

Receptor binding profile of the highly pathogenic H5N1 avian influenza virus, and the possibility of the chicken and quail as the intermediate host for the viral transmission to humans.

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The highly pathogenic avian H5N1 influenza A viruses have spread to numerous countries in Asia, Europe and Africa, infecting not only large numbers of chickens and related poultry, but also an increasing number of humans, with lethal effects. In this context, infection and transmission mechanism of the virus into the avian, and other animals including humans must be elucidated in order to construct the safety for poultry food.

Human influenza A viruses bind predominantly sialic acid (Sia) α 2-6Galatose (Gal) linkages (2-6), whereas bird viruses bind Sia α 2-3Gal (2-3) predominantly. A conversion from Sia2-3Gal to Sia2-6Gal recognition is thought to be one of the changes that must occur before avian influenza viruses can replicate efficiently in humans and acquire the potential to cause a pandemic. By identifying mutations in the receptor-binding HA molecules that would enable avian H5N1 viruses to recognize human-type host cell receptors, it may be possible to predict the emergence of pandemic viruses (1). Here we show a new receptor binding profile of H5N1 viruses and some H5N1 viruses isolated from humans can bind to human type receptors (2, 3).

We have also detected the chicken and quails in the market have molecular characterization as potential intermediate host for H5N1 transmission to humans and could generate new influenza viruses with pandemic potential (4).

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- 4) Chao-Tan Guo, et al., *Glycobiology*, 17 (7), 713-724 (2007)