

Why do plant organelles move? Generation and application of novel tools to study organelle dynamics in plants

Supervisory team:

Main supervisor: Dr Imogen Sparkes (University of Bristol)

Second supervisor: Prof Claire Grierson (University of Bristol)

Non-academic (CASE) supervisor: Dr Xavier Jacq (MOA technology, Oxford)

Dr Andras Sandor (MOA, Oxford)

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

Host institution: University of Bristol

CASE partner: MOA technology, Oxford

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 develop and apply novel tools to control organelle movement which will enable the student to address questions relating to why organelles move in plant cells.

The project will provide training in plant imaging (such as confocal microscopy), cell biology, molecular biology and plant physiology. The supervisory team consists of Dr Imogen Sparkes (main supervisor) and Prof Claire Grierson (second supervisor) at the University of Bristol. The CASE placement will be under the supervision of Dr Xavier Jacq and Dr Andras Sandor at [MOA technology, Oxford](#).

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. For further enquiries please contact [Imogen Sparkes](#). Experience in plant biology is not essential although may be advantageous. To apply, please check your eligibility and follow the instructions for the SwBioDTP application process.

Our aim as the SWBio DTP is to support students from a range of backgrounds and circumstances. Where needed, we will work with you to take into consideration reasonable project adaptations (for example to support caring responsibilities, disabilities, other significant personal circumstances) as well as flexible working and part-time study requests, to enable greater access to a PhD. All our supervisors support us with this aim, so please feel comfortable in discussing further with the listed PhD project supervisor to see what is feasible.