A Vero Cell–Derived Whole-Virus H5N1 Vaccine Effectively Induces Neuraminidase-Inhibiting Antibodies

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Abstract:
A Vero cell–derived whole-virus H5N1 influenza vaccine has been shown to induce neutralizing antibodies directed against the hemagglutinin (HA) protein of diverse H5N1 strains in animal studies and clinical trials. However, neuraminidase-inhibiting (NAi) antibodies can reduce viral spread and may be of particular importance in the event of an H5N1 pandemic, where immunity due to HA antibodies is likely absent in the general population. Here we demonstrate the effective induction of NAi antibody titers after H5N1 vaccination in humans. In contrast to the immune response directed toward HA, a single vaccine dose induced a strong NAi response that was not significantly boosted by a second dose, most probably due to priming by previous vaccination or infection with seasonal influenza viruses. After 2 immunizations, seroconversion rates based on antibody titers against HA and NA were similar, indicating the induction of equally strong immune responses against both proteins by this H5N1 vaccine.