Royal Society funded PhD studentship in Plant Cell Biology
Title: Regulation of Proton Transporter Traffic in Plants for Growth, Nutrition and Immunity

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Application: Deadline 20th August 2018
Funding: Funding for fees and stipend is available for 3 years at UK/EU rate.
Project summary:
Plant growth and morphogenesis are responsive to environmental stimuli, eg. light, nutrient supply, gravity or pathogen infection. These plant responses are mediated by a complex cascade of signalling events, often driven by plant hormones. Plasma membrane H+-ATPases are primary transporters in plants. These proton pumps are functionally regulated by the plant phytohormone auxin. Activation of the proton pumping energises membrane transport, drives ‘acid growth’. The functional regulation of the proton pump activity is a key factor in responses of the plants to their environment including tropic growth and stomatal aperture modulation. Auxin regulates proton pumping at transcriptional and post-translational levels.
Even today, not much is understood about the mechanisms underlying pump traffic and the spatial regulation of proton transport modulators. Plant pathogen are known to manipulate proton pump activity to affect stomatal opening to facilitate infection. Role of membrane traffic in such regulation is not well understood. The findings will open new avenues for future research into mechanisms of plant defence and morphogenesis and will be applied to crop plants for achieving enhanced productivity.
Project aims:

* To investigate the mechanistic aspects of differential regulation of the plant plasma membrane proton pumps during infection.
* To study how plant immune responses, affect plant growth and nutrition.

Techniques to be used:
Techniques in cell biology, proteomics, biochemistry and plant physiology will be employed using Arabidopsis thaliana as model plants.

Relevant papers:

How to apply: How to apply for a research degree= https://www.gla.ac.uk/research/opportunities/howtoapplyforaresearchdegree/

* For informal inquiries about the project email Dr Rucha Karnik= https://www.gla.ac.uk/researchinstitutes/biology/staff/ruchakarnik/

Thanks and regards,
Rucha