

Oxford Brookes University

Department of Biological and Medical Sciences

3 Year, full-time PhD studentship (4 years if held in conjunction with the Oxford Interdisciplinary Bioscience Doctoral Training Partnership)

Project title: Professor-Chris-Hawes-FRMS-memorial-PhD-studentship: Protein production and transport in the plant ER-NE continuum

Eligibility: Home UK/EU applicants who must be permanently resident in UK/EU

Closing date: 2nd of April 2021

Start date: September 2021

Bursary p.a.: Bursary equivalent to UKRI national minimum stipend plus fees (2020/21 bursary is £15, 285)

University fees and bench fees at the Home/EU rate will be met by the University for the 3 years of the Studentship. *If this studentship is held in conjunction with the Oxford Interdisciplinary Bioscience DTP funding will be provided for 4 years and the student will participate in the training programme provided by the Oxford Interdisciplinary Bioscience DTP, which includes a compulsory 12-week internship in a non-academic environment. For further details please see www.biodtp.ox.ac.uk.*

Supervisors: Dr Verena Kriechbaumer, Dr Katja Graumann

<https://www.brookes.ac.uk/bms/research/groups/molecular-cell-and-developmental-biology/plant-cell-biology/endomembrane-structure-and-function/>

<https://www.brookes.ac.uk/bms/research/groups/molecular-cell-and-developmental-biology/plant-cell-biology/plant-nuclear-envelope/>

Project:

This studentship is offered in memory of Professor Chris Hawes FRMS, formerly Professor of Plant Cell Biology and Director of the Oxford Brookes Bioimaging Unit.

The potential for improving intracellular protein production and transport is of vital importance in addressing global research challenges linked to food security and climate change. Therefore, understanding the structure and function of the plant endomembrane system is key. This project focusses on the plant Endoplasmic Reticulum (ER) - Nuclear Envelope (NE) continuum, which is a large endomembrane system involved in vital cellular and nuclear functions. These include

synthesis and distribution of proteins as well as signaling and cell division processes. Employing cutting edge microscopy and associated techniques, at the core of this project lies the exciting opportunity of investigating the importance of the molecular mechanisms in plant protein production and transport.

Workplan

The project will employ a wide range of imaging and wet lab methodologies, with particular emphasis being placed on the use of high-resolution confocal imaging techniques of living plant cells expressing fluorescent NE and ER components, including single particle movement, FRAP and FRET to examine protein interactions. Specifically, transient and stable transformation of tobacco and Arabidopsis plants will be employed to express marker proteins allowing for protein production, secretion as well as unfolded protein response analysis. This will allow for the use of electron microscopy to examine plant ultrastructure using specialised imaging analysis software.

For informal inquiries please contact Drs Kriechbaumer (vkriechbaumer@brookes.ac.uk) and Graumann (kgraumann@brookes.ac.uk).

Requirements:

Applicants should have a first or upper second class honours degree from a Higher Education Institution in the UK or acceptable equivalent qualification in biological science or related discipline. EU Applicants must have a valid IELTS Academic test certificate (or equivalent) issued in the last 2 years by an approved test centre with an overall minimum score of 7.0 and no score below 6.0.

How to apply:

Please go to FindaPhD for application forms and links:

<https://www.findaphd.com/phds/project/professor-chris-hawes-frms-memorial-phd-studentship-protein-production-and-transport-in-the-plant-er-ne-continuum/?p123997>