

Re-engineering Golgi dynamics in plants

Supervisory team:

Main supervisor: Dr Imogen Sparkes (University of Bristol)

Second supervisor: Prof David Stephens (University of Bristol)
Dr Mike Deeks (University of Exeter)

Collaborators: Prof Stanley Botchway (Central Laser Facility, Oxfordshire), Dr Andy Ward (Central Laser Facility, Oxfordshire), Prof Peter Ashwin (University of Exeter)

Host institution: University of Bristol

Project description:

The growing global population requires the development of novel strategies to sustainably increase food production. Organelle movement is dynamic and linked to changes in cell size, plant biomass and in response to factors which affect food production such as pathogens (Perico and Sparkes, *New Phytol.* 2018; Ryan and Nebenführ, *Plant Physiol* 2018). Our understanding of the molecular mechanisms which drive and regulate organelle movement is poor, as is our understanding as to how movement affects cell growth.

The project will identify the molecular components which drive organelle movement, more specifically the Golgi. By mutating the identified molecular tools, we will then be able to re-engineer Golgi movement and determine how changes in movement affect cell size. The project will provide training in plant imaging, cell biology, molecular biology and molecular biochemistry. Imaging techniques will likely include confocal microscopy and optical tweezers. The supervisory team consists of Dr Imogen Sparkes (main supervisor) and Prof David Stephens (second supervisor) at the University of Bristol, and Dr Mike Deeks (external supervisor) at the University of Exeter.

The project will be based at the University of Bristol within the plant group, which comprises multiple groups working on diverse topics ranging from cereal genomics to how plants respond to external stimuli(<http://www.bristol.ac.uk/biology/research/plant/>).

For further enquiries please contact Imogen Sparkes (i.sparkes@bristol.ac.uk). Experience in plant biology is not essential although may be advantageous. To apply, please check your eligibility and follow the instructions for the SwBio DTP application process.