PhD Studentship: African swine fever virus host-pathogen interactions at the interface between the innate and adaptive immune responses

Project Ref: 2026/08
Anticipated Start Date: October 2026 **Duration:** 3.5 years full-time
Closing date to apply: 29 June 2026

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 an undergraduate degree, or with 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 candidates may apply, however funding for this studentship includes university tuition fees at the Home rate only.
- 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 Chris Netherton (The Pirbright Institute), Prof Dirk Werling (the Royal Veterinary College)
Co-Supervisors: Dr Priscilla Tng (The Pirbright Institute)
Research Group: African Swine Fever Vaccinology

Project Details:

As obligate parasites, viruses have evolved multiple different strategies to evade the innate and adaptive immune responses in order successfully propagate within hosts. Viral factors that facilitate evasion of intrinsic or innate immune responses can be identified through targeted or genome wide functional screens, but the onward relationship of such evasion, if it exists, with the adaptive immune response can be difficult to assess.

African swine fever virus (ASFV) is a large complex virus that encodes for more than 200 open reading frames. The virus causes an invariably fatal disease in domestic pigs and wild boar that has spread across the globe in the last twenty years with significant impacts on animal welfare, pig production and food security. African swine fever is also a conservation threat to endangered wild pig species and other Suids in south-east Asia and Oceania. Safe and effective vaccines are the principal missing disease control tool against ASFV and developing subunit vaccines against the current panzootic isolate has been particularly problematic.

Cellular immune responses against ASFV are particularly important for protection against disease, however some strains of ASFV can repress activation of memory T-cells when encountering the virus and we have recently identified a region of the viral genome responsible. This project aims to explore the interplay between innate and adaptive immunity in the context of T-cell responses to viral infection in sophisticated ex vivo models.

To achieve this aim, the overall objectives of the studentship will be to:

1) Identify ASFV genes responsible for viral suppression of T-cell responses.
2) Understand the mechanisms and functional consequences of T-cell response suppression
3) Develop lymph node derived cultures as a model to understand the role of the innate immune response in viral suppression of the adaptive immune response.

The successful candidate will be trained to work in the high containment laboratories at The Pirbright Institute under the supervision of Dr Chris Netherton. The student will learn both virological and immunological techniques, including primary cell culture, virus culture and titration, ELISA, ELISpot, making and characterising recombinant ASFV deletion mutants, fluorescence activated cell sorting, spectral flow cytometry and high parameter analysis and single cell RNA sequencing. The student will also spend time in Professor Dirk Werling's

laboratory at the Royal Veterinary College to learn how to generate and culture precision cut tissues, and will have the opportunity for a placement with our industrial partner Boehringer Ingelheim Animal Health. As the project sits at the intersection between immunology and virology the student will have the opportunity to shape their project towards their developing interests, and contribute towards research efforts to combat a devastating animal disease.

The student will be supervised by Chris Netherton and Priscilla Tng at the Pirbright Institute and Dirk Werling at the Royal Veterinary College. CN and PT have extensive experience of the molecular virology and immunology of African swine fever virus. DW is an immunologist with long track record in the veterinary science and has recently been developing precision cut tissues as a method to better understand host-pathogen interactions.

References for Background Reading:

Portugal R, Goldswain H, Moore R, Tully M, Harris K, Corla A, Flannery J, Dixon LK, Netherton CL. (2024) Six adenoviral vectored African swine fever virus genes protect against fatal disease caused by genotype I challenge. *Journal of Virology* 98(7):e0062224. https://doi.org/10.1128/jvi.00622-24

Goatley LC, Nash RH, Andrews C, Hargreaves Z, Tng P, Reis AL, Graham SP, Netherton CL. (2022) Cellular and Humoral Immune Responses after Immunisation with Low Virulent African Swine Fever Virus in the Large White Inbred Babraham Line and Outbred Domestic Pigs. *Viruses*. 14(7):1487. https://doi.org/10.3390/v14071487.

Majorova *et al.*, (2021) Use of Precision-Cut Tissue Slices as a Translational Model to Study Host-Pathogen Interaction *Frontiers in Veterinary Science* 8: https://doi.org/10.3389/fvets.2021.686088.

C.L. Netherton (2021) African swine fever vaccines. In Understanding and combatting African swine fever: A European perspective, 2021 page 161-182. Editors Laura Iacolina, Mary-Louise Penrith, Silvia Bellini, Erika Chenais, Ferran Jori, Maria Montoya, Karl Ståhl and Dolores Gavier-Widén. Published by Wageningen Academic Publishers. https://doi.org/10.3920/978-90-8686-910-7_6.

Registration, Training and Funding:

This is a Pirbright Institute/the Royal Veterinary College/Boehringer Ingelheim Animal Health fully funded studentship. The studentship covers stipend and Home rated university tuition fees. International students will attract tuition fees at the overseas rate and must show evidence of their ability to cover the difference between Home fees and Overseas fees for the duration of study.

The student will be based primarily at The Pirbright Institute and registered with the Royal Veterinary College. 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 UKRI-aligned stipend (£21,805 for 2026/27) plus a cost of living allowance of £2,200 per annum. Home rated university tuition 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: 29 June 2026

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.