A European Research Training Network at the Interface of Cell/Molecular Biology and Membrane Physics

Topic: Biochemical and mechanochemical mechanisms in polarized cells

Call: HORIZON 2020-MSCA-ITN-2014
Proposal Number: 641639

Project title: Actomyosin cortex architecture and cell surface mechanics during mitosis

Type of position: Early Stage Researcher (ESR) / PhD position

Short description:
The mechanical properties of the cell surface change significantly as a cell transitions from interphase to mitosis. As the thickness and spatial organization of the actin cortex, the cytoskeletal network supporting the plasma membrane, change, overall surface tension increases. These mechanical changes drive cell rounding and control subsequent shape changes required for cell division. Yet how cell surface tension is controlled at the molecular scale is poorly understood. The aims of this project are: 1) to determine the organization and dynamics of cortical actin and myosin in interphase and during mitosis using sub-resolution live imaging 2) to investigate the role of plasma membrane composition and organization in the control of cell surface mechanics 3) to develop and test a physical model of cell surface tension generation.

TECHNIQUES: Cell imaging (confocal spinning disk, quantitative imaging, super-resolution microscopy, TIRF); molecular biology; cell mechanics (cortex mechanics - atomic force microscopy; membrane mechanics - optical tweezers); electron microscopy.

Literature:


Job Requirements: Experimental background in cell biology, biochemistry, molecular genetics or biophysics. Students with a Physics degree who wish to work at the interface of physics and biology are also strongly encouraged to apply.
Eligibility: There are strict eligibility requirements for the ESR PhD positions funded by an MSCA-ITN. Please ensure that you qualify before applying, as ineligible candidates cannot be considered.

- Applicants must not have resided or performed their main activity (work, studies, etc.) in the UK for more than 12 months in the three year period immediately prior to the start date of the PhD research.
- Applicants must not have already a PhD.

For more information on MSCA-ITN, visit http://ec.europa.eu/research/mariecurieactions/index_en.htm

Starting date: by 01.10.2015 at the latest

Duration: 36 months

Salary: According to the Marie Curie-ITN rules

How to apply:
Please send the following documents via e-mail directly to Ms Ione Karney (i.karney@ucl.ac.uk):

- A motivation letter
- A complete CV
- Copies of University Masters, Bachelors Degree certificates or equivalents
- Contact details of two referees who can provide a letter of recommendation

Deadline for application: 17.04.2015

For further information:
http://www.sheffield.ac.uk/itn-biopol
http://paluchlab.wordpress.com
http://www.ucl.ac.uk/lmcb/research-group/ewa-paluch-research-group