

Immunoassay for detection of *Pseudomonas aeruginosa* Quorum Sensing molecules

CSIC has developed an immunochemical method for diagnosis of infections produced by *Pseudomonas aeruginosa* targeting the main signaling molecules of the *pqs* Quorum Sensing system. The immunoassay is fast and efficient, with low LOD and adaptable to point-of care devices.

Industrial partners from the pharmaceutical or diagnostics industry are being sought to collaborate through a patent licence agreement.

An offer for Patent Licensing

Detection of the main alkylquinolones of *pqs* Quorum Sensing system of *Pseudomonas aeruginosa*

Pseudomonas aeruginosa is an opportunistic pathogen responsible for a huge number of infections, especially in immunocompromised patients, and extremely life-threatening if not appropriately diagnosed and treated at the early stage.

Traditional microbiology testing can take 24-48h to determine the causative agent of an infection, and other methods, such as PCR, although much faster require highly trained staff and expensive equipment only available in specialized facilities. This fact, results in prescription and misuse of broad-spectra antibiotics, contributing to the generation of resistance.

The close connection between the release of signaling molecules of the Quorum Sensing of *P. aeruginosa* (QS) and the virulence of infection make these molecules as good biomarkers for detection of infections caused by *P. aeruginosa*.

Here, is presented the first *in vitro* immunodiagnostic ELISA test for identification and quantification of the main signaling molecules from the *pqs* QS system. The assay is able to quantify PQS, HHQ and HQNO alkylquinolones in the low nM range, even in complex clinical samples.



P. aeruginosa bacteria in mucosa of patients with cystic fibrosis. The method is able to differentiate chronic from acute stage of infection.

Main innovations and advantages

- Development of a robust, high sensitive, accurate, low-cost, simple and rapid microplate-based ELISA test for analyzing clinical samples.
- Quantification of QS signaling molecules associated with *P. aeruginosa* can deliver much more information of the disease status of a patient and the efficacy of a treatment.
- In cystic fibrosis, capability to stratify patients depending on whether they are on chronic or acute stage of infection by *P. aeruginosa*.
- This method could be used on other immunochemical analytical configurations such as strip test, immunosensors or any other format suitable for further implementation on Point-of-Care (PoC) devices with better sensitivity and specificity than current methods, allowing early selection of the most appropriate treatment.

Patent Status

European patent application filed

For more information, please contact:

Isabel Masip, Ph.D.

Deputy Vice-Presidency for Knowledge Transfer

Spanish National Research Council (CSIC)

Tel.: +34 93 442 34 88

E-mail: isabel.masip@csic.es

comercializacion@csic.es