OFFLU AI technical group
Work plans (1 and 3 years) 2019-2021

Communication
Avian Technical Activities Group Annual Meeting
- To take place in 2019
- Membership of group
- Funding?
- Venue – likely Paris or Rome

Documentation and protocols
Review and update laboratory protocols as required to ensure fit for purpose for emerging viruses
Support parent organisations on an ad-hoc basis eg to develop information notes, situation reports, technical notes on HPAI cleavage sites; risk assessments

OFFLU research agenda
Review and refresh 2014 document

WHO/OFFLU working group H5Nx Evolution Working Group
Provide data and advice on an ad-hoc basis to capture ongoing evolution of these viruses

Technical activities

a. Characterisation of H5 and other subtypes to inform technical recommendations for poultry strain diversity and zoonotic risk

Overarching Aims

1. To understand the antigenic and genetic evolution and inter-relationships of currently circulating H5 clades of public and animal health importance
2. To characterise and evaluate genetic changes of significance to both poultry vaccine efficacy and to transmission risk to mammalian species
3. To quantitatively assess the potential risk of emerging strains both between poultry and into humans
4. To feed timely analyses into key stakeholder organisations such as the poultry industry, vaccine manufacturers, OIE and WHO (VCM), 'OIE poultry vaccine strain selection panel'.

Methods and analyses

Year 1

- Real-time sharing of H5 genetic data and isolates among participants (OIE ref labs and others)
- Generation of chicken serum reference panel using ~ 4 sera per clade, harmonised approach
- Antigenic characterisation of initially 2.1.3.2 a &b, 2.3.2.1.a, b and c clade strains, 1.1.2, 2.2.1 and 2.3.4.4 clade strains using full serum panel. This will include defining cross clade relationships as well as within
- Scope extension to H9 antigenic assessment building on experiences from H5 and materials available

Year 2-3

- Antigenic cartography of HI assay data
- Antibody landscaping of adjuvanted poultry vaccine data
- Generation of ferret serum reference panel using same or closely related strains as in chicken serum reference panel and comparison of serological responses of both hosts
- HI assays and antigenic cartography of currently circulating H5 strains using ferret antiserum, and including CDC/WHO pandemic vaccine candidates?
- H9 antigenic assessment using H5 model principles

- Pilot H7 antigenic assessment building on experiences from H5/H9

Outputs
Year 1-2
- Chicken sera maps for H5
- Quantitative real-time assessment of evolution

Year 3
- Evaluation of antigenic drift relative to vaccine strains in both poultry and pandemic preparedness human vaccine
- Informed use of risk assessment tools e.g. IRAT, TIPRA with quantitative and harmonised approach
- Extension of H5 integrated genetic and antigenic analyses to H9 and H7

b. Harmonisation of laboratory diagnostic PCR methods and demonstration of fitness for purpose on a global scale
Continue to prepare and distribute an AI PT panel to OFFLU partner laboratories. Analyse data, provide feedback to participants and report to parent organisations.

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