

PhD Studentship: Tegumentation - the black box of alphaherpesvirus assembly

Closing date: 28 March 2018
Project Ref: 2018/08/PH
Anticipated Start Date: October 2018
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. Previous laboratory experience in molecular biology and/or tissue culture is desirable.
- This is a **fully-funded studentship only open to UK students and eligible EU students who qualify for home-rated fees**, in line with in line with [RCUK Residential Guidelines for Research Council Studentships](#).
- Students without English as a first language must also 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 Pippa Hawes](#) (The Pirbright Institute); [Professor Gill Elliott](#) (University of Surrey)
Co-Supervisor: [Dr Linda Dixon](#) (The Pirbright Institute)

Project Details:

A jointly held, fully funded studentship to study the morphogenesis of alphaherpesviruses is available to work with Professor Gill Elliott in the Section of Virology, University of Surrey, and Dr Pippa Hawes in the Bioimaging Facility, The Pirbright Institute.

Alphaherpesviruses represent a significant health and economic burden worldwide. They infect animals and humans, causing diseases ranging from cold sores or chickenpox in humans, to respiratory or neurological symptoms and abortion in cattle and horses. Despite their importance, current therapy is limited and new approaches are vital to stop infection and transmission.

The alphaherpesvirus particle is a complex structure comprising over 40 virus proteins, and the nature of its assembly is poorly understood. The aim of this project is to undertake sophisticated cell biology studies of infected cells using state-of-the art microscopy, time lapse imaging and gene editing technology to tease apart specific stages of virus assembly and identify virus and cell factors that are crucial to this process. The student will be trained in confocal, super-resolution and electron microscopy and will utilise fluorescently tagged viruses to carry out live cell studies of at least two alphaherpesviruses.

The successful applicant will benefit from the expertise and world-class facilities available at The Pirbright Institute and the University of Surrey. Prof Gill Elliott has worked in the field of the cell biology of HSV infection for over 20 years, and her group has made major contributions to current understanding of HSV morphogenesis and trafficking, including developing the first fluorescently tagged viruses for live cell imaging of virus infection. She is currently funded by the Medical Research Council and Worldwide Cancer Research to study herpes simplex virus morphogenesis, cell-to-cell transmission and translational control.

Dr Pippa Hawes is Head of Bioimaging at The Pirbright Institute, a world renowned veterinary virology research establishment with high containment facilities for work with high consequence pathogens. She is a qualified microscopist with over 15 years' experience imaging the cell biology of infected host cells and tissues. Specifically, she is interested in using the advanced microscopical techniques (confocal and superresolution microscopy, electron microscopy and tomography) available at The Pirbright Institute to investigate the morphogenesis of large DNA viruses.

References for Background Reading:

1. Endocytic tubules regulated by Rab GTPases 5 and 11 are used for envelopment of herpes simplex virus. Hollinshead M, Johns HL, Sayers CL, Gonzalez-Lopez C, Smith GL, Elliott G. EMBO J. 2012 Nov 5; 31(21): 4204–4220.
2. Rab6 dependent post-Golgi trafficking of HSV1 envelope proteins to sites of virus envelopment. Johns HL, Gonzalez-Lopez C, Sayers CL, Hollinshead M, Elliott G. Traffic. 2014 Feb;15(2):157-78.
3. A network of protein interactions around the herpes simplex virus tegument protein VP22. Maringer K, Stylianou J, Elliott G. J Virol. 2012 Dec;86(23):12971-82.
4. Mechanism of collapse of endoplasmic reticulum cisternae during African swine fever virus infection. Windsor M, Hawes P, Monaghan P, Snapp E, Salas ML, Rodríguez JM, Wileman T. Traffic. 2012 Jan;13(1):30-42.

Registration, Training and Funding:

This is a Pirbright Institute/University of Surrey fully funded project. The student will be registered with the University of Surrey, and will share time equally between The Pirbright Institute and the University of Surrey. This studentship includes an annual stipend of £14,777 (and a year by year uplift), £2,200 annual Pirbright cost of living allowance, Home/EU fees and consumables costs. Students will be offered the option of one year accommodation (single occupancy only) in Pirbright Institute housing. 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.

Interviews will be held week beginning 16 April at Pirbright. Shortlisted applicants will be expected to give a 10 minute presentation on their research experience.

For informal enquiries please contact [Professor Gill Elliott](#)

