

Protection of cats against lethal influenza H5N1 challenge infection.

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Highly pathogenic avian influenza virus (HPAIV) H5N1 continues to circulate in poultry and wild birds causing considerable concern for public and veterinary health in Asia, Europe, and Africa. Transmission of HPAI H5N1 virus from poultry or wild birds to large felids and domestic cats have been reported in seven countries. The role of cats in adaptation of HPAI H5N1 virus to mammals and vaccination regimens to eventually protect cats, however, remain to be elucidated. We show that cats can be protected against lethal high dose challenge infection by an inactivated, adjuvanted heterologous H5N6 avian influenza virus vaccine. Vaccination of cats resulted in the development of neutralizing antibodies, prevented clinical signs and inhibited or greatly reduced virus excretion. In vaccinated cats viral RNA was detected in several organs incl. CNS, liver and lung on day 21 p.i. We were not able to isolate virus from these organs and therefore it appears unlikely that the animals became persistently infected and continued viral replication at low levels even though we can not fully rule out this possibility.

In non-vaccinated cats challenge infection resulted in high fever, severe systemic clinical symptoms and excretion of infectious virus. Low dose exposure resulted in asymptomatic infections, development of antibodies and minimal virus excretion. As diseased cats can transmit the infection to naïve contact animals, the epidemiological role of H5N1 infected cats in endemically infected areas as a link between wild birds, poultry and humans needs close inspection.

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