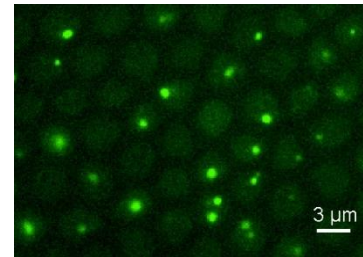




PhD Offer

Development of analytical microsystems to monitor the markers of mitochondrial diseases

Our project is aimed at developing microsystems allowing to monitor the production/ consumption of species (O_2 , H_2O_2 , ATP, NADH...) by mitochondria. These organelles are the main source of energetic molecules in cells including ATP, but when defective (genetic or metabolic modifications) they are directly involved in pathological processes (myopathies, neurodegeneration). Consequently, this is of major importance to develop methods which characterize accurately the energetic status of each mitochondrion. In that perspective, we propose to develop microsystems integrating optical and electrochemical sensors. Individual mitochondria from cardiac cells will be trapped within microwells and analyzed in situ by fluorescence microscopy or nanoelectrochemistry. The combination of methods will offer an unprecedented quantitative resolution of mitochondrial responses and of their switch from physiological to pathological situations.



Keywords: Bioanalyses, microsystems, single biological responses, cardiac pathologies.

Applicant profile: physical chemistry, analytical chemistry, biophysics.

Financial support: application for a fellowship from the University of Bordeaux.

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