

## S49-4 **Influenza Virus: Prediction of Antigenic Change and Potential of Heterosubtypic Immunity**

○Ayato TAKADA<sup>1</sup>, Reiko YOSHIDA<sup>1</sup>, Manabu IGARASHI<sup>1</sup>, Kimihito ITO<sup>1</sup>

<sup>1</sup>CZC. Hokkaido Univ.

Influenza A virus is an important zoonotic pathogen. Influenza A viruses can be classified into a number of subtypes based on the antigenicity of the surface glycoproteins, hemagglutinin (HA) and neuraminidase. Influenza A viruses of 16 different HA subtypes have been identified in waterfowl reservoirs, and the introduction of a novel HA subtype of avian viruses into the human population has the potential to generate the next pandemic strains. In addition, while currently available and licensed influenza vaccines for humans and animals are inactivated viral components that primarily induce serum neutralizing antibodies specific to HA, it is advisable to update vaccine strains regularly, since influenza viruses rapidly change their HA antigenicity. All these problems are due to the fact that HA-specific serum antibodies are poorly cross-reactive and not fully effective against the strains with serologically distinct HA. Our long-term goal is to find mechanisms of heterosubtypic immunity against multiple influenza A viruses and to predict future antigenic changes of influenza viruses, both of which may lead to the establishment of an ultimate strategy for the control of influenza.