**PhD position at the University of Strasbourg**

UMR 7213 CNRS, Laboratoire de Biophotonique et Pharmacologie  
Faculté de Pharmacie  
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**Site-selective faithful monitoring at the single molecule level of local changes in nucleic acids**

Applications are being sought for a 3 years PhD position in the Laboratory of Biophotonics and Pharmacology in Strasbourg, France (http://www-lbp.unistra.fr/). The project is funded by The French National Research Agency and will be carried out under the supervision of Pr Yves Mély and Pascal Didier.

We are seeking a highly motivated student with expertise in fluorescence and microscopy, with a keen interest in applying this knowledge to biology and notably nucleic acids.

Fluorescent labelling of nucleic acids has been revolutionized by the introduction of deoxythienoguanosine, thG, a truly faithful surrogate for G, which reproduces the structural context and dynamics of the native nucleotide and remains well fluorescent in nucleic acids. Moreover, thG exhibits an environment sensitive emission that opens a fantastic range of applications. In this project, our ambition is to apply this outstanding probe in single molecule measurements, in order to faithfully monitor for the first time local changes in nucleic acids on a single molecule level. To reach this challenging aim, we will enhance thG emission and photostability using surface plasmon resonance together with DNA origamis to precisely control the metal/fluorophore distance. The developed system will be used to characterize the poorly understood dynamics of the successive molecular steps involved in the replication of the DNA methylation pattern by the UHRF1/DNMT1 tandem. This thG-based single molecule fluorescence approach will help solving a large range of biological questions involving local and transient structural nucleic acid changes. Moreover, the deciphering of the molecular mechanism of the base flipping steps in DNA methylation replication by the UHRF1/DNMT1 tandem should provide new clues on its possible blockage and thus, lead to major therapeutic applications in pathologies, such as cancers and neurodegenerative diseases, where the methylation profile is modified.

We are looking for creative students that can contribute with their own ideas and proposals.

Candidates having a master of physics or biophysics or physicochemistry should send a detailed CV to [yves.mely@unistra.fr](mailto:yves.mely@unistra.fr) or [pascal.didier@unistra.fr](mailto:pascal.didier@unistra.fr).



Deadline for application : September 30, 2017

