

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 bacteremia.

Lack of rapid and specific diagnostic tools become in an inappropriate overuse of broad spectrum antibiotics contributing to acquisition of resistance to such drugs. Therefore, an appealing approach to rapid point of care diagnosis of specific bacterial infections such as those caused by *P. aeruginosa* is required.

Current methods for diagnosis of *P. aeruginosa* infections, mainly based on culture enrichment in selective media, are low sensitive, expensive and time consuming. In this way, we present an immunochemical method based on the use of polyclonal antibodies having broad specificity for pyocyanin and related metabolites secreted by this bacteria.

This method can be applied to different matrix species in different immunoassay formats (ELISA microplates, strips, biosensors) with better sensitivity and specificity than current methods.



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

Main advantages and applications

The main features of the developed technique are:

- High sensitivity. Limit of detection 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

Priority patent application filed

For further information please contact

Isabel Masip, Ph.D.
Institute for Advanced Chemistry of Catalonia
Deputy Vice-Presidency for Knowledge Transfer of CSIC
Phone: + 34 – 93 400 61 00
E-mail: isabel.masip@iqac.csic.es