CULTIVATION OF INFLUENZA A VIRUS IN PRIMARY CELL CULTURE OF TURKEY EMBRYONIC FIBROBLASTS

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ABSTRACT

Cell cultures in particular the clonally selected Madin Darby Canine Kidney (MDCK) cell lines are widely used to cultivate influenza viruses because of their high susceptibility to infection and their ability to produce high number of viruses. However, these cells have been in culture for decades and are well adapted to the two-dimensional culture environment, and as a result, often differ genetically, physiologically, and phenotypically from their tissue origin. The aim of this study was to extract turkey embryonic fibroblast cells directly from tissue as a new primary cell type and then infect them with H2N3 influenza A virus to determine their susceptibility to infection. This cell type will have normal cell characters and maintain many of the important markers and functions seen *in vivo*. Results showed that the level of susceptibility to infection was comparable between turkey embryonic fibroblasts and MDCK cell line based on incubating with peroxidase labelled monoclonal IgG antibody to viral nucleoprotein. In addition, progeny virions were clearly visualized on the surface of turkey embryonic fibroblasts by using transmission electron microscope. For further confirmation, progeny virions were also detected in the infected cells following treatment with a fluorescently labelled IgG antibody specific to viral H2 protein by performing immunofluorescent technique. This study confirms that turkey embryonic fibroblast cells are susceptible to infection with influenza viruses and can be considered as a primary cell model to cultivate influenza viruses and to study their effects on cells.