

## Rapid diagnosis of infectious diseases caused by *Staphylococcus aureus*

CSIC and CIBER-BBN have developed an immunochemical method for diagnosis of infections produced by *Staphylococcus aureus*. 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 peptidoglycan quantification system

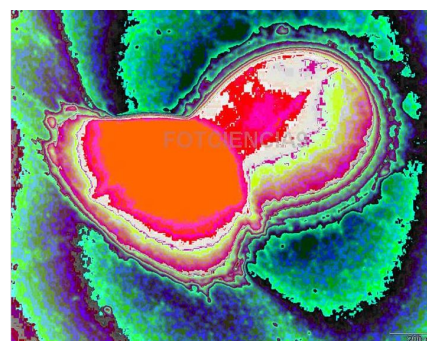
*Staphylococcus aureus* is an important cause of community and hospital acquired infections, responsible for various diseases including mild skin infections (impetigo), wound infections or blood stream infections (toxic shock syndrome, etc).

Rapid detection is especially important where preventive or therapeutic measures are needed (intensive care, surgical interventions...). However, current standard available assays, based on coagulase tests with enriched cells, require several hours of analysis (4-24 h).

We present an immunochemical method for specific identification of *Staphylococcus aureus* caused infections, based on the use of polyclonal antibodies able to selectively detect *S. aureus* cell wall.

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 endotracheal aspirates (BAS) and bronchoalveolar lavage (BAL) samples of patients.



*Staphylococcus aureus* cells.  
Source Fotciencia09 CSIC

### Main advantages and applications

The main features of the developed ELISA test are:

- High sensitivity. Limit of detection (LOD) down to  $10^4$  CFU/mL in less than 2 h, without pre-enrichment of the sample required.
- Specificity. Cross-reactivity with other bacteria 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 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

Tel: + 34 – 93 400 61 00  
E-mail: [isabel.masip@iqac.csic.es](mailto:isabel.masip@iqac.csic.es)