Enhanced H5 antigenic characterisation

Aims

- To understand the antigenic and genetic evolution and inter-relationships of currently circulating H5 clades of public and animal health importance (also improving reagents used for antigenic characterisation, antisera approaches)
- To characterise and evaluate genetic changes of significance to both poultry vaccine efficacy and the transmission risk to and within mammalian species
- To quantitatively assess the potential risk of emerging strains both between poultry and into humans
- To feed timely analyses into key stakeholder organisations such as the poultry industry, vaccine manufacturers, OIE and WHO, ‘OIE poultry vaccine strain selection panel’.

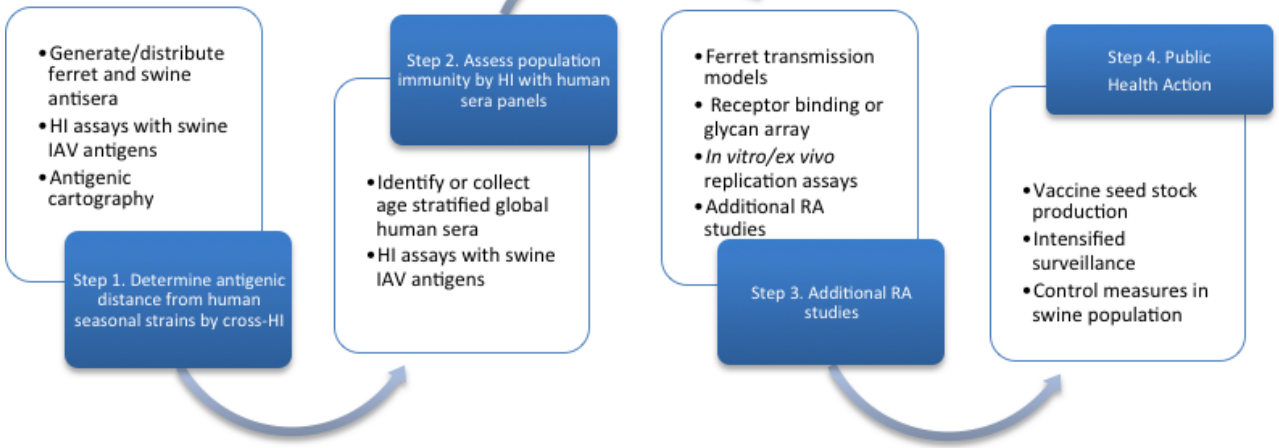
Methods and analyses

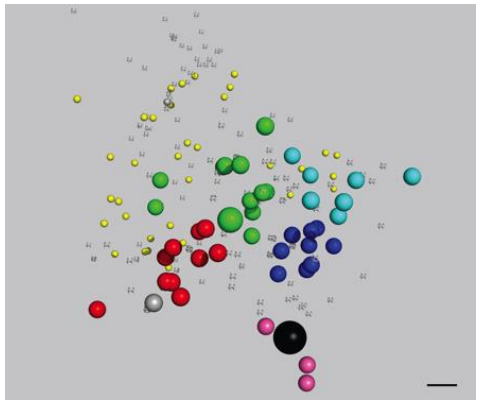
- Real-time sharing of genetic data and isolates among participants (OIE ref labs and collaborating centres)
- Generate standardized chicken serum reference panel using ~ 4 sera per clade, harmonised approach (SEPRL and APHA)
- Antigenic characterisation of initially 2.1.3.2 a &b, 2.3.2.1.a, b and c clade strains, 1.1.2, 2.2.1 and 2.3.4.4 clade strains using full serum panel
- Antigenic cartography of HI assay data
- Antibody landscaping of adjuvanted poultry vaccine data
- Generate standardized ferret serum reference panel using same strains as in chicken serum reference panel (Stacey SC at St Jude's (ferret serum reagents in CEIRS)
- HI assays and antigenic cartography of currently circulating H5 strains using ferret antiserum, and including CDC/WHO CVV's

Outputs

- Quantitative real-time assessment of evolution using both natural host and ferret sera to inform both poultry vaccine strain development and selection and zoonotic risk – feedback analyses to contributing partners
- Standardized and robust SOP for generation of high quality paired chicken/ferret sera
- Proof of concept for vector-generated reagents for antigenic characterisation
- 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 with quantitative and harmonised approach

Swine Risk Assessment Pipeline





CRIP

CEIRS
Centers of Excellence for Influenza Research and Surveillance

WHO VCM – animal data contribution - example