PhD Studentship: Defining antigenic structure of avian influenza virus haemagglutinin protein to generate broadly reactive antibodies

Project Ref: 2020/11/JS
Anticipated Start Date: October 2020 **Duration:** 3.5 years full-time
Closing date to apply: 08.05.20

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 Jean-Remy Sadeyen (The Pirbright Institute), Prof James Stewart (University of Liverpool)
Co-Supervisors: Prof Munir Iqbal, Dr Joshua Sealy (The Pirbright Institute)

Project Details:

Avian influenza viruses are an increasing threat to global poultry production and, through zoonotic infection, to human health where they are considered viruses with pandemic potential. Vaccination of poultry is a key element of disease control in endemic countries, but vaccine effectiveness is persistently challenged by the emergence of antigenic variants. Therefore, there is a need for more effective vaccines reducing the disease impacts on poultry and halting zoonotic transmission of virus to humans. This PhD project will design and develop broadly cross-protective vaccines by identifying conserved antigenic epitopes on the influenza virus surface glycoproteins and construct novel synthetic antigens that elicit broadly cross-protective immunity in chickens against multiple subtypes of avian influenza viruses affecting poultry.

References for Background Reading:

1. Peacock T P, Harvey W T, Sadeyen J R, Reeve R, Iqbal M (2018). The molecular basis of antigenic variation among A(H9N2) avian influenza viruses. Emerging Microbes and Infections 7 (1) , 176. https://doi.org/10.1038/s41426-018-0178-y
2. Peacock T P, Benton D J, James J, Sadeyen J-R, Chang P, Sealy J E, Bryant J E, Martin S R, Shelton H, Barclay W S, Iqbal M (2017). Immune escape variants of H9N2 influenza viruses containing deletions at the haemagglutinin receptor binding site retain fitness in vivo and display enhanced zoonotic characteristics. Journal of Virology 91 (14) , e00218-17. http://dx.doi.org/10.1128/JVI.00218-17
3. Sealy J E, Yaqub T, Peacock T P, Chang P, Ermetal B, Clements A, Sadeyen J R, Mehboob A, Shelton H, Bryant J E, Daniels R S, McCauley J W, Iqbal M (2019). Association of increased receptor-binding avidity of influenza A(H9N2) viruses with escape from antibody-based immunity and enhanced zoonotic potential. Emerging Infectious Diseases 25 (1) , 63-72. https://dx.doi.org/10.3201/eid2501.180616
4. Chang P, Sealy J E, Sadeyen J R, Iqbal M (2018). Amino acid residue 217 in the hemagglutinin 1 glycoprotein is a key mediator of avian influenza H7N9 virus antigenicity. Journal of Virology 93 (1) , e01627-18. https://doi.org/10.1128/JVI.01627-18

Registration, Training and Funding:

This is a Pirbright Institute/University of Liverpool fully funded project. The student will be based primarily at The Pirbright Institute and registered with the University of Liverpool. 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 £15,285. 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:

Closing date to apply: 08.05.20

Click here for details of 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.