

## The pandemic potential of H9N2 avian influenza viruses

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Since their introduction into land-based birds in 1988, H9N2 avian influenza A viruses have caused multiple human infections and become endemic in domestic poultry in Eurasia. This particular influenza subtype has been evolving and acquiring characteristics that raise concerns that it may become more transmissible among humans. Mechanisms that allow infection and subsequent human-to-human transmission of avian influenza viruses are not well understood.

In a new study published August 13 in the journal *PLoS ONE*, Daniel Perez (of the University of Maryland) and colleagues used ferrets to characterize the mechanism of replication and transmission of recent avian H9N2 viruses. The researchers show that some currently circulating avian H9N2 viruses can transmit to naïve ferrets placed in direct contact with infected ferrets. However, aerosol transmission was not observed, a key factor in potentially pandemic strains.

More importantly, Perez and colleagues show that a single amino acid residue (Leu226) at the receptor-binding site (RBS) of the hemagglutinin (HA) surface protein plays a major role in the ability of these viruses to transmit. They also found that an avian-human H9N2 reassortant virus increases virulence, pathology and replication in ferrets. These results suggest that the establishment and prevalence of H9N2 viruses in poultry could pose a significant threat for humans.

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Ferrets: Evaluation of Pandemic Potential. PLoS ONE 3(8): e2923. doi:10.1371/journal.pone.0002923 <u>dx.plos.org/10.1371/journal.pone.0002923</u>

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