PlantLink Researcher in the spotlight

Laura Grenville-Briggs

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*This month, we turn the spotlight to **Associate Professor and Researcher Laura Grenville-Briggs** at the Department of Plant Protection Biology, SLU Alnarp. A PhD from the University of Birmingham and with postdoc experience from Aberdeen, Dr. Grenville-Briggs came as a top-ranking Marie Curie Intra-European Research Fellow to the Royal Institute of Technology (KTH) in 2011. Since last year, she has a research position in the Resistance Biology Unit at SLU in Alnarp funded through the SSF Future Research Leaders Program FFL5.*

- *What is currently on top of your research agenda, Laura?*

- I am interested in the genetics, genomics, development and pathogenicity of plant pathogenic oomycete species, which cause devastating losses to crops and the natural environment. In my group, funded by the SSF, we are working on new ways to control potato late blight disease. Firstly, we focus on cell wall development in the late blight pathogen *Phytophthora infestans* as a way to limit pathogen growth in the field. Secondly, we are working on understanding the biology and cell wall development of the mycoparasitic oomycete *Pythium oligandrum* as a way to enhance growth of this beneficial microbe in the soil and to improve the application of this oomycete as a biological control agent. Related to this we are also using comparative genomics to study human, insect and mycoparasitic oomycetes to identify what makes these organisms such successful pathogens.

- *Please tell us about your latest publication?*

- In collaboration with researchers at the Scottish Association of Marine Sciences, and the University of Aberdeen, UK, we used proteomics to investigate the interaction between the marine oomycete *Eurychasma dicksonii* and the brown alga *Ectocarpus siliculosus. E. dicksonii* is the most basal oomycete known, and understanding how it causes infection of seaweeds will help us to uncover the evolutionary origins of biotrophy and the pathogenic lifestyle that oomycetes have developed.

- *What led you into your particular field of research?*

- I have always been fascinated by the interactions of plants with microbes and in particular in the formation and prevention of plant disease. My PhD dealt with the genetics of downy mildew infection in the model plant Arabidopsis and I later became interested in the genetics and development of the closely related late blight pathogen in potato. Although there are many groups around the world working on this disease we still do not have durable, environmentally sustainable methods of disease control and much of the fundamental biology of this organism is still unknown.

- *What are the implications of your research for the society?*

- We are working towards understanding potato late blight disease, so that we can develop more sustainable methods for control of this and other similar diseases. We hope this will lead to a reduction in fungicide applications and an increase in yield. Our work with the biological control agent *Pythium oligandrum* has the potential to further impact the control of many plant diseases in an environmentally friendly manner.

- *Finally, let´s say you got unlimited research funds; where would your research be five years from now?*

- On the applied side, we would have developed successful, new and environmentally beneficial methods to control late blight that can be applicable in global farming scenarios. We will also have identified key components in the oomycete cell wall as sustainable targets for the next generation of disease control. On a more basic research level we would also have made significant progress in understanding the ecological implications of late blight disease on soil and plant health, by combining our skills and knowledge in genetics, genomics and next generation sequencing with soil microbial community analysis.