Swine influenza project studying virus transmission

The Pirbright Institute in Surrey, UK has been awarded £4.4 million to work with researchers from the universities of Bristol, Cambridge and Oxford as well as the AHVLA (Animal Health and Veterinary Laboratories Agency, TGAC (The Genome Analysis Centre) and Industry partners Merial, on a long-term study on the transmission of swine influenza.

The BBSRC Swine Flu Dynamics project is a five-year project, which as well as researching virus transmission will also assess the effectiveness of different control strategies for the disease to improve animal health and help protect the UK economy.
The University's School of Veterinary Sciences has one of the world's leading research groups in pig immunology. As part of the project Bristol researchers, Mick Bailey, Professor of Comparative Immunology and Dr Ross Harley, Lecturer in Veterinary Pathology, will characterise the immune response to influenza virus in the respiratory tract and blood of vaccinated and infected animals.

Their research will be used to help interpret results from studies of transmission and virus evolution in vaccinated and infected animals, to develop robust epidemiological models.

Dr Bryan Charleston from The Pirbright Institute, who is leading the project, said: "These studies will provide essential evidence to design control programmes for influenza in pigs. We will look at the efficiency of current methods of control, the level of immunity required in a population to prevent the spread, and whether new, broadly cross-protective vaccines are more effective at enhancing animal health and livestock production."

Swine influenza attracts considerable attention because of the threat of viruses from pigs infecting people. The last pandemic occurred in 2009 and as well as affecting the UK population the outbreak led to trade bans on pork and pig products in some countries and the destruction of animals in others.

Currently vaccination against influenza in pigs is not routinely performed in Europe and the cost benefit of vaccination has not been clearly demonstrated. Furthermore, it is not clear if available vaccines will protect against the strains presently circulating in the pig population.

The collaborative research team aim to better understand the transmission dynamics of the virus, the effectiveness of current vaccines and assess the benefits of different control

strategies.

At the present time this type of information is not available for any other mammal that is susceptible to flu viruses, including humans. The results of these studies will therefore not only contribute to improving animal health in pigs but will also have a broader impact on all influenza control measures.

The research grant is part of £17.7 million awarded by the Biotechnology and Biological Sciences Research Council (BBSRC) to fund six major long-term research projects that harness the power of bioscience. The awards are being funded through BBSRC's Strategic Longer and Larger Awards (sLoLas), which give world-leading teams the time and resources to address areas of key strategic importance. The projects were chosen based on their scientific excellence; because they required long timescales, extensive resources and/or multidisciplinary approaches; and they involve internationally leading research teams. Professor Jackie Hunter, BBSRC's Chief Executive, said: "This public funding offers long-term support to address major research challenges, while building research capacity in important areas and maximising economic and social benefits for the UK."

"The vital knowledge generated by this research will help to address the threat of farmed-animal diseases, the health of an ageing population, and the need for more sustainable industries and energy sources."

Project: BBSRC Swine Flu Dynamics project led by The Pirbright Institute, with researchers from the universities of Bristol, Cambridge and Oxford as well as the AHVLA (Animal Health and Veterinary Laboratories Agency, TGAC (The Genome Analysis Centre) and industry partners Merial.

For more information: **University of Bristol**

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