Research Group of Sensors and Biosensors development

UNIVERSITÀ DI SIENA
1240

DIPARTIMENTO DI BIOTECNOLOGIE, CHIMICA E FARMACIA

RESEARCHERS

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DEPARTMENT

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LAB

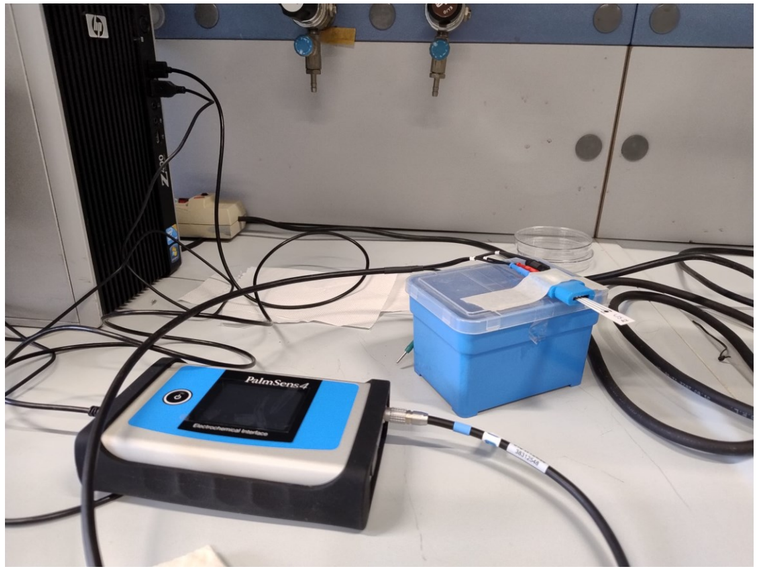
Sensors and Biosensors

Research activity

Development of Biosensors and Sensors for Medical Diagnostics.

The Biosensors and Sensors research group is dedicated to advancing point-of-care devices for monitoring patients with neurodegenerative diseases. The development of sensors and biosensors requires expertise primarily in the field of analytical chemistry, emphasizing the crucial need for sensitive and reproducible biomarker detection. Moreover, proficiency in electrochemical, physical chemistry, and engineering disciplines is indispensable for the assembly and construction of the aforementioned devices.

Images



Potenziostat PalmSens 4

Quartz Cristal Microbalance (QCM)

Technologies and services

The instruments used by our research group are:

- Potentiostat: a tool that measures current at an applied potential (potentiostatic operation). This allows the use of voltammetric, amperometric, and impedance techniques not only to detect the biomarker of interest but also to characterize the surface and work on innovative materials for modifying the surface of printed electrodes;

- Quartz Crystal Microbalance (QCM): it represents a highly sensitive sensor for the precise measurement of minimal masses in the order of nanograms. It operates by detecting mass variations on its surface through the modification of the resonance frequency of the quartz crystal, which is equipped with electrodes on both sides of the plate. Thanks to its ability to detect extremely small weights, the QCM is a fundamental component in a wide range of research and industrial instruments used to monitor mass variations, adsorption, density, corrosion, and other properties.

Applications and collaborations

- Department of Information Engineering and Mathematical Sciences of the University of Siena;
- Sclavo Diagnostics International, Siena.

For more information

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For more information

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Logo

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