



Postdoctoral position available in:

Cell biology of organelle biogenesis in stress response

A two-year postdoctoral position is available for a highly motivated PhD to work on the **cytoskeletons interplay at endoplasmic reticulum (ER) membrane platforms during the early stages of autophagosome biogenesis**. Our lab research is focused on molecular and cellular aspects of stress response and autophagy machinery mobilization, including membrane remodeling and trafficking.

Key-words: autophagosome biogenesis, membrane remodeling, cytoskeletons, ER

Autophagy is a cellular process responding to homeostasis alteration and initiated by the *de novo* formation of a double membrane vesicle called autophagosome. Autophagosome biogenesis requires a complex sequence of events, regulated both in time and space, that allow for the nucleation of the phagophore (the future autophagosome) from the omegasome, a transient and specialized domain of the endoplasmic reticulum (ER) membrane. These early steps of autophagy are associated with phase transition, phosphoinositides metabolism, membrane contact-sites and local lipid-delivery. In the lab we showed that ER-plasma membrane contact-sites (Nascimbeni et al. EMBO J. 2017) and ER-endosomes interface (Da Graca et al. Life Sci. Alliance 2022) are mobilized for autophagosome biogenesis in response to nutritional stress. This strongly suggests that ER spatial organization is directly connected with pre-autophagic machinery functional activation. While the requirement of cellular cytoskeletons has been robustly demonstrated in classical membrane trafficking, the implication of F-actin and intermediate filaments (IFs) in autophagosome biogenesis sequence is still unclear, in particular during the *de novo* formation of the phagophore. Based on our preliminary data and on literature pointing out the importance of F-actin and IFs dynamic processes in organelle movements, membrane deformation and/or sequestration, **our project aims to understand the local contribution of cytoskeletons actors and regulators in the early stages of autophagosome biogenesis at ER contact-sites**.

The host team (*Cellular & Membrane Dynamics in Stress Response*, Etienne Morel) is part of the Cell Biology Department of the *Institut Necker-Enfants Malades (INEM)*. 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 Necker-Enfants Malades Hospital 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, image analysis, genomics, bioinformatics, proteomics, viral production, and metabolomics).

International candidates with a PhD in molecular and cellular biology obtained during the past four years and with a strong background in the fields of membrane trafficking and autophagy are encouraged to apply. The position is available starting at summer 2024. Please send a concise cover letter with a statement of research interest and summary of previous research activity, a detailed *curriculum vitae*, and two reference letters to Etienne Morel: etienne.morel@inserm.fr

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