Jinpanee Na Nakorn 2008: Genetic Characterization of Swine Influenza Virus Subtype H3N2 in Thailand and Production of Recombinant M1 Protein. Master of Science (Agricultural Biotechnology), Major Field: Agricultural Biotechnology, Interdisciplinary Graduate Program. Thesis Advisor: Associate Professor Worawidh Wajjwalku, D.M.S. 83 pages.

Swine influenza virus (SIV) is an influenza A virus causius an acute respiratory disease in swine. The virus is classified as a member of the family *Orthomyxoviridae*. Up to date, three major subtypes of SIV, H1N1, H1N2 and H3N2, are circulating in swine populations throughout the world. In this study, A/SW/Thailand/KU5.1/04 (H3N2) was isolated and its eight genes were characterized and analyzed. Genotyping and phylogenetic analyses demonstrated that KU5.1 virus may be a triple reassortant comprising of the HA and NA genes from human-like influenza viruses from North America, the NS and NP genes from a SIV closely related to North American swine viruses and the M, PA, PB1 and PB2 genes related to those of European SIV. The results restate that transmission of influenza A virus among human and swine populations is common. International live-animal trading may be an important mean for SIV transmission among countries in analogy to the transmission of global Flu via aviation. In addition, we also expressed M gene of an SIV, A/SW/Thailand/KU7.2/04 (H3N2) in *E. coli*. The viral RNA was extracted from MDCK cells infected with the SIV subtype H3N2. The viral RNA was extracted and used as template for M gene by RT-PCR using specific primer. The M1 gene was cloned into the pQE30 and expressed in *E.coli*. The recombinant M1 protein was used as an antigen for the production of polyclonal antibodies in rabbit. The results indicated that the polyclonal antibodies could detect influenza A virus in infected cells by immunoperoxidase monolayer assay (IPMA). Therefore, the recombinant M1 protein and the rabbit hyperimmune serum may be used for diagnostic purposes.

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