

## **PhD Studentship: The functional role of RNA-binding proteins in Rift Valley fever virus infection**



**Project Ref:** 2022/04

**Anticipated Start Date:** October 2022 **Duration:** 3.5 years full-time

**Closing date to apply:** 08.05.22

### **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 3.5 year fully funded studentship open to UK nationals. International applicants are welcome to apply, however overseas university tuition fees will apply and these are not included in the funding – please see funding information below.
- Students without English as a first language must provide evidence that they meet the English language requirement, e.g. with an average IELTS score of 7.0, with no lower than 7.0 in listening/reading and no lower than 6.5 in speaking/writing.

### **Supervision:**

**Principal Supervisors:** [Dr Isabelle Dietrich](#) (The Pirbright Institute), [Prof Alain Kohl](#) (University of Glasgow)

**Co-Supervisors:** [Dr Toby Tuthill](#) (The Pirbright Institute), [Dr Alfredo Castello](#) (University of Glasgow)

**Research Group:** [Mosquito Immunology](#)

### **Project Details:**

We are recruiting a highly motivated PhD student to undertake exciting and state-of-the-art research on the interactions of Rift Valley fever virus and cellular RNA-binding proteins. This project will be jointly supervised by colleagues at The Pirbright Institute and the University of Glasgow in collaboration with ILC Therapeutics Ltd as industrial partner. This project would suit students with a keen interest in virology, cell biology or immunology, with excellent communication skills and the willingness to spend time at all three institutions.

RNA viruses such as the zoonotic arbovirus Rift Valley fever virus (RVFV, Bunyavirales), a WHO & OIE priority pathogen, interact with a diverse range of cellular RNA-binding proteins (RBPs). Many of these interactions regulate aspects of viral biology such as replication and translation, RNA packaging, recognition of viruses by the cellular innate immune system and viral RNA metabolism. Disruption of interactions that are beneficial for the virus potentially inhibit viral growth or alter viral pathogenesis which makes them primary targets for therapeutic interventions. The main objective of this project is to characterise cellular RBPs involved in the RVFV life cycle with the aim of targeting or exploiting these interactions in antiviral treatments.

To achieve this objective, the student will:

1. Perform viral RNA interactome capture in human or animal cells to identify cellular proteins that either bind directly to viral mRNA or complex with RVFV encapsidated genome.
2. Study which RVFV RNA structural features are being recognised by the host cell response and may be critical for pathogen recognition and subsequent antiviral immunity.
3. Test the efficacy of novel types of interferons patented by ILC Therapeutics against RVFV in human cells and use transcriptomic approaches to characterise the induction profile of interferon stimulated genes (especially those known to bind RNA) in response to these interferons.

The student will profit from both academic and industrial development opportunities. They will receive training in proteomic, RNA biology and virology techniques that will enable them to take ownership of the scientific direction of their project. Each objective provides opportunities for the student to optimise techniques and to explore novel technologies as they are being developed. The student will regularly attend seminars and conferences where they can follow the latest research findings and network. Extensive soft skill training will be provided.

On the industry side, the student will work closely with ILC Therapeutics. They will be in regular communication with the company, receive reagents and technical advice. The student will have the opportunity to spend three-six months of their project at ILC Therapeutics to experience work in industry, focusing on gaining further laboratory experience. Additionally, the student will be given the opportunity to learn about the legal framework, quality control processes and reporting requirements that an industrial company needs to comply with. The student will gain an understanding of the requirements and training pertaining to work in GLP and GMP environments. They will also gain a good understanding of the patent application process.

Please contact Dr Dietrich ([isabelle.dietrich@pirbright.ac.uk](mailto:isabelle.dietrich@pirbright.ac.uk)) or Prof Kohl ([alain.kohl@glasgow.ac.uk](mailto:alain.kohl@glasgow.ac.uk)) for further details.

### References for Background Reading:

**Iselin, L., et al. (2021)** Uncovering viral RNA-host cell interactions on a proteome-wide scale. Trends in Biochemical Sciences 47 (1): 23-38.

**Wright, D. et al. (2019)** Rift Valley fever: biology and epidemiology. Journal of General Virology 100 (8): 1187-99.

**Dietrich, I., et al. (2017)** RNA interference restricts Rift Valley Fever virus in multiple insect systems. MSphere 2 (3): e00090-17.

### Registration, Training and Funding:

This is a Pirbright Institute/University of Glasgow/ILC Therapeutics Ltd fully funded studentship. All students are eligible for the full award (stipend and **home rated** university tuition fees). **International students will be liable for tuition fees at the overseas rate and must be able to fund the difference between Home and Overseas tuition fees themselves. For Home student eligibility guidelines, please refer to the [UKRI Full Eligibility Criteria \(Annex One\)](#).**

The student will be based primarily at The Pirbright Institute and registered with the University of Glasgow. The student will visit the university to meet with their supervisors and undertake training or complete specific project tasks as required. Eligible students will receive a minimum annual stipend of £16,062 plus a cost of living top-up allowance of £2,200 per annum. Home rated university registration fees will be paid. Highly subsidised Pirbright Institute student housing will be offered. A full range of research and transferrable skills training will be made available to the student as appropriate.

### Applications:

[How to Apply](#): closing date 08.05.22.

Essential documents:

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

Please email your application to [studentship@pirbright.ac.uk](mailto:studentship@pirbright.ac.uk) by the closing date.