



Postdoctoral position available in: Cell Biology, membrane dynamics and epithelial homeostasis

A two years postdoctoral position is available for a highly motivated PhD to work on the role of *membrane contact sites and autophagy interplay in the context of epithelial cells response to mechanical stress*. Our lab research is focused on molecular and cellular aspects of stress response and autophagy machinery mobilization, including membrane trafficking and remodeling.

Key-words: autophagic machinery, contact sites, mitochondria, lipid droplets, kidney physiology

Eukaryote cells are exposed to diverse mechanical forces in physiological conditions, such as compression forces in bones, stretching in muscles and shear in vessels. Kidney cells face constant shear stress induced by the fluid flow, a physiological situation that favors kidney cells' differentiation and functions. In the lab we recently demonstrated that shear stress promotes autophagy and metabolic reprogramming, a phenomenon occurring through a complex interplay between lipid droplets catabolism (notably including lipophagy) and newly formed mitochondria (Miceli et al., *Nature Cell Biology* 2020), suggesting that physical connections could occur between these organelles in time and space. Autophagy is a complex process mobilizing specialized proteins such as the endoplasmic reticulum (ER)-associated VMP1 protein and was demonstrated to initiate at ER-mediated contact sites. VMP1 protein localizes at ER-mitochondria and ER-lipid droplets contact sites, and recent data suggest that it plays an active role in neutral lipids turnover as well as in the biogenesis of *de novo* organelles via a dedicated lipid-scramblase activity. Based on these observations, **our project aims to decipher the molecular crosstalk(s) between ER, LDs, mitochondria, and the autophagic machinery during metabolic adaptation to mechanical stress** in kidney cells, by focusing on the role of VMP1.

The host team (*Autophagy Pathway and Intracellular Compartments Dynamics*, Etienne Morel) is part of the Cell Biology Department of the *Institut Necker-Enfants Malades (INEM)*, created in January 2014. INEM is an international biomedical research center located on the Necker campus (downtown Paris), and supported by the INSERM, CNRS, and University of Paris-Cité. The Necker campus encompasses as well the Hospital Necker-Enfants Malades and the Imagine Institute, devoted to genetic diseases study. Moreover, the Necker campus and INEM benefit from several core facilities (animal facility, histology, flow cytometry, imaging, genomics, bioinformatics, proteomics, viral production, and metabolomics).

International candidates with a PhD in molecular cell biology or in cellular physiology obtained during the past four years and with experience in the fields of membrane trafficking, autophagy and cellular signaling are encouraged to apply. The 24 months position is available starting in 2023.

Please send a concise cover letter with a statement of research interest and summary of previous research activity, detailed *curriculum vitae*, and two reference letters to Etienne Morel, INEM-INSERM U1151, 156 rue de Vaugirard, Faculté Necker, 75015 PARIS, France. etienne.morel@inserm.fr