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DETECTION OF SUBTYPE-SPECIFIC ANTIBODIES TO INFLUENZA VIRUS HEMAGGLUTININ USING A BACULOVIRUS VECTOR EXPRESSION SYSTEM

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Influenza A viruses distribute among a variety of animals including humans, pigs, horses and birds. Pigs are suggested to play an important role in the emergence of pandemic influenza viruses by producing reassortants after mixed infection with human and avian viruses. Since the hemagglutinin (HA) is the target antigen for protection, the HA subtype of an emerging new strain should be determined. Both the hemagglutination-inhibition test and binding assays using perified HA have, however, limitations for practical use.

To develop a method of subtype-specific sero-diagnosis for influenza virus infection, a recombinant baculovirus expressing the HA of A/duck/Czechoslovakia/56 (H4N6) was constructed. cDNA of the HA gene was cloned into the transfer vector pVL1392 and co-transfected with the linearized baculovirus DNA to insect cells. Using the resulting recombinant virus, antigenically and biologically authentic HA was produced. The yield of HA in *Trichoplusia ni* (High-5) cells was 1.5 times higher than that in *Spodoptera frugiperda* cells. The specificity of the recombinant HA produced in High-5 cells was confirmed by ELISA using chicken antisera against H1-H13 influenza viruses.

The present results indicate that HAs expressed by the baculovirus vector system are usuful for subtype-specific sero-diagnosis of influenza virus infection.