

# Bird flu vaccine protects people and pets

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A single vaccine could be used to protect chickens, cats and humans against deadly flu pandemics, according to an article published in the November issue of the *Journal of General Virology*. The vaccine protects birds and mammals against different flu strains and can even be given to birds while they are still in their eggs, allowing the mass vaccination of wild birds.

The emergence of bird flu has posed a major challenge to scientists designing vaccines as it can infect a number of different animals, including birds, pets and people. Now, researchers in the USA have discovered that a vaccine based on a bird flu virus could be used to protect several species against different influenza viruses.

"The world is experiencing a pandemic of influenza in birds caused by an H5N1 virus. Although it has been restricted to Eurasia and some countries in Africa, there is a risk that this virus may spread worldwide," said Professor Daniel Perez from the University of Maryland, USA.

"The H5N1 virus also has an unusual expanded host range: not only birds and humans have been infected but also cats, which are usually resistant to influenza. To prepare for a pandemic, it would be ideal to have a vaccine that could be used in multiple animal species."

The researchers found that the central genes or 'backbone' of the H9N2 virus that infects guinea fowl can protect birds and mice against highly pathogenic strains of influenza. They modified the virus to make it less pathogenic and then used it to vaccinate mice. Three weeks after being vaccinated, the mice were infected with the potentially lethal H1N1 virus

– the same virus that caused the 1918 Spanish flu pandemic. All the vaccinated mice survived with no signs of disease. Vaccinated mice also survived infection with the deadly H5N1 bird flu virus, again showing no signs of disease.

"Our results show that the H9N2 backbone vaccine can be used to protect mice against two different, highly pathogenic strains of influenza. We chose genes from H9N2 influenza for the vaccine because the virus can infect many different animals, including chickens, mice and pigs," said Professor Perez. "A very important limitation in the current design of flu vaccines is that they are usually species specific. Our approach involves a universal backbone that can be used in several different species, including humans."

More importantly, this live attenuated virus provided effective protection when it was administered to birds before they had hatched. By vaccinating eggs against influenza, we could protect wild bird species as well as domestic chickens against pandemic flu strains, limiting the spread of disease to humans.

"If an emerging strain of bird flu spreads among a broad range of animal species, we should expect major health, economic and ecological consequences," said Professor Perez. "It is unrealistic to consider preparing different vaccines specifically tailored to different animal species in this situation. An influenza vaccine that could protect different species would save valuable time during a pandemic."

Source: Society for General Microbiology

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