



EUROPEAN
COMMISSION

Community Research

EU-FUNDED RESEARCH PROJECT

Pathogenesis and improved diagnosis and control of avian influenza infections (Aviflu)

Time of action: AVIFLU started in October 2002, ended in September 2005 and has been extended for another 12 months until September 2006

EU budget (funding): €1.8 million

Abstract

In recent years, several vaccines have been developed against highly pathogenic avian influenza virus (HPAI) in poultry. Their use has shown that vaccination can protect chickens from developing disease symptoms and dying from infection. Yet outbreaks of HPAI are still controlled by killing infected animals as it is not known whether vaccinated poultry could 'silently' spread the disease, increasing the risk of new outbreaks and posing a serious threat to humans.

Until recently, little was known about how HPAI was transmitted in chickens, or how vaccines reduced transmission. But as part of the AVIFLU project, researchers have been able to quantify the effects of vaccination on transmission dynamics. They have shown that two commercially available vaccines against H7 subtypes not only protect chickens against mortality and morbidity, but also reduce the spread of the virus within a flock to such an extent that a major outbreak can be prevented. However, the scientists also found that vaccination does not appear to block viral transmission completely, so some slaughtering may also be necessary.

The main aim of the AVIFLU project is to improve the diagnosis and control of avian influenza. The partners have looked at the pathogenesis of avian influenza in different species and the molecular mechanisms of susceptibility.

They are also investigating new diagnostic methods (based on the detection of antigens, RNA and/or antibodies). The researchers have conducted two ring trials with the aim of determining the most sensitive, robust, specific, etc. RT/PCR. As a result, real time RT/PCR and conventional RT/PCR protocols for the generic detection of AI and for the specific detection of H5 AI have been identified. The best protocols have now been recommended to the AI labs in both the EU member states and the non-EU countries. They will also be included in the new EU Diagnostic manual.

Status (January 2006)

When the partners on the AVIFLU project first got together to draft their proposal, little did they know how numerous outbreaks of HPAI – most recently that of the H5N1 subtype – would change the course of their work.

The project was due to finish in September 2005, but has now been extended for a further 12 months. This will enable the researchers to conduct additional experiments to assess the role that

waterfowl may play in the epidemiology of the H5N1 outbreak in Asia.

They are studying the efficacy of one commercial vaccine to protect ducks against clinical disease and prevent transmission of the virus. Preliminary results are encouraging, suggesting that Europe may need to consider implementing prophylactic vaccination programmes to protect against the inevitable arrival of H5N1.

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Website

None