



4 year BBSRC DTP PhD position

Project Title: How do cells generate functional asymmetries?

Application deadline: 11 January 2019

Studentship to commence in October 2019

The laboratory of Dr Josana Rodriguez has a BBSRC-DTP PhD position available. The lab (<https://www.staff.ncl.ac.uk/josana.rodriguez/>) enjoys state of the art equipment and is situated in the ambitious and supportive research environment of the Institute for Cell and Molecular Biosciences (<https://www.ncl.ac.uk/camb/>), within the Medical School at Newcastle University (Newcastle upon Tyne, UK). We are part of a vibrant scientific community studying cell division from different angles (<https://research.ncl.ac.uk/celldivisionbiology/>).

We are seeking an enthusiastic and highly motivated student keen to investigate the fundamental principles of cell polarity establishment and asymmetric cell division, both essential to tissue and organ development. Therefore, when cell polarity is perturbed it can lead to a wide-range of health problems including, cardiovascular diseases, neurodegenerative disorders, cancer and be detrimental to complex processes such as ageing. We have recently uncovered a novel cross-talk regulation/cooperation between key effectors of cell polarity, the PAR proteins. This project will reveal the dynamics and molecular mechanisms underlying this PAR-protein functional cooperation. We will use a multi-disciplinary approach, including genetic screens, proteomics, biochemical assays, genome editing, mathematical modelling and cutting-edge microscopy analyses (super-resolution). The project will use mainly the nematode *C. elegans* as a model, but mammalian systems are also available in the lab.

Relevant papers

- Rodriguez J *et al.* aPKC Cycles between Functionally Distinct PAR Protein Assemblies to Drive Cell Polarity. *Dev. Cell*, 2017 vol 42 (4): 400-415.
- Campanale JP *et al.* Development and dynamics of cell polarity at a glance. *J. Cell Sci.*, 2017 vol. 130 (7): 1201-1207.
- Fievet B *et al.* Systematic genetic interaction screens uncover cell polarity regulators and functional redundancy. *Nat Cell Biol*, 2013 vol. 15 (1): 103-112.

Requirements. Candidates should have or expect to achieve a First Class or 2:1 Honours degree in a relevant science subject (having an MRes or MSci would be considered an advantage). Students interested in developmental biology, molecular biology, cell polarity and in microscopy techniques are encouraged to apply.

Informal enquiries should be directed to Dr Josana Rodriguez (josana.rodriguez@ncl.ac.uk). It would be great if you could provide: 1) cover letter expressing your interest to join us and to develop the proposed research project, 2) full CV and 3) two reference letters including referee contact details.

To apply please follow this link:

<https://www.findaphd.com/search/projectDetails.aspx?PJID=103541&LID=1120>