PhD Studentship: Evaluating the effectiveness and cost-effectiveness of one-health vaccination strategies

Project Ref: 2022/01/SG/KG
Anticipated Start Date: 3 October 2022 **Duration of Funding:** 3.5 years full-time
Closing date to apply: 21 January 2022

Eligibility:

- This studentship is open to science graduates (with, or who anticipate obtaining, at least a 2:1 or equivalent, in a subject with a substantial quantitative component in their undergraduate degree, or a Masters degree - subject to university regulations). 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. EU and international applicants are welcome to apply, however international 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 7.0 in speaking/writing.

Supervision:

Principal Supervisors: Dr Simon Gubbins (The Pirbright Institute), Dr Kyriaki Giorgakoudi (City, University of London)
Co-Supervisors: Dr Georgina Limon-Vega (The Pirbright Institute), Dr Christian Reynolds (City, University of London)
Research Group: Transmission Biology , Centre for Healthcare Innovation Research

Project Details:

Zoonotic viruses, which can be transmitted from animals to humans, pose a particular challenge for disease control. It is possible to use One Health approaches to controlling human infections by controlling such viruses in animal or human populations. However, it is not clear which control strategies will be the most effective to reduce transmission or be most cost effective. In addition, One Health approaches can be challenging if a virus does not cause any clinical signs in the animal population.

This project will focus on vaccination strategies for two important zoonotic viruses: Rift Valley fever virus (RVFV) and Crimean-Congo haemorrhagic fever virus (CCHFV). RVFV causes abortions in livestock and potentially severe disease in humans, while CCHFV causes no signs of disease in livestock but case fatality in humans can reach 40%. RVFV can be found in Africa and CCHFV can be found in Africa, Asia, eastern Europe and the Middle East. No treatment is currently available for either disease, while prevention or control is difficult. Recently, however, vaccine candidates have been developed for these viruses that could be used in both animals and humans. This raises the possibility of a One Health approach to their control, but the effectiveness of such strategies has yet to be evaluated. Identifying the most cost-effective vaccination strategies will support policy makers in affected countries in designing and delivering appropriate vaccination programmes.

The project will provide the student with training in mathematical modelling, epidemiology and health economics applied to real-world problems.

References for Background Reading:

Ergonul (2006) Crimean-Congo Haemorrhagic fever. Lancet Inf. Dis. 6, 203-214.
Linthicum et al. (2016) Rift Valley fever: an emerging mosquito-borne disease. Ann. Rev. Entomol. 61, 395-415.
Warimwe et al. (2021) Using cross-species vaccination approaches to counter emerging infectious diseases. Nature Rev. Immunol. 21, 815-822.

Registration, Training and Funding:

This is a Pirbright Institute/City, University of London, fully funded studentship. All students are eligible for the full award (stipend and **home rated** university tuition fees). **EU and International students will be liable for tuition fees at the international 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 registered with City, University of London. They will share their time between the University and The Pirbright Institute, meeting with their supervisors, engaging with the doctoral communities and undertaking training or completing specific project tasks as required. Eligible students will receive a minimum annual stipend of £15,609 plus a cost of living top-up allowance of £2,200 per annum. Home rated university registration fees will be paid. Highly subsidised student housing will be offered by The Pirbright Institute. A full range of research and transferrable skills training will be made available to the student as appropriate.

Applications:

How to Apply: closing date for applications 21 January 2022.

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.