

Ref: 2017 2 MI/Self-funded

Self-Funded PhD Studentship: Improving Avian Influenza Vaccines

Duration: 3 or 4 years full-time

Principal Supervisor: Dr Munir Iqbal, The Pirbright Institute, UK

Registering University: TBC

Eligibility:

- **THIS STUDENTSHIP IS OPEN TO SELF-FUNDED STUDENTS ONLY; you must have access to your own funding, either from your home country or your own finances.** Typical cost of living expenses will be approximately £17,000 per year. Bench fees will be approximately £6,000 per year. University tuition fees will be dependent upon the registering university. Please contact studentship@pirbright.ac.uk for further information.
- 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**). You should be looking for a challenging, interdisciplinary research training environment and have an active interest in the control of infectious diseases.
- 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.**

Project Overview:

Avian influenza viruses continue to be responsible for severe economic losses in poultry production in the many parts of the world and remain a credible threat to food security and public health. The options to reduce their impact on poultry are complex and require highly effective vaccines that produce strong immunity and full protection against disease, together with a reduction in shedding of infectious virus from infected birds resulting in a break in the endemic prevalence of these viruses in affected regions.

This PhD project proposes to develop new vaccines that elicit rapid, strong and durable humoral and cellular immune responses against avian influenza H5, H7 and H9 viruses. The research will utilise new emerging biotechnology and vaccinology approaches: these include *in silico* computational prediction-based antigen designs (eliciting broader cross-protective immunity against heterologous viruses), viral vector and nanoparticle-based vaccine delivery systems, and selective and targeted *in situ* delivery of antigens to immune cells that capture, process and present antigens for initiation and regulation of protective immune responses. Such topics will be investigated alongside vaccination approaches that allow potentiating passive immunity in birds through *in situ* production of Fab fragments of virus neutralising antibodies.

The improved knowledge and technology of this proposed research would provide a platform for improvement of vaccines against other important livestock and human pathogens. Availability of these novel, highly protective and cost-effective disease control tools and strategies should minimise the impact of infectious diseases on farmed animal and offer substantial indirect economic, public health, environmental and social benefits to the UK as well as globally.

For further information please email studentship@pirbright.ac.uk.