

PhD Studentship: What Drives Outbreaks of Midge-borne Viruses in the UK?



Closing date: 05.04.19
Project Ref: 2019/15 CS/MB
Anticipated Start Date: October 2019
Duration: 3.5 years full-time

Eligibility:

- This studentship is open to science graduates (with, or who anticipate obtaining, at least a **2.1 or equivalent, in a relevant biological subject in their undergraduate degree, or a Masters degree - subject to university regulations**). Other first degrees, e.g. veterinary science, will be considered. You should be looking for a challenging, interdisciplinary research training environment and have an active interest in the control of infectious diseases.
- This is a **fully-funded studentship only open to UK students and eligible EU students who qualify for home-rated fees**, in line with [Residential Guidelines for Research Council Studentships](#).
- Students without English as a first language must provide evidence that they meet the English language requirement, e.g. with an IELTS score of 7.0 and no less than 6.5 in any of the subsections.

Supervision:

Principal Supervisors: Dr Christopher Sanders (The Pirbright Institute), Prof Matthew Baylis (University of Liverpool)
Co-Supervisor: Dr Simon Carpenter (The Pirbright Institute)

Project Details:

In recent years, viruses transmitted by biting midges have become increasingly important to livestock farming in the UK. Thousands of these tiny flies are present on farms across the UK and incursions of bluetongue virus and Schmallenberg virus have a significant economic impact on animal production. We have previously identified a wide range of factors such as temperature and co-infection with microorganisms (including *Cardinium* and *Wolbachia*, insect-specific viruses and nematodes) in addition to genetic factors that may regulate infection in the midge host. The field and laboratory studies of this PhD will assist in understanding how these factors inter-relate in determining susceptibility to infection with arboviruses, which is poorly understood across vector-borne disease research.

This project brings together two major groups working on biting midge-arbovirus interactions in the UK. During your PhD you will be based at two sites: **The Pirbright Institute** is a world-leading centre of excellence in research and surveillance of viral diseases, within easy commutable distance of London. **The University of Liverpool** is an internationally renowned public health and tropical medicine institution. This partnership provides a stimulating environment to develop both specific and transferable skills with state-of-the-art facilities in which to carry out your research and a wealth of experience in vector biology. Full training will be provided in both field and laboratory-based entomological techniques and molecular biology. You will also benefit from the unique contacts available to workers in Pirbright and Liverpool which extends from fundamental virologists to policy decision makers.

We expect you to be a highly motivated and innovative individual with a proactive approach to problem solving and excellent verbal and written communication skills. You will also require well-developed organisation and time-management skills and an ability to work independently and as part of a team. As part of the project you will need a full driving license and a willingness to work out of normal office hours as required by the field studies.

References for Background Reading:

1. Morales-Hojas *et al.* (2018) The genome of the biting midges *Culicoides sonorensis* and gene expression analyses of vector competence for bluetongue virus. *BMC Genomics* 19: 624 doi: 10.1186/s12864-018-5014-1
2. Pilgrim *et al.* (2017) Torix group Rickettsia are widespread in *Culicoides* biting midges (Diptera: Ceratopogonidae), reach high frequency and carry unique genomic features. *Environmental Microbiology* 19: 4238-4255 doi: 10.1111/1462-2920.13887
3. Mills *et al.* (2017) *Culicoides*-virus interactions: infection barriers and possible factors underlying vector competence. *Current Opinion in Insect Science* 22: 7-15 doi: 10.1016/j.cois.2017.05.003

Registration, Training and Funding:

This is a Pirbright Institute/University of Liverpool fully funded project. The student will be registered at the University of Liverpool and will be based at Liverpool for the initial 12 months of the studentship. In the following 24 months, the student will be based at The Pirbright Institute to study *Culicoides*/virus interactions under high-biological containment conditions, before returning to Liverpool. Regular meetings with The Pirbright Institute and University supervisors and training will take place throughout the studentship. Eligible students will receive a minimum annual stipend of £15,009 and university registration fees will be paid. A full range of research and transferrable skills training will be made available to the student as appropriate.

Applications:

Details of how to apply can be found here: [How to apply](#)

Essential documents:

- Application Form
- CV
- Two references sent directly by your referees

Please email your application to studentship@pirbright.ac.uk by the closing date noted above.