Two year (renewable) post-doctoral position

Analysis of mitochondrial fusion by Super-Resolution Fluorescence Microscopy

Location and institution information: A two year post-doctoral position (possible renewal for two additional years) in cell biology and biophysics is available for a collaboration project between the "Institut de Biologie Physico-Chimique" (IBPC – UMR8226 CNRS Sorbonne Université) and the "Institut Pasteur", both located in the heart of Paris, France. Funded by the ANR, the MOMIT project aims at dissecting the tethering of mitochondria through super-resolution imaging. The post-doctoral work in the frame of this project will be carried out in the group of membrane dynamics and post-translational modifications at IBPC, for cell biology approaches, and the imaging and modelling unit at IP, for imaging and computational approaches.

Background: Mitochondria constitute a real and remarkably dynamic network whose morphology is conditioned by a constant equilibrium between frequent membrane fission and fusion events. These processes are essential to shape the ultra-structure of the mitochondrial compartment and are thus also crucial for all mitochondrial functions including oxidative phosphorylation and apoptosis with profound implications in aging. Consequently, defects in mitochondrial fusion and fission are associated with numerous pathologies, especially neurodegenerative syndromes.

Mitochondria have developed a universally conserved strategy to modulate fusion and fission of their membranes that involves large GTPases of the Dynamin-Related Proteins (DRPs) family. While the mechanism by which DRPs promote membrane fission is well characterized, how they can promote mixing of lipid bilayers remains poorly understood and is of tremendous interest.

MOMIT will aim at dissecting how DRPs promote tethering and fusion of mitochondrial outer membranes. For this purpose, a multidisciplinary combination of approaches allying single molecule fluorescence imaging, mass spectrometry, biochemistry and cell biology methods will be employed.

Qualifications: The ideal candidate should have a strong background in cell biology and/or image processing, optics, microscopy, and biophysics. Ingenuity and a developed enthusiasm for scientific research will be greatly appreciated.

For more information: http://www.lbmce.ibpc.fr/en/membrane-dynamics-and-post-translational-modifications-825.htm (Cohen group); https://research.pasteur.fr/en/member/christophe-zimmer/ (Zimmer group).

Applications: Please email cover letter, curriculum vitae including list of publications in peer-reviewed journals, and the names/phone numbers/emails addresses of three people who could provide letters of reference to: Mickael Cohen, PhD, cohen@ibpc.fr and Christophe Zimmer, PhD, czimmer@pasteur.fr