

Postdoc to develop quantitative live-cell imaging in the field of structural biology

This position is addressed to scientists holding a PhD who are willing to take their next step in the research of fundamental questions in cell biology by increasing the resolutive power of live-cell imaging. Our lab develops intracellular (protein-based)-nanotools that enhance the precision of live-cell imaging measurements. For example, we can measure distances between fluorophores in the range of 2 nm. In practice, this allows us to do structural biology in living cells and embark on biological questions that could not be answered by other means. We now open a postdoc position to strengthen this line of research and to further enhance the capabilities of quantitative live-cell imaging.

Understanding the molecular mechanisms that drive life (and those that lead to death) requires structural characterization of the protein machinery sustaining the biology of the cell. Structural biology methods have been largely centered in *in vitro* approaches, which provides high-resolution measurements but limited physiological relevance. In our lab, we have recently developed a new **live-cell structural biology** method based on **cell engineering and quantitative live-cell imaging**. Our approach allows us to investigate chemical structures *in vivo*. Thus, we can use light microscopy to reconstruct the architecture of molecular assemblies directly in living cells (Picco et al, 2017, Cell). The successful candidate will complement our research activity with his/her expertise in the fields of optical physics, quantitative live-cell imaging and/or image analysis. We seek for a microscopist in the broad sense of the word, with a PhD in physics, biology, mathematics or equivalent... as long as he/she has a strong background in microscopy, biophysics, optical physics or image analysis.

The position

The position is funded with a 3-year grant of the Spanish Government. The successful candidate will join the group of Oriol Gallego at the department of Experimental and Health Sciences (DCEXS) of the Pompeu Fabra University (UPF). The candidate will be part of an emerging research lab devoted to study supra-molecular machineries that control cell growth. The candidate will continue the development of new intracellular nanotools that enhance the resolutive power of live-cell imaging, aiming at pushing light microscopy in the research field of Structural Biology. Starting date end-2019/beginning-2020.

Requirements

- Highly motivated, enthusiastic and creative researcher.
- PhD in Cell biology, Optical physics, Computer Science, Engineering or equivalent with experience in quantitative fluorescence microscopy.
- Advanced coding skills with Matlab, R and/or Python for image analysis required
- Experience in localization microscopy, particle tracking and molecular counting from intensity ratiometric comparison are a plus.
- Excellent written and oral communication skills in English.

The DCEXS

The department of Experimental and Health Sciences of the Pompeu Fabra University (www.upf.edu/web/biomed) is located at the PRBB (Barcelona, Spain). PRBB, one of the strongest scientific campus in south Europe, is equipped with state-of-the-art research facilities in a unique scientific and international environment. The research excellence of our center has been recognized with a Maria de Maeztu award.

Application process

To apply, send your CV, a letter of interest and a minimum of 2 letter of reference to Dr Oriol Gallego (oriol.gallego@upf.edu) before end of July 2019.

References:

Picco, A., Irastorza-Azcarate, ..., **Gallego, O.**, (2017) "The *in vivo* architecture of the exocyst provides structural basis for exocytosis." **Cell** 168, 400-412.e18.