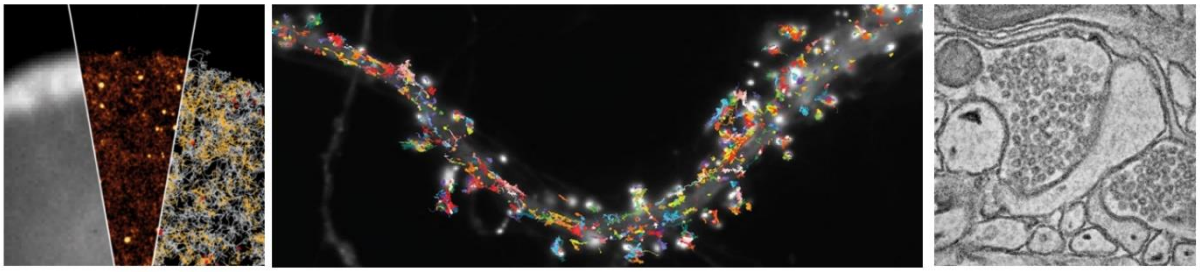

We are looking for a motivated cell biologist to implement cell culture and sample preparation, with the aim to perform super-resolution imaging in cryogenic conditions and image treatment and analysis, within a collaborative environment between the Bordeaux Imaging Center and the Interdisciplinary Institute for Neuroscience.

Cryo-electron microscopy provides not only access to the structure of isolated molecules at an atomic scale, but also to their structure in a cellular context. The need of a specific and highly precise localization of molecules previous to cryo-EM observation in a frozen hydrated sample has become evident. Super-resolution microscopy techniques based on single molecule localization could overcome the challenge of nanoscale detection in light microscopy. The EquipEx+ project NanoCryoCLEM coordinated by the University of Bordeaux aims to establish a cryo-CLEM workflow for super-resolution microscopy. In this context, the Bordeaux Imaging Center (BIC), the Institute interdisciplinaire de Neurosciences (IINS), and the Institute d'optique (LP2N), will collaborate to develop a new super-resolution optical system in cryogenic conditions. The ultimate goal of this project is the transfer of these frozen hydrated samples, analyzed by super-resolution microscopy, to the electronic microscope from the Institute Européen de Chimie et Biologie (IECB) for Cryo-tomography observation and structural analysis.

The main activities of the candidate will include:

- To establish cell cultures on EM grids preserving specific subcellular structures for frozen hydrated samples.
- To develop protein labeling strategies with probes compatible for both optical super-resolution microscopy techniques, and protein localization in cryo-electron tomography. This work will be carried out in collaboration with research teams from IINS: «Spatio-Temporal and Mechanical Control of Motile Structures» led by Grégory Giannone, and «Dynamic Organization and Function of Synapses» led by Daniel Choquet.
- To acquire super-resolution images in cryogenic conditions with a home-made system.
- To analyze and reconstruct super-resolved images.
- To develop a correlative workflow in order to select and localize regions of interest in the optical system for cryo-electron tomography acquisition.

The candidate must have at least 2-3 years of experience and advanced expertise in cell biology and fluorescence microscopy techniques. In-depth knowledge of protein labeling biochemistry in cell cultures will be an advantage. Previous experience in cryo-fixation techniques and liquid nitrogen manipulation will also be an asset.

The candidate will be working in an interdisciplinary environment, thus strong team working skills and fluid English will be asked. The contract is 1-year renewable up to 3 years, salary depending on experience.

Please contact the BIC (monica.fernandez-monreal@u-bordeaux.fr) and the IINS teams (gregory.giannone@u-bordeaux.fr and daniel.choquet@u-bordeaux.fr) for further information.