

## Challenge to meet the market need for faster diagnosis in health care: an interdisciplinary approach to biosensors

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### Abstract

To improve the efficiency of current medical practices, more significant data from technology is needed. One lever to optimize medical decision time is to shorten the delay from biological test to results. In the field of fast biological tests, biosensors have received increasing attention and several technologies have been developed to deliver portable, cheap and sensitive analytical systems(1,2). Nevertheless, two main obstacles prevent the marketing of these biosensors: 1) an accurate analysis of the market in terms of real needs for medical practices and 2) perfect matching with current medical recommendations. In this work, we determine the use case(s) and the biomarkers of interest through an international opinion survey conducted among physicians from a broad range of specialties. As a result, the main biomarkers of interest identified by our panel are troponin(50%), PCR(30,5%), d-dimères(26,5%), BNP or NT-proBNP(12,5%), and respiratory viruses(9,5%). Our study is based on the creation of biosensors, in a trans and interdisciplinary manner, so that they can be perfectly

integrated into daily medical practice and respect all the issues at stake, in terms of diagnostic sensitivity, cost/efficiency and service to the patient. The biosensors are based on AlGaIn/GaN High Electron Mobility Transistors(HEMTs). GaN-based HEMTs have demonstrated high sensitivity and have the advantage of extreme chemical stability and are biocompatible(3). This study is of importance in terms of future public health, making it possible to provide the medical community and the patient with one or more relevant tools for the fluidity of care.

### Biography

Laure Abensur Vuillaume is emergency physician (M.D) and has completed his PhD in biological science from Lorraine University (France). She works and develops expertise in applied health technologies and medical education.