

## Biosensors Applied to the Detection of Neurodegenerative Diseases, A Multidisciplinary Domain?

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### Editorial

The evolution of knowledge in the field of health allows modern society to afford to each of us a life expectancy of longer and longer. As a result, there is an emergence of new diseases affecting a proportion of the population more and more important. These diseases, previously ignored, gather neurodegenerative diseases such as Alzheimer and Parkinson's diseases, to point out only the most famous [1].

Currently, there are no curative protocols for this type of disease; only comfort cares are implemented, without any hope of recovery. One of the reasons related to this lack of appropriate cares must probably be found in the difficulty of identifying and counting the antigens responsible for the evolution of these diseases [2,3]. Their diagnosis is very complex, less sensitive and almost non-reproducible due to the low concentration of biomarkers of curable patients.

Research teams working in the medical field but also in microbiology domain have developed biosensors based on immuno-PCR assays to the synthesis of new capture or detection antibodies and the amplification of the signal transmitted by derivatives of the detection antibody [4]. This pathway is hopeful because it should allow medical teams, once the diagnosis established in the early stages of the disease to develop the right curative procedures.

However, this new generation of biosensors is poorly reproducible and does not allow its development in hospitals. It appears very quickly that this non-repeatability of the biosensor is due to a fluctuation of the concentration of the biomarker in the solution aliquot. This loss of biological material results of adhesion phenomena on the inner surfaces of sampling tools, assays (Ependorf, well ..... ) [5]. A reliable analytical approach, therefore, requires sharing various expertises of multidisciplinary field.

Thus, by bringing together researchers in the fields of medicine, biology, physical-chemistry and materials science, it will be possible to provide a reliable answer and allow physicians to set up the appropriate care through the early detection of involved antigens [6].

This cross-fertilization between scientific fields so different helps to improve the effectiveness of these biosensors through a constant dialogue between the different researchers' communities. If we want today to address major societal challenges; it is, therefore, important to access to scientific information quickly and freely available, as proposed by the open access journals. For as surprising as it may appear, the field of biosensors is a multidisciplinary field including the questioning of the method of detection, the surface properties of the biosensitive layer, the type of transduction. It is only through this multidisciplinary approach that scientists will meet society.

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