negligible.
- Feasible development of a PoC, easy to use reliable device providing fast responses, high detectability and specificity at a competitive price.
- In situ application. Special facilities are not required.
- It allows routine screening and simultaneous analysis of multiple samples.

Patent Status

PCT application filed

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